Original Article

Understanding of consumption behaviors in art and cultural sectors for developing successful communication plans

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ABSTRACT Art and cultural organizations are in dire need of promotion because of unstable economic conditions, a lack of systematic support from lawmakers, and a largely apathetic general public. To encourage the economic development of the sector in urban areas, organizations need to identify how people are engaged in art and cultural consumption, how those behaviors are related, and what affects their behavioral. The general public in the Great Lakes States ($N=6110$) participated in the data-driven Web survey and Multiple Item Response Theory examined the valid items, determined their associations and categorized the items as constructs of measurement. The results identifies how people behave differently and determines which items are valid for segmenting people based on the engagement levels. The persuasive messages targeting a specific group of people will boost more participation in the art and cultural sectors and play a role to enlighten people and policy makers.

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INTRODUCTION

The unstable economic and social environment highlights a critical challenge facing art and cultural organizations: promoting the entire industry to two primary target audiences, the public and policy makers. With the low awareness of the significance of the art and cultural industry, organizations suffer from dwindling engagement from the public and

depleted support from legislators. To boost the economic development of the art and cultural sectors, organizations need to collect scientific data for verifying the value of art and culture and for developing efficient messages to get across to both target audiences. Unfortunately it is difficult for art and cultural organizations to work collectively, because they are all struggling to survive and their associations cannot afford extensive research projects.

Persuasion is much easier if the message is compatible with a person's general disposition toward a subject.¹ Therefore, it is important to

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know about who consumers are. The collection of information aids in defining the scope of the problem, identifies possible communication strategies, provides information about the target audience, finds what messages work best and how they should be framed, determines the most credible messengers, and identifies the factors that can help or hinder the campaign.^{2,3} The information will be useful for both individual behavior change communications promoting behaviors that lead to an improved individual or social well-being and policy change campaigns mobilizing public and decision-maker support for policy support or change.⁴⁻⁶

This research incorporates three questions corresponding to the research objectives: (1) Are there any variables that explain patterns in art and cultural consumption behaviors?; (2) If those variables exist, are there any relationships among those variables?; and (3) Can people be categorized by relationships found among the variables? According to Grunig and Repper's⁷ situational theory of publics, this study will explore how people are engaged in art and cultural activities, reveal any stereotyped patterns and salient differences in cultural consumption, and analyze them through a valid clustering of audiences. It will contribute to identifying, understanding, interpreting and predicting audience behaviors in the art and cultural industry, and will enhance planning more efficient and target-oriented communication campaigns.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The rationale for the approach taken by this study comes from audience research, and attitude and behavior-linkage theories. Audience research represents the importance of knowing audience attitude and behavior for customizing messages to the needs of target audiences. Linkage of attitude and behavior is described by the two widely used theories: the Theory of Planned Behavior (TPB) and the Social Cognitive Theory (SCT). With a long history and popularity of the two theories, the association between attitude and behavior is regarded as the appropriate theoretical framework for developing the survey questionnaire.

Audience research

The idea of audience research has been characterized with its emphasis on message receivers. There has been a widespread and enthusiastic call for convergence in theoretical approach and research traditions.⁸⁻¹¹ This call for convergence has centered on the audience of mass communication.¹² One key notion was a re-conceptualization of the audience as an active producer of meaning.¹³ Morley¹⁴ showed that divergent groups responded in very different ways to certain media, according to where people were situated. Another finding was that people seek out media content that reinforced what they thought and to avoid content that challenged their beliefs.¹³

Existing research supported that sub-cultural formations within the audience influenced the extent to which media representations were accepted or not.^{15,16} The mass audience has been shown to be significantly heterogeneous, particularly in relation to gender, class, culture and age, but also in relation to cognitions, involvement and styles of viewing.¹² Katz and Liebes¹⁷ described exposure to and perception of media content as highly selective, governed by the attempt of the individual to avoid cognitive dissonance.¹⁸

In the field of marketing, the marketing concept called for most of the effort to be spent on discovering the wants of a target market and then creating the goods and services to satisfy them.¹⁹ This concept was the key to achieving organizational goals and consisted of determining the needs and wants of target markets.²⁰ In this context, in-depth audience research should be designed to make an inference of unobserved characteristics from the explicit attitudes and behavior.

Lifestyle research in non-profit and voluntary sector

Sargeant²¹ classified non-profit organizations into the similar category to hospitals and schools. Given the sluggish economic situation increasing competition for funds, non-profit organizations needed to provide evidence of their own attempts to attract visitors and donations.²²

They existed not just for educational purpose but also for entertainment.²³ Researchers have recognized that using psychographic variables including why people visited museums and galleries would contribute to the better understanding and management of non-profit and voluntary markets.²⁴

Todd and Lawson²² determined seven generic lifestyles with an emphasis on an understanding of non-visitors. The findings were useful for the clarification of exhibitions and media to be more appealing to a specific segment. They also found that gender and education were strongly associated with the most frequent visitors segments, but did not suggest the ideas of how marketers could use the findings for attracting the inactive population to markets.

In an effort to find a marketing strategy for making visitors more loyal, Levy and Hassay²⁵ tried to identify markets by focusing on brand (visitor) community: pre-existing and situational/temporal ones. It could be also regarded as a lifestyle study, as it categorized potential visitors by their interests and tried to utilize connections among members in each community. One suggestion based on the findings was to attract people enrolled in an art history class to Florence, Italy and religious groups to Israel.

In addition, there have been some studies regarding the motivations of visitors to galleries and museums. Slater²⁶ identified the personal and socio-cultural factors affecting visitors' decision making to explain when, why and for whom people visited galleries. It employed the theoretical framework from Iso-Ahola's Escaping-Seeking Theory²⁷ that triggered other motivation studies on tourist visits and local festival audiences.^{28,29} Learning was previously thought to be the main motivation,³⁰⁻³² yet escapism turned out to be the most important in this study.

Unlike other researchers who explored cultural and leisure consumption based on motivation, lifestyle segmentation and life-cycle, Burton, Louviere and Young³³ determined what mattered to cultural consumers in their choices. The research identified arresting decline as more urgent task than attempting to deploy scarce

resources on a costly pursuit of non-visitors. They found some factors were significant for making a more frequent visit to museums: extended summer opening hours, joint ticket, express lane, membership, re-entry in the same month and so on.

As Burton³⁴ indicated, researchers agreed that it became very important for the art and cultural industry to seek out partnerships with competitor leisure providers and understand the cultural consumption patterns and preferences of their visitors. Regardless of the focal characteristics of the studies, there appeared to be shared recognition of the strong need to understand cultural consumers better and establish programs more strategically. In this context, the current study placed emphasis on analyzing the consumption patterns of active cultural consumers.

ATTITUDE AND BEHAVIOR LINKAGE

McGuire³⁵ wrote that successful communication campaigns depended on better understanding of how someone would process and respond to a message and why someone would or would not respond to a message in desirable ways. Marketing managers have recognized the importance of consumers and have sophisticated approaches and detailed data from which to develop successful marketing strategies.³³⁻³⁷ In order to change or influence consumer behavior, marketers need to understand why people behave the way they do.³⁸

TPB was extended from the Theory of Reasoned Action (TRA).^{39,40} The model of planned behavior included the additional measures of control beliefs and perceives behavioral control and the additional causal relationships between the variables.⁴¹

Studies in tourism integrated the variable of past behavior in the TPB.^{42,43} Ajzen⁴⁴ criticized the use of past behavior, but previous empirical tests of this theory found that past behavior can enhance prediction of intention and/or future behavior.⁴⁵⁻⁴⁹ Lam and Hsu^{42,43} showed that attitude, perceived behavioral control and past behavior were found to be related to traveling

intention. Another study in tourism⁵⁰ tested TPB's ability to predict tourist intention to take a wine-based vacation using perceived control with past attitude. Maestro, Gallego and Requejo⁵¹ also confirmed the positive effect of attitude toward rural tourism on perceived quality and the moderating role of familiarity. In tourism research, researchers put value on past experience as a powerful moderator of the correspondence between attitudes and behaviors of potential tourists.

SCT suggested that self-efficacy and motivation to perform the behavior were necessary for behavior change.^{52,53} Self-efficacy appeared closely related to prior behavior, like prior experience, exposure and knowledge, which was found to be one of the most important factors affecting behavioral change in tourism. This also factored into health-related campaigns and research, such as physical activity,^{54,55} condom use,⁵⁶ anti-smoking⁵⁷ and dietary habit.^{58,59} Therefore, it would be appropriate to take self-efficacy into account for knowing what affected behavioral changes in art and cultural consumption.

As this research was an exploratory study, which was not designed to test and/or confirm the model or theory, it integrated both theories into the conceptual model for developing the questionnaires for the survey. The theoretical background provided a guideline of which items should be asked: attitude, prior experience and behavior.

METHOD

An on-line survey used random sampling of households in Michigan and other Great Lakes states including Ohio, Wisconsin, Illinois, Indiana and Minnesota, who had access to the Internet. Sampling was conducted based on 'Product Multinomial,' which stopped the survey once the response reached the total of at least 6000; 2000 from Michigan and 4000 evenly distributed from other Great Lakes states.⁶⁰ Michigan residents were oversampled for a further comparison study. It was implemented under the assumption of the homogeneity of multinomial distribution and avoided a cell count under 5 in any category of each multinomial distribution.⁶¹

The collected data contained more White-Caucasian (90 per cent), more female (63 per cent), more educated (98 per cent had at least high-school diploma) and wealthier people (44 per cent got more than \$50 000 a year) than the population as a whole. This was a general phenomenon in academic study-based volunteers and Internet users. The respondents were deemed suitable for examining variables closely related to cultural consumption.

The pool of the preliminary questions was derived from the objectives of the study: how the target audience might be segmented by the indexes of their involvement in art and culture-related activities. And the survey questions were finalized with the help of significant input from a wide range of Michigan arts and cultural organizations, such as ArtServe Michigan, Michigan Association of Community Arts Agencies, Michigan Museums Association, Michigan Festivals and Events Association and The Henry Ford Museum. The results of the pre-test were used to fashion a final instrument.

The survey included over 500 questions, but the data-driven system allowed people to skip questions based on their previous answers. Each section started with a few lead questions, like 'have you ever attended any theatrical performances within the last 12 months?' And then more detailed questions to know 'how' and 'why' entailed.

In total, 107 items were tested by the Multi-Dimensional Item Response Theory (MIRT) method. The following factors were considered in the process of selecting the items: (1) research type, an explanatory research, which aimed at finding reliable measurements to segment people; (2) variable level, dichotomous variables for the MIRT method developed from logistic formula; (3) sample size of affirmative answers, at least 10 percent of the total respondents did 'yes'; and (4) theoretical framework, TPB and SCT a big frame for selecting the items for analysis (Figure 1).

MIRT was employed for analyzing the complex behavioral patterns. Factor analysis and MIRT shared the basic concept of defining hypothetical scales that could be used to reproduce the data and of defining scales

Figure 1: Perceived path model of the variables.

that had an arbitrary origin and unit of measurement. Nonetheless, MIRT differed from most factor analysis representations in that the varying characteristics of the input variables were considered to be of importance and worthy of study.

Another method with similarities to MIRT was Item Response Theory (IRT), in which individuals' attitudes and behaviors could be scored and used to categorize them by their activeness and responsiveness, according to each measurement. Yet, people were likely to bring more than a single dimension to bear when responding to a particular question that seemed to require numerous experiences and abilities to determine their characteristics and behavior. Thus, MIRT better reflected the complexity of the interactions between respondents and measured items.⁶²

According to some parameter recovery studies,^{63–67} Normal Ogive Harmonic Analysis Robust Method (NOHARM) and TESTFACT software have been available much longer than the others and neither of them was clearly superior to the other when considering the recovery of item parameters. NOHARM did not provide estimates of the θ -vectors, which was a

clear limitation. TESTFACT provided estimates of the θ -vectors, but it was limited in the number of dimensions that could be estimated because of the way the full information aspect of the program uses computer storage. In this context, this study used both NOHARM and TESTFACT, which seemed to be the programs of choice if the data consisted of dichotomous item responses.⁶¹

ANALYSIS OF RESULTS

NOHARM

NOHARM was run in exploratory mode with the 107 items to see whether MIRT was the appropriate analytical method for the data. This program was not designed to estimate the location of individuals, which was the purpose of the study, but was able to check whether the data can possibly be analyzed by the MIRT method. Once the results indicate erratic statistical estimates, there is no remedy to make data collected fit in a model, like transformation in regression or bootstrap in structural equation modeling.

Three estimations were checked: residual, unique variance and dimensionality. First, the residual matrix of the items showed all of the

values were smaller than 0.038, which was calculated by the equation, dimensions ($=3$) $\times$ square root of 1 divided by N ($=6110$). Three dimensions were randomly picked to make the cut-off number as small as possible for a conservative decision-making. Sum of squares of residuals (lower off-diagonals) was 0.17 and root mean square of residuals was 0.0055. Second, all of the unique variances indicated plus values. Any minus values could not be changed by decreasing dimension or increasing iteration. Lastly, the dimensionality was tested by giving a closer look at the factor loadings under the randomly picked three dimensions. The results indicated that the items could be separable based on the multi-dimensions as each item showed high loadings in different dimensions. And three check points demonstrated there was no explicit problem with using the MIRT method for the analysis of this data.

TESTFACT

The analysis of NOHARM found it problematic to include all of the 107 items in the model, as

the data had quite a few items with almost no information in them. To drop the information items, which were not useful for measuring audiences' behavior, basic items statistics were estimated by checking how each item contributed to the total scores through a measure of item discriminating power. How much people could be separated by each item was calculated based on the relationships between difficulty (DIFF) and facility (FACILITY), which meant the proportion that got the item 'yes.' DIFF and FACILITY were generically negative-correlated. Intuitively the more difficulty in saying yes to the item, the smaller the proportion of people saying yes to the item.

TESTFACT provided two classical indices, the point biserial (PBIS) and the biserial correlations (BIS). Both were used for the calculation of correlation between the score (1 or 0) on the item and the score on the survey as a whole. The higher the correlation between these two scores, the more effective the item was in separating the scores of the respondents. The BIS had an

Table 1: Item statistics of 30 items

No.	Category	Item No.	N	MEAN	SD	RMEAN	FACILITY	DIFF	BIS
1	A	1	6110	9.33	5.61	13.53	0.374	14.29	0.74
2	A	2	6110	9.33	5.61	14.59	0.141	17.3	0.591
3	A	3	6110	9.33	5.61	12.8	0.442	13.58	0.693
4	A	5	6099	9.33	5.61	14.16	0.297	15.13	0.738
5	A	10	6084	9.31	5.6	14.47	0.102	18.07	0.528
6	A	11	6110	9.33	5.61	13.38	0.323	14.83	0.65
7	P	13	6110	9.33	5.61	13.71	0.131	17.48	0.482
8	P	23	6110	9.33	5.61	14.01	0.24	15.83	0.643
9	P	29	6110	9.33	5.61	14.47	0.163	16.93	0.607
10	P	30	6110	9.33	5.61	14.8	0.141	17.3	0.615
11	P	33	6110	9.33	5.61	15.53	0.11	17.91	0.647
12	P	34	6110	9.33	5.61	14.36	0.12	17.7	0.538
13	B	49	6110	9.33	5.61	13.88	0.281	15.32	0.676
14	B	50	6110	9.33	5.61	10.63	0.753	10.26	0.555
15	T	74	6110	9.33	5.61	11.51	0.623	11.75	0.637
16	T	75	6110	9.33	5.61	15.91	0.133	17.45	0.726
17	T	76	6110	9.33	5.61	14.78	0.247	15.73	0.761
18	T	77	6110	9.33	5.61	14.36	0.247	15.73	0.702
19	T	78	6110	9.33	5.61	13.75	0.322	14.85	0.707
20	T	79	6110	9.33	5.61	14.1	0.225	16.02	0.637
21	T	80	6110	9.33	5.61	15.07	0.145	17.24	0.651
22	L	81	6110	9.33	5.61	10.6	0.687	11.05	0.439
23	L	82	6110	9.33	5.61	11.11	0.611	11.87	0.504
24	D	84	6110	9.33	5.61	15.13	0.146	17.22	0.659
25	E	86	6110	9.33	5.61	11.05	0.69	11.02	0.6
26	E	87	6110	9.33	5.61	11.82	0.577	12.23	0.654
27	E	88	6110	9.33	5.61	14.09	0.19	16.51	0.595
28	E	89	6110	9.33	5.61	13.69	0.207	16.27	0.562
29	E	90	6110	9.33	5.61	12.1	0.46	13.4	0.571
30	E	92	6110	9.33	5.61	13.38	0.205	16.3	0.521

Table 2: χ^2 and degrees of freedom

	1 dimension	2 dimensions	3 dimensions	4 dimensions	5 dimensions	6 dimensions
χ^2	64641.95	55693.5	52208.51	51205.99	45846.91	45836.56
DF	6049	6020	5992	5965	5939	5914
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

DF: Degrees of freedom = (the number of total responses – 1) – [(dimensions + 1) × the number of total items – dimensions (dimensions – 1)/2].

advantage to the PBIS, as it was a measure of association between response on the item and response on the survey. The formula for calculating the BIS was $(RMEAN - MEAN)/SD \times (FACILITY/h(FACILITY))$. The BIS was less influenced by item difficulty (DIFF) and tended to be invariant from one testing situation to another.

Based on the discriminating power, the items with less than 0.1 (= 10 per cent correct answers) of facility and less than 0.5 of BIS were dropped for convergence. Only 30 items, which met the two conditions, were summarized in Table 1 with basic item statistics. Items were labeled with the subjective classification of survey items by content: 'A', attendance; 'P', participation; 'B', buying, that is, purchase; 'T', tourism, 'L', library; 'D', donation; and 'E', education. This grouping was based on the similarity of the way in which the survey developers intended and would be used later to check whether it is the same as the way in which survey participants responded to the items.

The next step was to determine the number of dimensions needed to accurately model the relationships of the item scores. Because of the sample-specific nature of the MIRT methods, it was useful to determine how much the results generalized to other samples of people or other forms of a survey constructed to the same specification. This was particularly important when building a general form to measure audiences' activeness, or to find audiences' behavioral patterns in a certain area.

There was no correct answer to the right number of dimensions problem.⁶¹ Schilling and Bock⁶⁸ suggested using a χ^2 test of the difference in fit of models with m and $m + 1$ dimensions to determine the number of coordinate axes needed to model the relationships in the item-response

matrix. Tate⁶⁹ found that these procedures were one of the evaluation methods of research on model fit. The statistical results to test the null hypothesis that the additional dimension gave no improvement in fit were provided in Table 2.

The insignificant difference meant that adding a dimension did not improve the model fit and suggested that the smaller of the two compared dimensions was appropriate for analysis. From the output in Table 2, the χ^2 for a 1-factor versus a 2-factor model was $64641.95 - 55693.5 = 8748.45$ with $6049 - 6020 = 29$ degrees of freedom. As this was highly significant, the null hypothesis that the 1-factor model was better than 2-factor model was rejected. With the repeated χ^2 -difference test, the analysis of the real data suggested that four or five dimensions would be needed to model the relationships present in the item score matrix. In the five-dimension model; however, item parameter estimates for the data did not converge even in 700 cycles. Therefore, four-dimensional space appeared to be the best for analyzing the current data.

The output of the four-dimensional model was summarized in Table 3. The table contained the four a -parameters (m per item) for each item and the d -parameters (1 per item) as well as the multi-dimensional discrimination estimate A , the multi-dimensional difficulty estimate B and the angles of the direction of best measurement, α , for each item with the coordinate axes for the space.⁷⁰

To confirm dimensional structure, a cluster analysis of a measure of the similarity of the constructs was performed. A clustering of items was based on two decisions: the selection of a measure of similarity between items and the algorithm for forming clusters. For the similarity measure, one option was the angle between each

Table 3: Item parameters and descriptive statistics in the four dimensions

No.	Item No.	d	a_1	a_2	a_3	a_4	A	B	α_1	α_2	α_3	α_4
1	1	-0.991	1.028	0.132	0.741	0.723	1.46	0.68	46	85	59	61
2	2	-1.460	0.439	0.131	0.301	0.402	0.68	2.15	49	79	64	54
3	3	-3.007	4.930	-0.106	1.817	1.817	5.56	0.54	27	89	71	71
4	5	-1.382	1.021	0.086	0.751	0.687	1.44	0.96	45	87	59	61
5	10	-2.082	0.849	-0.043	0.322	0.219	0.94	2.23	24	87	70	77
6	11	-4.013	4.324	-0.197	1.532	1.390	4.80	0.84	26	88	71	73
7	13	-1.196	0.259	0.228	0.093	0.133	0.38	3.14	47	53	76	70
8	23	-4.066	-2.029	11.829	1.041	4.832	12.98	0.31	81	24	85	68
9	29	-1.889	-0.474	2.240	0.295	0.948	2.50	0.76	80	26	83	68
10	30	-2.119	-0.443	2.175	0.292	0.963	2.44	0.87	80	27	83	66
11	33	-2.162	-0.124	1.712	0.250	0.838	1.93	1.12	87	27	83	64
12	34	-1.244	0.120	0.326	0.171	0.214	0.44	2.81	74	42	67	61
13	49	-0.785	0.286	0.353	0.462	0.284	0.71	1.11	66	60	49	66
14	50	0.810	0.270	0.325	0.296	0.130	0.53	-1.52	59	52	56	76
15	74	-0.022	2.992	1.358	44.288	-6.546	44.89	0.00	86	88	8	81
16	75	-2.039	0.442	0.133	0.943	0.151	1.06	1.92	65	83	27	82
17	76	-2.165	0.211	0.320	1.902	-0.045	1.94	1.12	84	81	11	89
18	77	-1.561	0.190	0.220	1.247	-0.086	1.28	1.22	81	80	14	86
19	78	-1.618	0.133	0.276	1.818	-0.218	1.86	0.87	86	81	11	83
20	79	-1.679	0.068	0.102	1.250	-0.068	1.26	1.33	87	85	8	87
21	80	-1.841	0.156	0.133	0.958	0.014	0.98	1.88	81	82	11	89
22	81	0.614	0.094	0.230	0.185	0.426	0.53	-1.17	80	64	70	36
23	82	0.361	0.134	0.256	0.263	0.447	0.59	-0.61	77	65	64	41
24	84	-1.440	0.318	0.222	0.503	0.156	0.65	2.20	61	70	40	76
25	86	0.720	0.453	0.524	0.208	0.012	0.72	-1.00	51	44	73	89
26	87	11.144	11.046	18.667	-2.605	-8.295	23.37	-0.48	62	37	84	70
27	88	-0.989	0.445	0.907	-0.034	-0.199	1.03	0.96	65	28	88	79
28	89	-0.955	0.542	0.656	-0.027	-0.223	0.88	1.09	52	41	88	76
29	90	0.353	1.734	3.070	-0.361	-1.801	3.98	-0.09	64	40	85	63
30	92	-0.875	0.385	0.840	-0.103	-0.309	0.98	0.89	67	31	84	71

pair of item vectors.⁷¹ The clustering method that worked well when the angle between items was the similarity measure was Ward's method, which recovered the underlying structure of the data more accurately than alternative methods.⁷² The results supported the MIRT analysis that four dimensions were needed to determine the location of difference in persons.

FINDINGS AND DISCUSSION

The statistical output supports and explains the research questions. The results are categorized by the dimension, in which the items are closely correlated and define the unique characteristics about how different people are in their art and cultural consumption. (Table 4)

Dimension 1: Activities with intangible output and temporal enjoyment

Dimension 1 includes attendance at various performances and an area of participation in performing arts. Performing arts cover: (1) playing

a musical instrument; (2) playing in a band or orchestra; (3) solo singing; (4) group or choir singing; (5) dance; (6) acting; (7) comedy, magic and mime; (8) storytelling and readings; and (9) other performances. And the following seven items are sensitive to the difference in persons on Dimension 1: (1) attendance at theatrical performance; (2) attendance at theatrical performance in a different state or country; (3) purchase of tickets of theatrical performance; (4) attendance at dance performance; (5) attendance at music performance in a different state or country; (6) purchase of tickets of music performance; and (7) participation in any performing arts.

Overall, Dimension 1 accounts for how people behave differently in temporal activities, which do not bring tangible output. Playing a musical instrument, singing and dancing, and attendance at various performances are one-time engagements, which do not require long-term devotion or commitment to implementation. All of the activities in this dimension appear to be

Table 4: Items to define the three dimensions

<i>Dimension</i>	<i>Items</i>
Dimension 1 Activities with intangible output and temporal enjoyment	<ul style="list-style-type: none"> • Attendance at theatrical performance • Attendance at music concert • Attendance at dance performance • Participation in performing arts
Dimension 2 Activities with tangible output and long-term commitment	<ul style="list-style-type: none"> • Art education in childhood • Early exposure to art • Taking art-related classes
Dimension 3 Socio-psychic investment activities	<ul style="list-style-type: none"> • Visit to historical sites, museum, festival, zoo/garden/aquarium and library and attendance at theatrical performances on trip • Purchase of visual arts • Donation

temporary and relatively impromptu. People enjoy and appreciate the activities at that moment, and are satisfied with mental and emotional fulfillment.

Dimension 2: Activities with tangible output and long-term commitment

Dimension 2 contains 12 items as follows: (1) participation in any visual arts; (2) engagement in photography; (3) crafts; (4) writing; (5) participation in any art-related or cultural disciplines; (6) purchase of any books, videotapes, DVDs, CDs, records, tapes or music downloads; (7) exposure to art in childhood; (8) having art education in childhood; (9) taking any visual arts classes; (10) any performing arts classes; (11) any music classes (vocal/instruments); and (12) any crafts classes in childhood. Visual arts include drawing, painting, printmaking, sculpture, textile arts, photography, crafts, folk or traditional art, media arts and writing.

The item with the highest discriminating power in this dimension is whether people had ever taken any art-related classes in their childhood. This means that people who took art-related classes in their early period of life demonstrate different consumption behaviors in the art and culture industry. Visual arts, performing arts, music and crafts classes are identified as especially useful for segmenting people based on their engagement level. People who took those classes within the last 12 months have experience with art education in their childhood. And they can be sorted as highly involved consumers in Dimension 2.

The results show that the three areas, photography, crafts and writing can be used as a powerful measurement of art and cultural consumption in Dimension 2. Three items indicate the common characteristics that bring out tangible output of pouring time, effort and finance. People can see, touch and keep photos, drawings and books/writings as the results of their endeavors. These activities can be also labeled as tactile art activities. In addition, compared with attending various performances, taking art and cultural classes included in this dimension requires longer commitment. The precondition to register themselves to those classes will be self-motivation and relatively long-term dedication. Self-motivation cumulated through prior experience is more likely to be an important factor in making a final decision of participation.

Dimension 3: Socio-psychic investment activities

Dimension 3 includes the items about cultural tourism, purchase of visual arts, and donation. People are asked about specific activities made on their pleasure trips. The six activities related to art and cultural consumption are: (1) attendance at a theatrical performance; (2) visit to a museum: art, history, science or special topics museum; (3) attendance at a festival: art, crafts, music, food, wine, ethnic, antiques or car show; (4) visit to a historical site, attraction or community: heritage parks, lighthouses, monuments, landmarks, archaeological sites, cultural centers or historical communities; (5) visit to a zoo, aquarium, botanical

garden or arboretum; and (6) visit to a library: national, state, local community or university/college.

People who go to libraries and attend theatrical performances when traveling are identified as heavy cultural consumers. Most people visit cultural touristic attractions in the following order: historical sites, museums, festivals, zoos, libraries and theatrical performances. Thus, a visit to a library and attendance at a theatrical performance can be a measurement to identify the high level of engagement in art and cultural areas. Donation is included in this Dimension. It can be interpreted that people who are interested in traveling to cultural tourist attractions are more likely to donate money to art and cultural affiliations. It might be explained by the fact that travelers have a higher possibility to be more affluent, more educated and more cause-aware than people who do not travel.

As a result, Dimension 3 explains socio-psychic investment in art and culture. Traveling psychologically enriches their lives. Interaction with local people and extension of their knowledge related to history and art in the regions that they travel will be a great asset for their lives. People feel a considerable amount of self-esteem and self-satisfaction when purchasing visual arts. Donation makes people think of themselves as responsible and contributing member of a society. In short, the fact that people are involved in any of the activities in Dimension 3 reflects that they are socially, economically, sentimentally and psychologically affluent and they are ready to invest their resources in art and cultural behaviors.

One final cluster: Screening questions

One more group is identified separately from the three dimensions. It explains library usage and contains only two items: having a library card and visiting a library. Most people seem to have at least one library card and visit libraries. It indicates the highest facility, which means the highest per cent of affirmative answers and the highest discriminating power. The basic level of engagement may depend on the answers to these two questions. People who had never visited a

library and do not have any library card are unlikely to be considered as active consumers in art and cultural sectors. At the beginning of developing a communication campaign, these groups will be hard to be a focal segment for persuasion.

IMPLICATIONS AND CONCLUSION

In England, there have been similar studies and programs designed to identify the engagement in the art and cultural activities, determine the barriers and increase the number of people participating.^{73–75} These projects shared the significance of knowing audiences for better performance in marketing and communication plans with the current research, whereas they focused more on detecting and addressing physical, attitudinal, financial, personal and social barriers to attendance. Unlike the programs, this study analyzed the consumption patterns through the explicit behaviors by using more sophisticated and complex statistical method than the descriptive summaries. Good research and measurement will provide better information, which leads to better decisions. Well-developed measurements will help people predict the audiences' willingness and future behavioral patterns in decision making of art and cultural consumption.

The results suggest ideas for how communicators can identify the right audience and right strategic communication methods including messages, places and channels. In this section, implication is developed based in two areas: (1) finding who will be the best target population by using the result in each dimension and (2) developing communication programs by combining dimensions and clustering a unique target segment. According to Grunig and Hunt,⁷⁶ communication strategies should be designed to attract the attention of two kinds of audiences: those who passively process information (passive audiences) and those who actively seek information (active audiences). Inactive audiences are not considered for implications because of the difficulties to be reached and persuaded by communication campaigns in a short period of time.

Table 5: Eight groups based on the three dimensions

	<i>Group 1</i>	<i>Group 2</i>	<i>Group 3</i>	<i>Group 4</i>	<i>Group 5</i>	<i>Group 6</i>	<i>Group 7</i>	<i>Group 8</i>
Dimension 1	H	H	H	H	L	L	L	L
Dimension 2	H	H	L	L	H	H	L	L
Dimension 3	H	L	H	L	H	L	H	L

H: high involvement; L: low involvement.

Dimension 1 suggests that people who enjoy attending theatrical performances and music concerts that are held in different states are the most active audience. They will actively seek more information, so marketers sort them and send them more diverse and detailed information on performances. As suggested by the research conducted in the UK,⁷⁴ it will be pivotal to find the right programming for a specific audience for increasing the effect of marketing. As people provide their personal information, at least their address, when purchasing tickets online or offline, marketers can identify them. For more passive audiences, like people who attend various performances, communicators can make them aware of the messages through brief encounters, such as advertisement on the way to any performances.

According to Dimension 2, children are the best target audiences for the development of future engagement in the sectors. The finding that early education of art-related disciplines leads to more active participation in those areas when people are grown up can be appealing to the policy makers who need to have convincing evidence and rationale of why educational campaign is ultimately important for vitalizing the art and cultural industry. The value of the art and cultural sector has been also reconfirmed and highlighted in the UK projects.^{74,75}

Dimension 3 indicates that people who attend theatrical performances on their trips are sufficiently different to be segmented as an active audience. To attend performances that are held in different states, people need to stay in those areas over-night and sometimes plan a trip that is longer than 2 days and 1 night to the performance-hosting cities. Dimension 3 even demonstrates that this segment is more likely to donate their money to art and cultural organizations. Performing arts facilities or art

and cultural touristic attractions, such as museums and historical sites, will be best place to implement fund-raising campaigns.

Further, communicators can develop strategic communication plans by combining dimensions (Table 5). A message is more persuasive if environmental factors support the message or if the message is received within the context of other messages and situations, with which people are familiar. These factors are called timing and context.¹

Group 1, who demonstrates active engagement in the three dimensions, can be reached and enhanced through a variety of communication campaigns targeting the other six groups with the exception of Group 8, who is an inactive audience. As Burton, Louviere and Young³³ excluded non-visitors from the list of target audiences, Group 8 can be considered as long-term target audiences for enlightening and educational communication campaigns, but will be hard to be regarded as target audiences for marketing and strategic communication plans which expect comparatively immediate results. If people are not engaged in any of the activities asked in the survey, there seems to be no way to get the messages across to them by using the same marketing strategies as suggested in this study. The art-related organizations will need more investment-intensive methods to make inactive consumers in the art and cultural industry exposed to the messages and activities. Given the financial situation in the industry, the strategy for inactive audience is not a priority in the current research.

People in Group 2 indicate low involvement in the items under Dimension 3. They take part in art and cultural activities with tangible and intangible outcomes, even though they do not travel much. To appeal to this segment,

communicators can develop conjoint marketing strategies with tourism agencies or tourism bureaus of cities. One suggestion is to select people among attendees at a specific performance and offer them free coupons, which provide accommodation and transportation. Many studies agree that partnerships are a real strength of the program.^{34,72,73} Organizations can find that developing work through partnerships or as part of a consortium provides invaluable support.⁷³ They will be able to exchange the expertise, experience and audiences, and establish more efficient and appealing communication programs for their potential audience.

As Dimension 1 is closely related to Dimension 3, people will be attracted to messages about traveling to different states to attend performances and will be triggered to consider trips to other cities. If a theatrical performance is associated with a specific city or state, communicators of a specific city or even country's tourism bureau can invite an organizer or producer of a performance to a joint promotion or vice-versa. It will be also similar to Levy and Hassay's²⁵ idea of creating a program of going to Florence, Italy for people taking an art history class. In addition, performing arts producers and organizers can advertise their performances on pamphlets for each other, when they host performances in different cities or areas. These strategies can be applied for Groups 4 and 7.

In Group 2, another target population is highly involved people in Dimension 2. They participate actively in photography, writing and crafts. Thus, communicators can develop programs such as a trip to the setting of a specific novel with the writer and a road trip to take scenic photos with a famous photographer. Another idea would be to host a workshop or small conference to share ideas and exhibit crafts in a place related to crafts. This is analogous to visitor communities suggested by Levy and Hassay.²⁵ People can enhance their interests by meeting the like-minded people and sharing their experiences.

For Group 5, the results suggest that the better place and more proper target public for marketing theatrical, music and dance performances can be art and cultural classes,

and registrants to those classes, especially performing arts classes, such as acting, playing musical instrument, singing and dancing. Therefore, it might be effective to create art classes at performing arts centers to make the audience more loyal and accessible to the products and services they provide. For example, as people taking a dance class are regarded as having a higher level of involvement in dancing, compared with others who never participate in a dance class, they will more positively respond to the posters of dance performances, like Tango, Flamingo or Irish dance. Their familiarity with and knowledge of dance performances will make them more attracted to general marketing messages and tactics.

In addition, performing arts centers or organizers of performances can create more target-specific marketing ideas, such as a group viewing discount for class participants, and use the associations of private and public art class teachers to disseminate the information on performances related to their class. Performing arts facilities can provide places to exhibit their masterpieces or perform their skills for people who are engaged in performing arts and take visual arts classes at a low price or for free in case that small space is needed. The same strategy will also work for Group 6.

For Group 3, art and cultural classes can also be marketed to attendants at various performances. After attending orchestra concerts, people appear to think more about taking musical instrument classes. If people are attracted to the skillful gesture and movement of the dancers, their desire to learn dances will be heightened. Even if not directly related to what they saw, people will have more interest in learning something related to play, music, and dance. It is the same mechanism as marketers sell CDs, T-shirts and other small products after a performance. People want to stay in good memories and feelings they have during the duration of a performance. Marketers can provide discounts on class fees for people who bring specific performance tickets they purchase. This will be a very efficient communication plan at the point of purchase.

Based on dynamics between Dimensions 1 and 2, Dimensions 1 and 3 and Dimensions 2 and 3, organizations can adopt one of the suggested communication strategies or a combined strategy. No matter what kind of strategic plans organizations and communicators develop, it will be more efficient and successful when they know who the primary target audience is, who will pay more attention to their messages and how and where they should deliver their messages.

The results found in this study can be used by any parties involved in art and cultural sectors: performing art organizations, non-profit art associations, festival organizers, schools, educators, galleries, museums, libraries, historic preservation agents and policy makers/government. By combining the simple results with other category variables, such as gender, age, education, income and residential area, they can enhance the value and application of the findings. The implication of the results will vary depending on who the communicators are, what their focal interests are and who the target audiences are.

Attention to creative activities as a source of urban revitalization and economic diversification has increased as traditional manufacturing cities in the north-eastern US face industrial restructuring.⁷⁷ As mentioned above, the main locomotive of art education in childhood and donation can be utilized for incubating more engaged cultural consumers. Appealing and persuasive messages targeting a specific group of people will boost more participation in this cultural sector and play a role to enlighten people and policy makers. How to describe and interpret the content of behaviors will further provide communications with a chance to know what changes have been made in people in the course of time.

As a result, characteristics associated with the potential audience, such as the audiences' attitude towards and experience with specific activities can be used in the design and execution of the communication campaigns. And when decision makers need a database to help them choose the best of several available alternatives or to rationalize their final decisions, these results can be properly utilized.

REFERENCES

- 1 Wilcox, D.L. and Cameron, G.T. (2009) *Public Relations: Strategies and Tactics*, 9th edn. Boston, MA: Pearson Education, Inc.
- 2 Balch, G. and Sutton, S.M. (1997) Keep me posted: A plea for practical evaluation. In: M.E. Goldberg, M. Fishbein and S.E. Middlestadt (eds.) *Social Marketing: Theoretical and Practical Perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 61–74.
- 3 Valente, T. (2001) Evaluating communications campaigns. In: R.E.R.C.K. Atkin (ed.) *Public Communication Campaigns*. Thousand Oaks, CA: Sage, pp. 105–124.
- 4 Coffman, J. (2002) *Public Communication Campaign Evaluation: An Environmental Scan of Challenges, Criticisms, Practice, and Opportunities*. Cambridge, MA: Harvard Family Research Project.
- 5 Dorfman, L., Ervace, J. and Woodruff, K. (2002) *Voices for Change: A Taxonomy of Public Communications Campaigns and their Evaluation Challenges*. Berkeley, CA: Berkeley Media Studies Group.
- 6 Weiss, J.A. and Tschirhart, M. (1994) Public information campaigns as policy instruments. *Journal of Policy Analysis and Management* 13: 82–119.
- 7 Grunig, J.E. and Reppe, F.C. (1992) Strategic management, publics, and issues. In: Grunig (ed.) *Excellence in Public Relations and Communication Management: Contributions to Effective Organizations*. Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 117–157.
- 8 Radway, J. (1984) *Reading the Romance: Women, Patriarchy and Popular Literature*. Chapel Hill, NC: University of North Carolina Press.
- 9 Seiter, E., Borchers, H., Kreutzner, G. and Warth, E.-M. (1989) *Remote Control: Television Audiences and Cultural Power*. London: Routledge.
- 10 van Dijk, T.A. (1991) *Racism and the Press*. London: Routledge.
- 11 Silverston, R. and Hirsch, E. (1992) *Consuming Technologies*. London: Routledge.
- 12 Livingstone, S. (1993) The rise and fall of audience research: An old story with a new ending. *Journal of Communication* 43(4): 5–12.
- 13 Curran, J. (1990) The new revisionism in mass communication research: A reappraisal. *European Journal of Communication* 5: 135–164.
- 14 Morley, D. (1980) *The Nationwide Audience*. London: British Film Institute.
- 15 Brigham, J. and Giesbrecht, L. (1976) All in the family: Racial attitudes. *Journal of Communication* 26(3): 69–74.
- 16 Vidmar, N. and Milton, R. (1974) Archie Bunker's bigotry: A study in selective perception and exposure. *Journal of Communication* 24(2): 240–250.
- 17 Katz, E. and Liebes, T. (1985) The export of meaning: Cross cultural readings of American TV. Paper presented at the Manchester Symposium on Broadcasting: 5–6 March, Manchester, UK.
- 18 Schroder, K.C. (1987) Convergence of antagonistic traditions? The case of audience research. *European Journal of Communication* 2: 7–31.
- 19 Kotler, P. and Zaltman, G. (1971) Social marketing: An approach to planned social change. *Journal of Marketing* 35(July): 3–12.
- 20 Kotler, P. (1980) *Principles of Marketing*. Englewood Cliffs, NJ: Prentice-Hall.

- 21 Sargeant, A. (1999) *Marketing Management for Nonprofit Organisations*. Oxford, UK: Oxford University Press.
- 22 Todd, S. and Lawson, R. (2001) Lifestyle segmentation and museum/gallery visiting behaviour. *International Journal of Nonprofit & Voluntary Sector Marketing* 6(3): 269–277.
- 23 Harrison, J. (1997) Museums and touristic expectations. *Annals of Tourism Research* 24(1): 23–40.
- 24 Thyne, M. (2001) The importance of values research for nonprofit organisations: The motivation-based values of museum visitors. *International Journal of Nonprofit and Voluntary Sector Marketing* 6(2): 116–130.
- 25 Levy, S.E. and Hassay, D.N. (2005) Visitor communities. *Journal of Hospitality & Leisure Marketing* 12(4): 57–72.
- 26 Slater, A. (2007) Escaping to the Gallery: Understanding the Motivations of Visitors to Galleries. *International Journal of Nonprofit & Voluntary Sector Marketing* 12(2): 149–162.
- 27 Iso-Ahola, S.E. (1980) *The Social Psychology of Leisure & Recreation*. Wm. C. Brown: Dubuque, IA.
- 28 Mannell, R.C. and Iso-Ahola, S.E. (1987) Psychological nature of leisure & tourism experience. *Annals of Tourism Research* 14: 314–331.
- 29 Crompton, J.L. and McKay, S.L. (1997) Motives of visitors attending festival events. *Annals of Tourism Research* 24(2): 425–439.
- 30 Hood, M.G. (1983) Staying away: Why people choose not to visit museums. *Museum News*, 61(4): 50–57.
- 31 Falk, J. and Dierking, L. (1992) *The Museum Experience*. Washington, DC: Whalesback.
- 32 Jansen-Verbeke, M. and van Redom, J. (1996) Scanning museum visitors – Urban tourism marketing. *Annals of Tourism Research* 23(2): 364–375.
- 33 Burton, C., Louviere, J. and Young, L. (2009) Retaining the visitor, enhancing the experience: Identifying attributes of choice in repeat museum visitation. *International Journal of Nonprofit & Voluntary Sector Marketing* 14(1): 21–34.
- 34 Burton, C. (2003) Scoping the challenge: Entrepreneurial arts management in times of uncertainty. *Journal of Arts Management, Law and Society* 33(3): 185–195.
- 35 McGuire, W.J. (1989) A perspectivist approach to the strategic planning of programmatic scientific research. In: B. Gholsan, A. Houts, R. Neimeyer and W.R. Shadish (eds.) *The Psychology of Science: Contributions to Metascience*. New York, NY: Cambridge University Press, pp. 214–245.
- 36 Bennett, P.D. (1995) *Dictionary of Marketing Terms*, 2nd edn. Chicago, IL: American Marketing Association.
- 37 Peter, J.P. and Olson, J.C. (2005) *Consumer Behavior and Marketing Strategy*, 7th edn. New York, NY: McGraw-Hill/Irwin.
- 38 Fishbein, M., Triandis, H.C., Kanfer, F.H., Becker, M., Middlestadt, S.E. and Eichler, A. (2001) Factors influencing behavior and behavior change. In: T.R.A. Baum and J. Singer (eds.) *Handbook of Health Psychology*. Mahwah, NJ: Lawrence Erlbaum Association.
- 39 Ajzen, I. and Fishbein, M. (1980) *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- 40 Fishbein, M. and Ajzen, I. (1975) *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Boston, MA: Addison-Wesley.
- 41 McElreath, M. and Blamphin, J. (1994) Partial answers to priority research questions—and gaps—found in PRSA's body of knowledge. *Journal of Public Relations Research* 6: 69–104.
- 42 Lam, T. and Hsu, C.H.C. (2004) Theory of planned behavior: Potential travelers from China. *Journal of Hospitality and Tourism Research* 28: 463–482.
- 43 Lam, T. and Hsu, C.H.C. (2006) Predicting behavioral intention of choosing a travel destination. *Tourism Management* 27: 589–599.
- 44 Ajzen, I. (1991) The theory of planned behavior. *Organizational Behavior and Human Decision Process* 50(2): 179–211.
- 45 Triandis, H.C. (1977) *Interpersonal Behavior*. Monterey, CA: Brooks/Cole.
- 46 Berkowitz, L. (1982) *Advances in Experimental Social Psychology*. New York, NY: Academic Press.
- 47 Doney, P.M. and Cannon, J.P. (1997) An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing* 61(2): 35–51.
- 48 Queller, J.A. and Wood, W. (1998) Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin* 124(1): 54–74.
- 49 Abraham, C. and Sheeran, P. (2003) Implications of goal theories for the theories of reasoned action and planned behavior. *Journal Current Psychology* 22(3): 264–280.
- 50 Sparks, B. (2007) Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions. *Tourism Management* 28: 1180–1192.
- 51 Maestro, R.M.H., Gallego, P.A.M. and Requejo, L.S. (2007) The moderating role of familiarity in rural tourism in Spain. *Tourism Management* 28(3): 951–964.
- 52 Bandura, A. (1997) *Self-Efficacy: The Exercise of Control*. New York, NY: Freeman.
- 53 Parraga, I.M. (1990) Determinants of food consumption. *Journal of American Dietetic Association* 90: 661–663.
- 54 Dziewaltowski, D.A., Noble, J.M. and Shaw, J.M. (1990) Physical activity participation: Social cognitive theory versus the theories of reasoned action and planned behavior. *Journal of Sport and Exercise Psychology* 12: 388–405.
- 55 Terry, D.J. and O'Leary, J.E. (1995) The theory of planned behavior: The effects of perceived behavioral control and self-efficacy. *British Journal of Social Psychology* 34: 199–220.
- 56 White, K.M., Terry, D.J. and Hogg, M.A. (1994) Safer sex behavior: The role of attitudes, norms, and control factors. *Journal of Applied Social Psychology* 24: 2164–2192.
- 57 de Vries, H., Dijkstra, M. and Kuhlman, P. (1988) Self-efficacy: The third factor besides attitude and subjective norm as a predictor of behavioural intentions. *Health Education Research* 3(3): 273–282.
- 58 Armitage, C.J. and Conner, M. (1999) Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low-fat diet using the theory of planned behavior. *Journal of Applied Social Psychology* 29(1): 72–90.
- 59 Povey, R., Conner, M., Sparks, P., James, R. and Shepherd, R. (2000) Application of the theory of planned behaviour to two dietary behaviours: Roles of perceived control and self-efficacy. *British Journal of Health Psychology* 5(2): 121–139.
- 60 For more information on sampling process, please visit <http://www.surveysampling.com>.
- 61 Rice, J.A. (2007) *Mathematical Statistics and Data Analysis*. Belmont, CA: Thomson Higher Education.
- 62 Reckase, M.D. (2009) *Multidimensional Item Response Theory*. New York, NY: Springer.
- 63 Béguin, A.A. and Glas, C.A.W. (2001) MCMC estimation and some model-fit analysis of multidimensional IRT models. *Psychometrika* 66: 541–561.
- 64 Gosz, J.K. and Walker, C.M. (2002) An empirical comparison of multidimensional item response theory data using TESTFACT and NOHARM. Paper presented at the annual

- meeting of the National Council for Measurement in Education; 2–4 April, New Orleans.
- 65 Maydeu-Olivares, A. (2001) Multidimensional item response theory modeling of binary data: Large sample properties of NOHARM estimates. *Journal of Educational and Behavioral Statistics* 26: 51–71.
- 66 Miller, T.R. (1991) Empirical Estimation of Standard Errors of Compensatory MIRT Model Parameters Obtained from the NOHARM Estimation Program. (Research Report ONR 91-2). Iowa City, IA: American College Testing Program.
- 67 Stone, C.A. and Yeh, C.-C. (2006) Assessing the dimensionality and factor structure of multiple-choice exams: An empirical comparison of methods using the Multistate Bar Examination. *Educational and Psychological Measurement* 66: 193–214.
- 68 Schilling, S. and Bock, R.D. (2005) High-dimensional maximum marginal likelihood item factor analysis by adaptive quadrature. *Psychometrika* 70: 533–555.
- 69 Tate, R. (2003) A comparison of selected empirical methods for assessing the structure of response to test items. *Applied Psychological Measurement* 27(3): 159–203.
- 70 Bock, R.D., Gibbons, R. and Muraki, E. (1988) Full information item factor analysis. *Applied Psychological Measurement* 12: 261–280.
- 71 Miller, T.R. and Hirsch, T.M. (1992) Cluster analysis of angular data in applications of multidimensional item-response theory. *Applied Measurement in Education* 5(3): 193–211.
- 72 Child, D. (2006) *The Essentials of Factor Analysis*, 3rd edn. New York, NY: Continuum.
- 73 Arts Council. (2004) New audiences for the arts: The New Audiences Programme 1998–2003. June, <http://www.takingpartinthearts.com/content.php?content=1021>, accessed 29 July 2010.
- 74 DCMS. (2009) Taking part: The national survey of culture, leisure and sport. 13 August, http://www.culture.gov.uk/what_we_do/research_and_statistics/4828.aspx, accessed 1 August 2010.
- 75 DCMS. (2010) CASE programme, http://www.culture.gov.uk/what_we_do/research_and_statistics/5698.aspx, accessed 4 August 2010.
- 76 Grunig, J. and Hunt, T. (1984) *Managing Public Relations*. New York, NY: Holt, Rinehart & Winston.
- 77 Poon, J.P.H. and Lai, C.A. (2008) Why are non-profit performing arts organizations successful in mid-sized US cities? *Urban Studies* 45(11): 2273–2289.

APPENDIX

See Table A1.

Table A1: Responses to different screening questions that determined the sequence of questions respondents would complete

	Yes respondents
Total Responses	N=6110
Screening Questions*	n (%)
Attendance at Performances	
Have you attended any live theater performances (eg, plays, musicals or operas) during the last 12 months?	2285 (37.4%)
Have you attended any live dance performances (eg, ballet, jazz or modern) during the last 12 months?	861 (14.1%)
Have you attended any live music concerts during the last 12 months?	2701 (44.2%)
Participation in the Arts	
During the last 3 years, have you been engaged in any performing arts, such as theater, dance, or music?	803 (13.1%)
During the last 3 years, have you been engaged in any visual arts, such as drawing, painting, printmaking, writing, textiles, photography, and/or sculpture?	1464 (24.0%)
During the last 3 years, have you engaged in any art-related or cultural disciplines; architecture; landscape architecture; fashion, graphic, interior or industrial design; historic preservation or restoration; genealogy; or archaeology?	733 (12.0%)
Consider Themselves to be Professional Artists	
Do you consider yourself to be a professional artist?	209 (3.4%)
Purchased Art in the Previous Year	
Have you purchased any visual arts including drawings, paintings, writings, prints, graphic designs, crafts or photographs during the last 12 months?	1719 (28.1%)
Have you purchased or rented any books, videotapes, DVDs, CDs, records, tapes or music downloads during the last 12 months?	4603 (75.3%)
Employment of Artists and Cultural Professionals	
Have you hired any performing artists including musicians/bands, actors, comedians and mimes/performance artists during the last 12 months?	132 (2.2%)
Have you hired any architects or designers during the last 12 months?	88 (1.4%)
Have you hired any historic preservation/restoration, archaeological, or genealogical services during the last 12 months?	48 (0.8%)
Participation in Cultural Tourism	
Have you taken any pleasure trips to destinations more than 50 miles from your home during the last 12 months?	3804 (62.3%)
Have you taken any pleasure trips to destinations more than 50 miles from your home during the last 12 months on which you participated in any of the following arts or cultural activities?	
• Theatrical performance (musical, play or opera)	814 (21.4%)
• Museum	1510 (39.7%)
• Festival	1511 (39.7%)
• Historical site, attraction or community (heritage parks, lighthouses, monuments, landmarks, archaeological sites, cultural centers or historical communities)	1965 (51.7%)
• Zoo, aquarium, botanical garden or arboretum	1374 (36.1%)
• Library	883 (23.2%)

Library		
Do you currently have a valid library card?		4199 (68.7%)
Have you visited a library during the last 12 months?		3733 (61.1%)
Membership, Donation and Volunteering		
Are you affiliated (eg, member, officer, and employee) with a national, state or local membership-based organization that supports, sponsors, or implements arts, heritage or cultural activities. This could include artist organizations that fundraise and sponsor cultural activities and facilities (eg, concerts, art shows, heritage preservation and community libraries)?		509 (8.3%)
During the last 12 months, have you donated any money to an arts, heritage or cultural organization (or cause) including but not limited to organizations that you were/are a member?		891 (14.6%)
During the last 12 months, have you volunteered any time to an arts, heritage or cultural organization (or cause) including but not limited to organizations that you were/are a member?		498 (8.2%)
Art Education		
When you were a child, did you take any type of visual (eg, painting and drawing), performing (eg, dance, singing and musical instruments) or literary arts or crafts lessons or classes?		3525 (57.7%)
During the last 12 months have you taken any type of visual (eg, painting and drawing), performing (eg, dance, singing and musical instruments) or literary arts or crafts classes or lessons?		337 (5.5%)
During the last 12 months, have any children residing in your household taken any type of visual (eg, painting or drawing), performing (eg, dance, singing or musical instrument), or literary arts or crafts classes or lessons?		892 (14.6%)
<i>Note:</i> This was a data-driven survey meaning that unique surveys were developed for each respondent based on their responses to various questions in particular theses screening questions.		