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A mixed-methods study of how university museums use outreach to build community relationships and deliver value to the university

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ABSTRACT

This research follows an embedded mixed methods approach to investigate how university museums pursue community in/outreach programs in order to identify best practices that guide successful community partnerships. A sequential exploratory strategy analyzes museum association listserv discussions through a digital content analysis, followed by quantitative and qualitative surveys of practitioners and semi-structured interviews. Additionally, documentary reports of successful and noteworthy community outreach programs from university museums were analyzed for how they operationalized factors that had been identified in the survey and interviews. Integrated results provide details on best practices to increase social capital in the community and value creation for the university-affiliated museum. This study adds to the knowledge of managing the value of university museums in American contexts.

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Introduction

Among the many divisions of the modern university is one that performs a unique public-facing function, that of the university museum. Typically, university museums are unlike private museums in that they are not only administrated by their universities, but also incorporate programming and collections specifically designed to support the university mission and functioning in addition to contributing to their local communities. Oxford's Ashmolean Museum was opened in 1683 to support the teaching functions of the university by providing access to its substantial archaeological and art collections. In the nineteenth century, many universities opened natural science museums in order to house their sizeable collections of specimens and, while they were originally intended for the university's own students to utilize, institutions began to realize the benefits of opening those collections to the public.

Today, a variety of functions are performed by university-affiliated museums. Many have either art, culture, or geology/natural science museums that allow their students to participate in object-based learning (OBL) through class field trips and excursions

(see Appendix 2). In addition, these OBL learning experiences may be opened to local K-12 (especially K-6) student groups via a partnership with a local school district. These university-affiliated museums may also serve as a location for their own university teacher education through teacher training and practicums (Kingsley 2016). This most often occurs in art and culture museums. Finally, museums can be used to showcase to the local community the research work of the university as a major public outreach function.

Recent years have seen a growing number of partnerships between universities and local non-university-affiliated museums, especially in the sciences. Bell et al. (2016) note the particular successes of the partnership between the North Carolina Museum of Natural Sciences (UCMHS) and the University of North Carolina System, as well as that of the Columbus' Center of Science and Industry (COSI) with the Ohio State University. Among the positive benefits of this public outreach program is what Bell et al. describe as an ability for these programs to foster public interest in, as well as participation in, 'citizen science research projects' (293). It should be noted here that the two partnerships above are with public (UCMHS) and private non-profit (COSI) museums, but neither are university-affiliated. This brings to light one of the several areas surrounding university museums which lack sufficient research. As is the case with much research on museum partnerships, Bell et al.'s study focuses on private or government museums, to the detriment of university-affiliated ones. Though many lessons can be learned from the successes of these partnership case studies, the specifics of a university-funded and guided museum have rarely been considered in research.

In addition to this lack of research on university-affiliated museums, another elision exists in the extant literature on museum partnerships, that of a lack of generalizable findings. As with the studies described above, most research detailing the successes (or failures) of museum partnerships are case studies, and as such are not particularly generalizable to successful university museum partnerships programs. We should acknowledge here that, as with much mixed method or qualitative research, there is an inherent limitation when considering case studies or smaller samples – though lessons learned may still be entirely applicable to other cases. However, nearly all current research details one museum – to our knowledge, no more comprehensive description of successful museum outreach programs exists. When taken with the complete lack of studies regarding university-affiliated museums, it seems that elucidating the particular factors that produce successful university-affiliated museum partnerships, then, can provide a useful guide to managers of such museums who seek to maximize their value to both the university and the community. This improved relationship with community has been identified in previous research (Murzyn-Kupisz and Działek 2015) as being realized by cultural institutions through the functioning of social capital, and this study identifies this social capital exchange as a lens through which to identify best practices of university museum outreach. Accordingly, this study follows a sequential exploratory mixed methodology, adhering to organizing principles outlined in Creswell and Clark (2018) and Feters and Freshwater (2015). Most research on museum outreach is in the form of case studies which often combine surveys and interviews. This study, however, includes a digital content analysis and documentary evidence of case studies as well as survey and interviews in its attempt to produce more generalizable findings.

Using this methodological base, the current study examines how university-affiliated museums can enhance social capital in their communities, and is guided by these four research questions:

(RQ1) How do universities use museums to build social capital with their surrounding communities?

(RQ2) What best practices have been identified by university museums in terms of developing successful community outreach and partnerships?

(RQ3) How does community outreach further the mission of the college/university museum?

(RQ4) How do academic museums add value to the university?

This article is structured as follows: first, we discuss previous trends in the research on museum partnerships, as well as how previous research has identified the way in which museums as cultural institutions function to develop social capital. Second, the mixed methodology of the study is explained step-by-step, including (a) digital content analysis, (b) case study documentation, (c) an elite sample survey, and (d) subsequent elite sample interviews, in terms of the procedures, products, and worldviews reflected in each phase of the study. Third, the results for each phase are presented in either qualitative or quantitative reporting, dependent on method. While (a) and (b) utilized qualitative analysis, the quantitative survey section (c) presents descriptive statistics and independent *t*-test analysis for different institution types. The semi-structured interview results (d) present a detailed qualitative textual analysis that identify best practices in community outreach. Fourth, an integration of findings is presented organized around each research question that incorporates the findings of elements (a)-(d) in terms of building social capital as well as providing value to the university. Finally, conclusions are presented.

Theoretical Background

Museum partnerships

Studies of the relationships between museums and their surrounding communities have generally not focused on university museums specifically, but have instead considered museum-university partnerships more broadly (Solinger 1990; Maloney and Hill 2016; Boddington, Boys, and Speight 2013). A number of studies – nearly all case studies – have discussed effective cooperative projects (Smith and Walker 2003; Arnold-Forster and Speight 2016; Watts 2017). In addition to Bell et al.'s (2016) description of the successful cooperation in the University of North Carolina system, case studies have detailed the ability for cooperative projects to have a positive effect on at on at-risk youth in New Bedford, CT (Rose 2016), and an ability to develop the culture industry in minority-serving institutions at New Mexico Highlands University (Addario and Langer 2016), among others. The general advice from these programs has been that, in these cases, local history projects have been effective in forging community relationships, even for smaller projects (Ford 2016). Other research has identified successful policies as being ones which are not large in scale, and ones which can be addressed with different ranges of funding – not just large, expensive projects (Owens, John, and Blunt 2017). A list of recommendations for museum partnerships in general was collected by Kavanagh

(1995), who made 10 specific recommendations: pursue a spirit of compromise, realistically define objectives, aim for mutual understanding and listening, respect the partner’s agenda, leave room for disagreement, know where not to compromise, allow flexibility for change, be transparent, have contingency plans, and perform a review of the partnership. Despite the usefulness of these case studies and these general recommendations, there is significant need for a much more specific and comprehensive look at what makes university museum inreach/outreach partnerships effective in driving value for the university and fostering relationships with their local communities.

Social capital

Though the origins of the term social capital stretch back to the nineteenth century, it was not until Pierre Bourdieu’s 1972 *Outline of a Theory of Practice* that it became more specifically codified. Robert Putnam, in his book *Bowling Alone: America’s Declining Social Capital* (2000), posits that social capital has four main functions: providing information and knowledge, connecting for future gain (reciprocity), collective action, and identity and solidarity. Social capital is especially important in education to transmit the knowledge held by human capital, and by increasing the social capital of a community, we are increasing what Putnam explains as ‘connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them’ (19).

In terms of the ability of a cultural institution to enhance this social capital, museums can be effective in terms of establishing new connections among people from different groups as *bridging social capital* (Putnam 2000) and reaffirming connections between like-wise communities as *bonding social capital* (Putnam 2000). A number of studies have explored the role played by museums in developing social capital in the community, including how museums successfully develop social capital (Ewin and Ewin 2016; Kinghorn and Willis 2008), and how visitors often feel that the strongest function of museums, especially smaller ones, is in developing a sense of belonging that undergirds

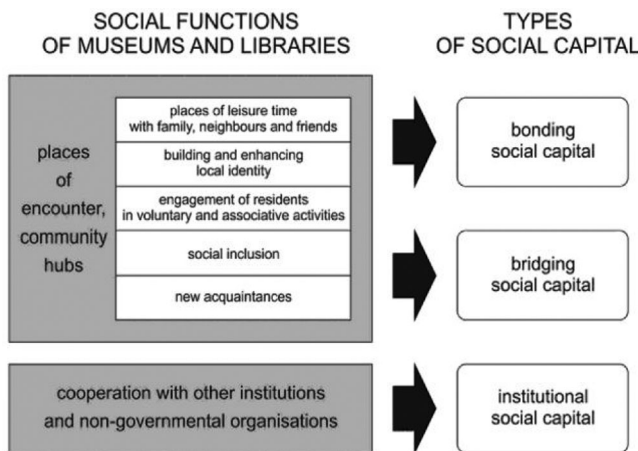


Figure 1. Building social capital via museums.
 Source: Reproduced from Murzyn-Kupisz and Działek (2015).

social capital (Burton and Griffin 2008) and can even serve as an agent of social change (Lasser 2012; Golding 2012; West 2013). Figure 1 below reproduces a conception of how such cultural institutions affect the production of social capital in a number of ways. Murzyn-Kupisz and Działek (2015) investigated the role of Polish culture institutions in building or buttressing social capital, and categorized their ability to produce positive effects in communities.

They then detailed ten aims to support the strategic goals to enhance social capital in terms of Poland’s long-term strategy, and these are reported in the Methodology section, where they have been modified for use in a format more appropriate for the current study.

Methodology

This study follows a mixed methodology, combining a sequential exploratory embedded design strategy, and is depicted in Table 1.

Digital content analysis

First, a content analysis of the Association of Academic Museums and Galleries (AAMG) listserv was performed to identify some of the best practices and characteristics of a successful or beneficial (and alternatively, ‘lessons learned’ from unsuccessful attempts) partnership programs. The listserv was chosen for our data set, as it is an extensive discursive record from which to mine university-affiliated museum administrator’s comments regarding community development. As the readers of the list are also university-affiliated museum administrators, much helpful and pertinent advice is likely to be shared in this venue, as it is one of the few places that gathers this particular grouping of people. Five search terms were used to narrow down the AAMG listserv (13,124

Table 1. Sequential exploratory embedded design.

Phase	Procedure	Product	Worldview	Primary social capital functions investigated
QUAL digital content analysis	<ul style="list-style-type: none"> Coding and thematic analysis of AAMG listserv 	<ul style="list-style-type: none"> Themes for survey questionnaire 	<ul style="list-style-type: none"> constructivist (inductive text coding, pattern recognition) 	<ul style="list-style-type: none"> Content analysis identified numerous themes: <i>improving citizens’ competencies, increasing civic participation, improving access to cultural resources, increasing cultural participation, broadening the traditional roles of the university museum, shaping public debates, and supporting cooperation activities.</i>
quan elite sampling survey	<ul style="list-style-type: none"> Survey instrument developed Expert panel review Elite sampling (n=38) performed 	<ul style="list-style-type: none"> Descriptive data, t-test, correlation data for analysis 	<ul style="list-style-type: none"> post-positivist, pragmatist (identify means and statistical trends) 	<ul style="list-style-type: none"> Social capital functions from research (Murzyn-Kupisz and Działek, 2015; supported by work from Ewin and Ewin, 2016; Kinghorn and Willis, 2008; McCall and Gray, 2014; Lasser, 2012; Golding, 2012; West, 2013; and Burton and Griffin, 2008) were surveyed
QUAL open-ended survey responses	<ul style="list-style-type: none"> Collected open-ended survey responses (n=38) 	<ul style="list-style-type: none"> text data for analysis text data used to develop interview questions 	<ul style="list-style-type: none"> pragmatist 	<ul style="list-style-type: none"> Additional questions focused on increasing effectiveness of efforts to: <i>increase civic activity and participation, improve access to resources, increase more inclusive cultural participation, and develop activities aimed at local cooperation through in/outreach</i>
QUAL case study/ documentary reports	<ul style="list-style-type: none"> Thematic analysis of best practices Added additional questions to interview Documentary support provided by interviewees 	<ul style="list-style-type: none"> thematic development for developing interview questions 	<ul style="list-style-type: none"> constructivist (inductive text coding) 	<ul style="list-style-type: none"> Evidence was collected corroborating social capital functions identified in open-ended surveys and interviews
QUAL online interviews	<ul style="list-style-type: none"> Individuals (n=8) identified by survey One-on-one interviews performed 	<ul style="list-style-type: none"> text data (thematic development) 	<ul style="list-style-type: none"> constructivist inductive coding 	<ul style="list-style-type: none"> More detail was sought about the social capital functions above, but focused on best practices to: <i>increase civic activity and participation, improve access to resources, increase more inclusive cultural participation, broaden the traditional roles of the university museum, and develop activities aimed at local cooperation through in/outreach.</i>
Integration of quan and QUAL results	<ul style="list-style-type: none"> interpretation of results 	<ul style="list-style-type: none"> discussion implications 	<ul style="list-style-type: none"> dialectical pluralist 	<ul style="list-style-type: none"> Synthesis of different aspects of the most relevant social capital functions

messages) to more pertinent themes: the term 'community' produced 2213 email postings, 'engagement' identified 583 emails, 'outreach' identified 526 emails, 'partnership' identified 280 emails, and 'sustain*' produced 716 emails. Each theme was investigated for the social capital practices below until saturation was reached for each term.

Coding of listserv messages was performed using the constructs from Boni (2009), as presented in Murzyn-Kupisz and Działek (2015). Murzyn-Kupisz and Działek note that in the case of Poland, 'cultural institutions supported the construction of "social capital for development"' in their cooperative functioning. Such actions and behaviors which served to increase social capital were identified as:

- (1) improving citizens' competencies and qualifications
- (2) promoting norms, values, and attitudes conducive to civil cooperation and activity
- (3) increasing civic activity and participation
- (4) improving access to culture and national heritage resources
- (5) increasing cultural participation
- (6) broadening the traditional roles of cultural institutions
- (7) strengthening creative potential and individual creativity
- (8) shaping public debates
- (9) constructing social identity and shaping the image of [the country]
- (10) supporting activities aimed at international and supra-regional cooperation.

Given the scalar issues in a comparison between national development and local museum projects, some modification of these ten aims seems necessary. The study above references a plan for development on a national scale in Poland, so while the theoretical background is useful, the way in which social capital operates in local communities would not fit well with this scale. Accordingly, we modified Goal 9 for use in our survey instrument as 'constructing social identity and shaping the image of university, city, region, state, or nation' to reflect the often more micro-scale nature and significance of cultural and scientific artifacts that may comprise museum partnership activities. Goal 10 was similarly scaled down in our survey to reflect 'supporting activities aimed at cooperation at any local/regional level'.

We began with Level 1 open coding (inductively) in *Nvivo 12* as a method to explore the potential factors affecting successful partnerships. Subsequent rounds of deductive coding identified the ten goals to increase social capital in terms of themes guiding participation in community outreach. Items were coded and then considerations were made to re-group, rename, or place in a hierarchy during Level 2 coding. Final groupings of themes/characteristics of social-capital building partnerships and programs were summarized and are presented in [Table 2](#).

Case study documentation

Documentary reports from museum partnership projects were also mined to identify relevant issues for interviews. Most notably, the case studies described the identification of outreach target groups and the involvement of local participants. These case study reports were inductively analyzed for patterns, and crafted into elite sample survey questions and subsequent interview questions.

Table 2. Themes identified by digital content analysis and subsequent inquiry methods.

Theme	Subsequent Investigation Measures
INTENDED BENEFITS/FUNCTION Student engagement Difficulty of student engagement Student well-being (value) Diversity and inclusion Crisis management	Developed survey questions identifying target audiences and goals of community outreach
TARGET COMMUNITIES First generation Social justice (impacted communities) Student Internship	(1) Developed closed and open-ended survey questions about identifying community partners (2) Interviews further investigated developing relationships with community partners
EXHIBITIONS (types of) Digital/virtual Traveling exhibitions Artist in residence	Developed survey question about relative success of different types of exhibitions
SUPPORT Business community Role of corporate partnership	Developed survey questions about funding

Elite sample survey

After this qualitative digital content analysis had identified more salient practices that could produce successful partnerships, survey questions were constructed around the themes identified, and were presented to an expert panel for revision. After revision, a quantitative survey with additional open-ended questions was conducted using purposive elite sampling of those with an elite knowledge of such outreach, with survey participants drawn from the AAMG listserv ($n = 37$). All participants indicated that they were either museum directors, heads of education/outreach, curators, or fulfill more than one of these roles. The survey focused on successful outreach, limitations, target communities, types of exhibitions, and methods of bringing value to the university, and consisted of 24 quantitative 5-point Likert scale questions followed by eight open-ended questions. At the end of the survey, participants were also asked to leave contact information if they were willing to be contacted for a follow-up interview.

Elite sample interviews

These participants ($n = 6$, 21% response rate) were contacted for a semi-structured video interview regarding personal experiences and recommendations for best practices. The interviews were conducted over video chat, lasting 30-90 min each, and contained eight open-ended questions, followed by further follow-up discussions. The questions were specifically designed to address the research questions, and add more knowledge to how outreach is different between university-private museum partnerships and those involving university museums, how universities use their museums to build social capital with their surrounding communities, and what best practices are identified by university museums in terms of community involvement in informal education and bringing value to their host institutions. Interview responses were then analyzed for how they corroborate or contradict with the findings of the listserv content analysis and/or elements of the survey. The results of these interviews are compiled and discussed below.

Results and discussion

Digital content analysis results

Table 2 presents the results of the final grouping of themes from the digital content analysis of the AAMG listserv, a gathering of museum professionals who direct and lead university museums. Although sampling via this listserv does not allow for significant numbers of respondents, those who do respond are among the national experts in the field, and this research can therefore be considered as utilizing an purposive elite sampling method.

The digital email listserv messages for intended benefits generally discussed methods to achieve certain benefits in community outreach, and survey questions were thus developed to gather more information regarding best practices in those areas. There was significant discussion regarding the benefits of targeting specific local communities, notable among them being families of first-generation college students, indigenous populations, and communities that had been otherwise marginalized. This targeting of specific groups appears as a common theme among case study reports of successful community outreach in academic museums, one developing social capital, and is presented in more detail in the case study section.

The types of exhibitions were discussed in some detail, with several messages noting the success of different types of exhibitions. One noted the successful project which brought an artist-in-residence to a university children's hospital. The indigenous artist specialized in grass puppetry, and contributed to community outreach by making these puppets for children at the hospital. Traveling exhibitions were especially valued when partnered with local nursing homes, where these exhibitions could be shared with local residents. Other traveling exhibitions found valued homes in university hospitals, where their presence encouraged patients to walk through the exhibit, thereby speeding their recovery, especially in terms of mobility.

One notable finding from the listserv that was not supported elsewhere was regarding the usefulness of digital and virtual exhibitions. Though they were among the most discussed themes on the listserv, the survey responses confirm that the use of digital and virtual exhibitions was not an element of successful outreach programming.

Lastly, there was some discussion of the usefulness of corporate sponsors alongside the traditional university funding. Due to the lack of consensus of the necessity or desirability of this funding, questions were developed for the open-ended portion of the survey to gauge the importance of this factor.

Case study documentary report results

Reports and video reports available from university museums themselves identified a number of outreach functions which were incorporated into survey and interview questions. These reports indicated that university museums sometimes sought to reinforce community ties and develop social capital by engaging in several dimensions. First, a number of programs dealt with local issues involving community justice, focusing on marginalized communities and defining justice for those communities by presenting a more complete historical view of a local issue. A second finding was that academic museums took pains to engage the survivors, family and descendants of those who had suffered violence or injustices. At times, this involved the university community as well, especially

in terms of addressing trauma and addiction. Third, these outreach programs suggested in their case study reporting that community co-curation was a factor influencing the success of the outreach. This co-curation sometimes took the form of a local council or the inclusion of field experts. A final finding of these documentary case study reports was that successful outreach hinged on listening carefully to the community's needs, a point that was confirmed in interviews as well. These reports also correlated strongly with several of the social capital functions previously identified by Murzyn-Kupisz and Działek and others, notably increasing cultural participation (Ewin and Ewin 2016; Kinghorn and Willis 2008), broadening the traditional roles of cultural institutions (McCall and Gray 2014), strengthening creative potential and individual creativity, shaping public debates (Lasser 2012; Golding 2012; West 2013), and constructing social identity and shaping the image of the community (Burton and Griffin 2008).

Quantitative survey results

Results of the quantitative element of the elite sampling survey were examined for descriptive statistics, by an independent *t*-test, and correlation. Data were examined for multivariate outliers by a visual inspection and a Mahalanobis test (Tabachnick and Fidell 2013), which identified one respondent for removal from the data set.

The respondents ($n = 37$) were requested to identify their institutions both by Carnegie classification and by land/sea grant, minority-serving institution (MSI), and public/private statuses. Results are presented in Figure 2. Within the R1 designation, five respondents were from land grant universities, while three respondents overall indicated also indicated that they represented MSIs.

Descriptive statistics for the complete elite sample survey are presented in Table 3. Items A1-A10 represent the social capital functions as identified by Murzyn-Kupisz and

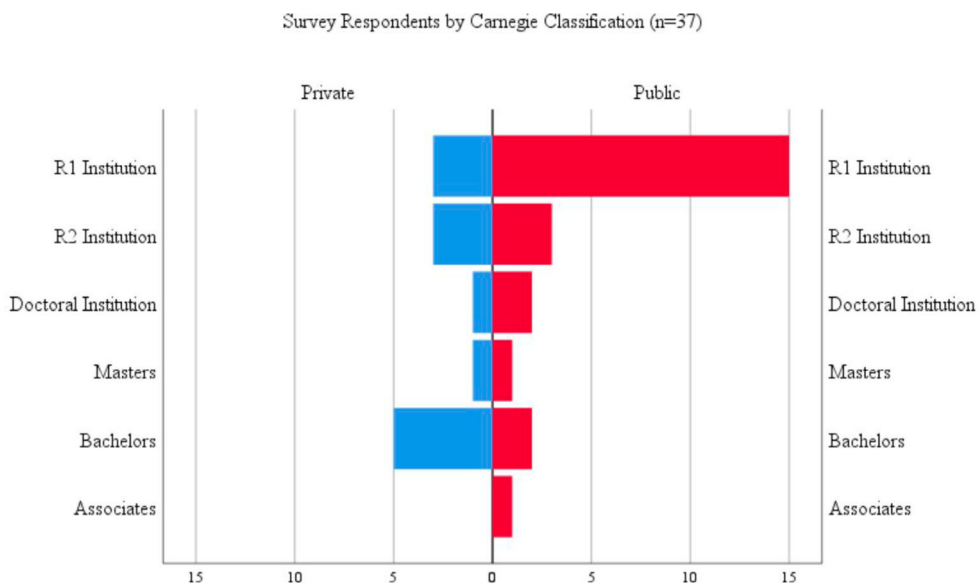


Figure 2. University museums represented by survey respondents.

Table 3. Quantitative elite sample survey ($n = 37$).

A successful community outreach program ... (1 = strongly disagree; 5 = strongly agree)		Mean	Std. Dev.
A1	improves access to culture and national heritage resources	4.57	.765
A2	increases cultural participation	4.68	.747
A3	broadens the traditional roles of cultural institutions	4.57	.835
A4	strengthens creative potential and individual creativity	4.38	.893
A5	improves citizens' competencies and qualifications	4.08	.924
A6	shapes public debates	3.97	.957
A7	helps to construct social identity and/or shaping the image of the community.	4.00	1.027
A8	promotes norms, values, and attitudes conducive to civil cooperation and activity	3.89	1.048
A9	increases civic activity and participation	4.16	.986
A10	supports activities aimed at international and supra-regional cooperation.	3.76	1.038
B1.	should engage a target impacted community	4.03	.799
B2.	should engage the local community more broadly	4.51	.607
B3	should target a particular age group	3.30	1.102
B4	should involve recruitment or participation of student internship participants	4.27	.769
B5	should include follow up activities	3.97	.799
B6	should include the input of target community leaders	4.38	.758
B7	should provide vocational information about museum studies/museology education	3.68	1.107
In terms of the purposes of community outreach, which of these functions is most successful in your museum increasing its value to your university? (1 = very unsuccessful; 5 = very successful)		Mean	Std. Dev.
C1	Increasing student engagement	4.28	.815
C2	Offering practical training	4.11	.708
C3	Increasing student well-being	3.85	.795
C4	Increasing diversity and inclusion	3.94	1.013
C5	Creating relationships during crisis management	3.34	1.162
C6	Creating ties between students and the community	3.75	.937
C7	Creating ties between the faculty and the community	3.64	.867
C8	Providing opportunities for service learning	3.94	1.056
How successful are these types of exhibitions in community outreach? (1 = very unsuccessful; 5 = very successful)		Mean	Std. Dev.
D1	Thematic exhibitions	4.33	.535
D2	Systematic exhibitions	3.52	.602
D3	Material-oriented exhibitions	3.76	.739
D4	Permanent collection exhibitions	4.00	.856
D5	On-loan collection exhibitions	4.06	.600
D6	Digital/virtual exhibitions	3.80	.707
D7	Traveling exhibitions	3.96	.808
D8	Artist in residence	3.93	.884
D9	Pop-up exhibitions	3.81	.750
D10	Community-sourced exhibitions	4.30	.703
D11	Faculty and/or student exhibitions	4.19	.792

Działek (2015). Items B1-B7 develop specific questions from either the digital content analysis or the case study reporting. Items in part C are specifically concerned with the value that university museums bring to the university itself. Finally, items in part D ask about different styles of exhibition, one of the concerns of the content analysis.

A comparison of mean scores is presented in Figure 3, and suggests areas where schools belonging to a certain Carnegie classification tend to view how they add value to their institution. While all school sizes felt that their ability to increase student engagement was a value added area for their museum, relatively few saw crisis management as an area where they could accomplish this. There was greater variance of results for using the museum to promote faculty ties with the community than for student ties with the community. This corroborates interview data, which suggest that there are a wide range of roles faculty play in the life of the academic museum, from very engaged to nearly non-existent.

Perceived areas of value added by Carnegie Classification (mean score)

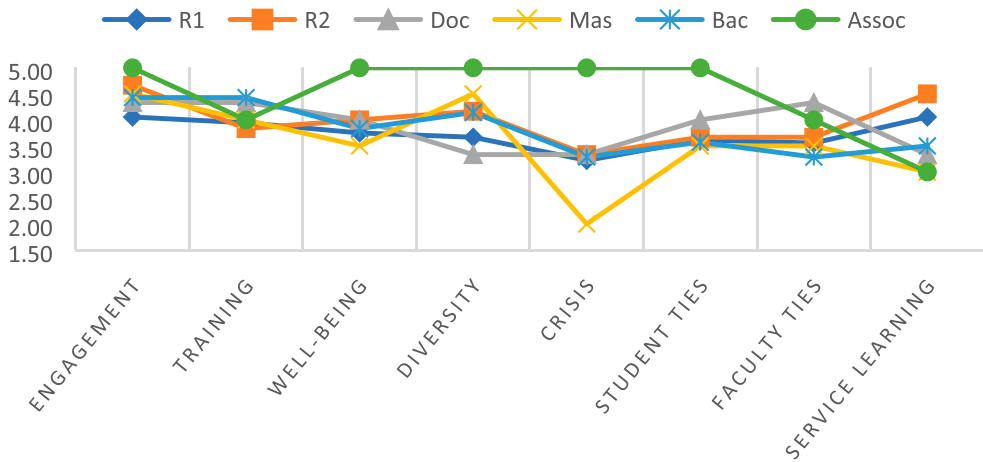


Figure 3. Difference in perceived value added by Carnegie classification (5 point Likert scale)

Independent t-test analysis

All of the survey items were explored for significance and relevance to categories of universities. Normal distribution was confirmed and homogeneity of variance was determined through Levene's Test for Equality of Variances. Independent t-tests were run on the data at a 95% confidence interval (CI) for mean differences. The data, presented in Table 4, support a few findings.

Public/private

First, in terms of valued added by certain focuses, academic museums at public institutions were more likely than private to view their focus on student engagement as an avenue to add value to their institutions ($t(35) = 2.115, p = 0.042$), as were land grant institutions as compared to non-land grant institutions ($t(35) = 2.169, p = 0.037$). Private institutions were also more likely than public to view vocational information about museology/museum education as an important element of in/outreach, though not reaching significance ($t(36) = 1.791, p = .081$; 95% CI $-.085-1.406$) and were more likely to favor virtual presentations in their exhibits ($t(24) = 2.217, p = .036$).

Minority-serving institutions (MSIs)

Independent t-test results, performed after confirming homogeneity of variance ($F = .467, \text{Sig.} = .499$) indicate that academic museums as MSIs were more likely to include introduction of museum vocational information as part of the value they provide to their institutions ($t(36) = 2.186, p = .035$). This is perhaps due to the special missions of MSIs and a belief that museum vocation information would of use to their students.

Land grant institutions

Similar independent t-test results indicated that academic museums at land grant institutions, as compared to non-land grant institutions, favored student engagement as

Table 4. Independent *t*-test results.

Survey Item	Factor	Mean	Std. Dev.	Levene's Test for Equality of Variances		T-test for Equality of Means		95% Confidence Interval		
				<i>F</i>	Sig.	<i>T</i>	df	Sig. (2-tailed)	Lower	Upper
Increasing Student Engagement	Private/public	4.30	.812	1.071	.308	-2.115	35	.042	-1.089	-.022
	Land Grant			2.151	.151	2.169	35	.037	.052	1.561
Providing Museum Vocational Information	Private/public	3.63	1.125	.118	.733	1.798	36	.081	-.085	1.406
	MSI			.467	.499	2.186	36	.035	.102	2.171
Utilizing Virtual Media	Private/public	3.73	.778	1.635	.213	2.217	24	.036	.044	1.229
Creating Social Identity	Land Grant	3.95	1.064	1.41	.293	2.547	36	.015	.229	2.021
Targeting Specific Age Group	Land Grant	3.29	1.088	1.390	.246	2.015	36	.051	-.006	1.881
Gathering Input from Target Community Leaders	R1	4.39	.755	.128	.722	-3.103	36	.004	-1.131	-.237

means to provide value to their universities ($t(35) = 2.169, p = 0.037$). In addition, land grant institution museums were more likely to view outreach programs as a means to 'construct social identity and/or shape the image of the community' ($t(36) = 2.547, p = .015$). This finding was supported both in open-ended responses and in interviews, where participants from land grant institutions indicated that they were more often occupied with the explicit goals of the land grant mission, including its identity. Perhaps a similar reasoning also exists for land grant museums being more likely to consider targeting specific age groups as a strategy for outreach ($t(36) = 2.015, p = .051, 95\% \text{ CI } -.006-1.881$).

R1 research institutions

Carnegie classification R1 (very high research) institutions are generally characterized by more available funding, and one result of the independent *t*-test suggests that this expansive research scope may bleed over into larger and less localized outreach projects from their academic museums. R1 institutions were less likely to consider gathering input from the leaders of communities targeted by outreach as a successful element of outreach programming ($t(36) = -3.103, p = .004$). This is perhaps due their size, such that they may have less close ties with local communities. At any rate, it is a topic worthy of future study.

Semi-structured interview results

Interviews were conducted using the mixed methodology integration strategy from O'Cathain, Murphy, and Nicholl (2010) of 'following a thread' which appeared during the open-ended section of the survey. The interviews revealed four themes, each with component themes and interview data: (1) the importance and influence of the structure and organization of the museum within the institution, (2) size and function effects of the university, (3) influences on in/outreach programming within the university community,

and the (4) importance of multilevel outreach functioning. . In terms of the data collected during the interviews, we have presented them organized around these themes, with main themes presented in italics, and subthemes bolded.

1. *Structure and organization of the museum within the institution.* Several important themes that greatly affect the outreach of university museum outreach programs were identified. The first set of themes that arose in the interviews was the **(1a.) necessity to have the university museum leadership be composed of a permanent committee which reflects numerous stakeholders.** Several interviewees mentioned this, as

not even a one-time advisory group or something like that but creating a structure that invites people in and gives them a seat at the table and gives them an affiliation [such that they can] generate ideas for projects (R1 university curator)

In order to better ensure the participation of these stakeholders, it is necessary to both be transparent with the value provided by the museum as well as expectations. Interviewees noted that failures sometimes occurred when academic museums were not clear on how outreach projects could serve their partners' needs, noting

they want to invite community voices in but they don't, they don't think about how to package it to make it not only appealing, but to make it clear, and to make it to set up expectations. (R1 university curator)

"I need to be in touch with them further in advance and do a little bit of the legwork in terms of organizing and selling them on the idea that this is something good to partner with in terms of value" "[for] community partners, I want to work with and see what they're already doing and sort of make it so that my ideas slot into what they're already doing. It's easier if you align yourself with their programs and prerogatives ... rather than adding an extra burden." (private college curator)

While larger universities museums seem able to set up these larger and more permanent advisory committees, smaller institutions may be forced into more *ad hoc* situations, where they can partner by 'us[ing an] existing network to try and find new community partners'. (private college curator)

In order to keep all these stakeholders unified in their information, however, interviewees suggested the necessity to make expectations explicit through documentation so that as people come and go, there is not a need to review all the work. Alongside this explicitness, other interviewees expressed the need for increased transparency and access to documentation, on Google Docs or a similar sharing platform: 'a one page document that really you know lays out expectations for communications for participation in the group' (R1 university curator)

A second theme regarding ensuring the success of academic museum outreach programs was that the **(1b.) relative location of the museum within the university structure strongly influences the ability of the museum to obtain necessary funding and participation.** Several interviewees mentioned that having a more central position in the organization affects the role and resources of the museum by affecting the relative independence of the academic museum. Specifically, they discussed the advantages of being located within upper university hierarchy rather than within an art department:

reporting directly to the provost keeps the museum closer to the curriculum and mission of the university than a position within an art department. (R1 university curator)

the clarity in that [organization scheme] was that they did not put us as a subset of the art department, they gave us sort of this outside status, through the president's office. If we were just housed within the art department and sort of run by the art department, I suspect that things will be quite different. (R1 university director of education)

For some academic museums, the outreach function only was separate from other functions:

the art museum reorganized and our education department is now with the Department of Learning and Engagement, so we are lucky in the way that we are not beholden to one academic unit or college ... we're positioning ourselves as this space for really interesting interdisciplinary collaborations. (R1 university curator)

2. Size and function effects of the university. Interviewees noted that 'the size of the institution absolutely does affect outreach efforts'. (R1 university curator) **(2a) Smaller universities can react to the needs of faculty more easily – even on a teaching unit basis – but they face much more limited in outreach due to manpower issues.** Noted one small museum outreach coordinator,

I think that makes us nimble ... we can change it up and do things that align with the curricula, with current events, with what's going on in our communities ... it's nice to be smaller and more responsive. But it's also tough because that means I also have a small staff and a smaller budget. (private college curator)

In contrast, larger universities are often able to run significant outreach programs, especially K-12, but museums may get lost among the many options on campus:

that has enabled us to have a very active community program ... we are surrounded by rural communities that have traditionally been served by the university through the extension programs and because we are an agricultural school ... and so all of those rural communities become a big part of our community. (R1 university director of education)

Others noted their 'very very close relationship with the two largest school districts in the area'. (R1 university director of education).

One notable difference university size has on academic museums is evident in **(2c.) how the museum fits into the culture of the academic institution.** Interviewees from large universities with well-funded grants and acquisitions were able to promote multiple outreach programs, including at K-12, for targeted communities such as rural partner museums, and for topicality, as in the Afrofuturist example below. Small college outreach was greatly drawn back in scope, serving the faculty needs more directly, as well as the local community. As one interviewee expressed,

one of our goals is to engage more productively and more meaningfully with the community around us. We work hard to sort of dismantle that town-gown separation. (private college curator)

Interviewees from land grant institutions noted that outreach was strongly guided by the missions of the university.

All of the 4H programs and extension programs that kind of tie in with agriculture and kids coming into agriculture ... [and at the] military base in the town next door is another sort of distinct community audience ... and we have extension classes out on the [military] base. (R1 university director of education)

Interviewees saw that the value they provided to the university was greatly tied to the missions of the universities, which often were a function of size. One aspect of the success of outreach was tied to the funding, which was size independent. As one very involved staff member at a large university put it, 'this work is very hard to do if you know you're only going to be there for two years [due to position funding]'. (R1 university curator)

3. *Influences on inreach programming within the university community.* A few specific elements were recognized by the interviewees as having a notable effect on outreach. Regardless of size, **(3a.) academic museums involve students in numerous ways.** At some university museums, students were sometimes co-curators, according to interviewees, often in the role of promotion of a new exhibition:

I rely on the students for a lot so if we do an opening for a new exhibition, I will have one or two students that are in charge of coming up with the different events ... to find student performers. (R1 university museum director)

The benefit for students was 'one on one experiences with professional curators so your students will have something to put on their CVs beyond the coursework' (R1 university curator). In other museums, interviewees developed positions where students acted as campus ambassadors, 'in charge of outreach to her peers and fellow students' (R1 university curator). The educational outreach aspect of the museum also can be harnessed to train students in skills applicable beyond museum work: 'I taught a class about how to do this type of deep community engagement work in public programming' (R1 university curator). Students often act as advisory groups, sometimes under the aegis of a larger body, where certain exhibitions 'we had vetted by the Office of Diversity' (R1 university director of education), and other times on an individual student group level. Interviewees mentioned the inclusion of many student body groups: 'working with student organizations like the Black Student Union, the Native American Student Alliance, the Hispanic and Latino organization, ... the Asian American student body' (R1 university director of education). Often groups were more general specific interest groups

We also have folks on campus who are very tied into the LGBTQIA+ community here ... so when I say oh I've got this photographer coming who did this series of portraits of trans families ... we can let them know and do an event. (private college curator)

while others were very specific graduate student groups

a wonderful connection through the Center for Afrofuturist Studies. We partnered with their artists and residents, so they were bringing black emerging artists to [a Midwest agricultural state] to create work in response to being there. (R1 university curator)

One notable additional target of inreach was toward students in terms of student well-being. A number of interviewees talked about activities such as 'yoga in the galleries or mediation programs' or using stress release activities as a way to promote their museums, such as coloring sheets depicting permanent collection artwork.

(3b.) Faculty function and participation was also identified as a main factor affecting the success of in/outreach programs. Interviewees suggested that the best practice is to be involved at the curricular level with classroom issues. This requires planning, coordination, and a wider appeal to faculty. They reported proactively finding faculty, for

example as ‘I’ve got this show it’s gonna go really well with your class on decolonizing education’ (private college curator). A few academic museum coordinators bemoaned the lack of interest in cooperation on the part of faculty, but were unable to offer reasons for this. Museum directors can perhaps look to how they find success in targeting communities, discussed below, as a guide for more successfully involving faculty.

I do better targeting specific groups as a university ... I don’t mean this negative in any way, but [people] tend to be very narrowly focused because that’s what gets them rank and advancement. And so if I can show people what is in it for them through our partnership, then there are a lot more willing to work with me. And I can see the big picture but most don’t have time or energy to do that. (R1 university museum director)

4. *Importance of multilevel outreach functioning.* Within the need for multiple community stakeholders as part of advisory committees, interviewees suggested the need for **(4a.) laterally-connected community co-curation, sometimes with a social justice function amplifying unheard voices of community.** Interviewees mentioned community ties in outreach geared toward geriatric programs including dementia and Parkinson’s, as well as programs like ones ‘reaching out to black communities ... because we have one of the [strongest] African collections in the world’ (R1 university curator). All interviewees mentioned that, rather than seek a broad-based outreach, they found more success with **(4b.) targeting specific populations for outreach**, and that **(4c.) direct invitations to collaborate improves engagement.** One interviewee noted that ‘a specific group that is targeted really helps in terms of driving attendance for me ... targeting is pretty key’. (private college curator), while another noted that ‘My organization is based on four aims and everything at the university falls under those four aims ... [if they align with those aims] that’s how I identify additional partners’. (R1 university museum director)

This type of targeting can lead to a more developed program and developing community partners:

I created a couple of target audiences ... and one of those targets for me was the design professionals ... our collection offers a lot to practicing designers and architects architectural historians. [We] partnered with a architecture firm downtown in the city to do a sketch crawl of different buildings in our community. (R1 university curator)

Academic museums, in order to promote successful outreach programs, should work to **(4d.) develop a culture of listening.** One interviewee noted that

a lot of that is done through the student organizations [by working with] the Office of Diversity ... we do really try to think about who the stakeholders are. We also do a lot of work, pulling in community advisors ... Any artist’s voice, and the audience’s voice, take that foreground, but we try to keep our curatorial voice ... less to the foreground. (R1 university director of education)

Others talked about the need to balance expectations while still encouraging listening:

maybe need to push back against an idea ... you just got to be just be upfront about what might be the limitations. But the museum staff [should] start from a place of ‘Wow, that’s a great idea, you know, let’s talk more about it’ ... you start from a place of ‘Yes.’ (R1 university curator)

Though nearly all excellent outreach programs the interviewees mentioned involved community partners, some **(4e.) civic partnerships were often viewed as unfruitful**

due to bureaucracy and competing goals. Community partnerships were often noted by interviewees as fruitful with local school districts and targeted communities. This success was not often realized with certain local partnerships due to competing goals. As one noted,

folks have suggested I should hook up with the Chamber of Commerce or whatever and they're not really that interested unless that drives business downtown ... they're less engaged with sort of nonprofit side of things. (private college curator)

A final area for improving the success of outreach programs was simply **(4f.) improving access to the surrounding community, including breaking down physical barriers.** This included better parking access, signage, and simply promoting the idea that entrance to the campus is not off-limits to the local community. As one interviewee noted, 'there are folks in our community who just don't realize it's okay for you to walk through our campus ... I do a lot to sort of make sure the community knows about [an exhibition], that it's advertised off of campus'. (private college curator)

Integration of findings

(RQ1) How do universities use museums to build social capital with their surrounding communities?

Qualitative results focused on connecting with the local community in several ways. First, by **(4f.) improving access to the surrounding community.** Secondly, respondents indicated a necessity to include the community in both governance – **(1a.) necessity to have the university museum leadership be composed of a permanent committee which reflects numerous stakeholders** – and in participation, with **(4a.) laterally-connected community co-curation** and **(4b.) targeting specific populations for outreach.** This is supported by quantitative survey results, which indicate a high belief in including input of community leaders ($\bar{x} = 4.38$). There was more support for broadly targeting community groups ($\bar{x} = 4.51$) than for targeting specific groups ($\bar{x} = 4.03$). This seems to differ from the experiences of non-university museums, whose reports on community involvement often involve impacted communities. University museums also seemed to view the creation of community ties to be more important for students ($\bar{x} = 3.75$) rather than faculty ($\bar{x} = 3.64$).

(RQ2) What best practices have been identified by university museums in terms of developing successful community outreach and partnerships?

In addition to **(4a.) laterally-connected community co-curation** and **(4b.) targeting specific populations for outreach,** qualitative results identified elements that were not addressed specifically in the quantitative results, including the **(1b.) relative location of the museum within the university structure.** In contrast, the quantitative support of including input of community leaders ($\bar{x} = 4.38$) mirrors the expressed need to **(1a.) have the university museum leadership be composed of a permanent committee which reflects numerous stakeholders.** Qualitative results alone brought to light the successful practices of making **(4c.) direct invitations to collaborate** and **(4d.) develop a culture of listening,** which strongly supports using mixed methods to investigate these questions.

(RQ3) How does community outreach further the mission of the college/university museum?

Qualitative results strongly suggested that the mission of the university museum was driven by the size and type of institution. The most common vehicles for furthering the mission of the university were identified qualitatively as **(4f.) improving access** and by **(4a.) laterally-connected community co-curation** that **(4b.) targets specific populations for outreach**, while quantitative results suggest that the primary mission support involves increasing student engagement ($\bar{x}=4.28$) in those activities rather than by creating community ties ($\bar{x}=3.75$).

(RQ4) How do academic museums add value to the university?

Qualitative results here provided more understanding of the issue of value-creation. How **(3a.) academic museums involve students in numerous ways** and that **(3b.) faculty participation is inconsistent** were corroborated by quantitative results prioritizing student engagement (4.28) and creating ties ($\bar{x}=3.75$) over faculty involvement ($\bar{x}=3.64$). As above, recognizing that the size, funding, and location of the university museum may be the prime drivers in its functioning and value to the university is supported by the qualitative finding that **(2a) Smaller universities can react to the needs of faculty more easily but face more limited outreach due to manpower issues** and the importance of **(2c.) how the museum fits into the culture of the academic institution**, which may involve increasing diversity and inclusion ($\bar{x}=3.94$) by **(4c.) direct community invitations to collaborate** and by **(4f.) improving access to the surrounding community**.

Conclusions

The findings of this research can be beneficial to universities and their museums in terms of how to empower them to support the mission of the university and provide value to the institution. First, such museums do not thrive when siloed off into an individual department, but rather function best when in a more central position where they can be closer to the initiatives of the university and more responsive to university needs and closer to their necessary funding. Second, university museum directors should be proactive in involving the community in both the governance and in exhibit curation in the form of transparent committees and by developing a culture of listening to the needs of the community. Third, museum directors should focus on improving access, including digital, to surrounding communities. Fourth, while many university museums already pursue community inreach with student groups, they should continue to seek and invite creative and unusual partnerships, a practice followed by some of the most dynamic university museum programs. Finally, universities should seek to stabilize funding of university museums in order to harness the significant power of these museums to enhance the public face of their school.

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Appendix 1. Semi-structured Interview Questions

1. What basic elements are necessary for successful outreach programs? (RQ2,3)
2. Tell me about how to best ensure a successful outreach program with **your** local community. (RQ2,3)
3. What are the limitations affecting how outreach programs produce connections between the university and the community? (RQ2,3)
4. How does your funding differ from private, non-university-affiliated museums in terms of outreach programs? (RQ1)
5. What are other major differences or factors to consider that affect the administration of a university-affiliated museum in terms of outreach? (RQ1)
6. Tell me about how the community benefits from your museum. (RQ2)
7. How you think your museum adds value to your university? (RQ2)
8. If I were to land a job as the outreach coordinator for a university-affiliated museum, what advice would you give me? (RQ1,2,3)

Appendix 2. Illustrative Listing of University-affiliated Museums (USA)

University	Museum	Specialty
Arizona State University	Arizona State Museum	Cultures of Arizona & the American Southwest
Brigham Young University	Brigham Young University Museum of Peoples and Culture	Anthropological, archeological, and ethnographic artifacts
Brown University	Haffenreffer Museum of Anthropology	Anthropology
Drexel University	Academy of Natural Sciences	Natural Sciences

(Continued)

Continued.

University	Museum	Specialty
Florida International University	The Wolfsonian	Social, historical and technological changes
Gallaudet University	Gallaudet University Museum	Historical and contemporary deaf life.
Harvard University	Museum of Natural History	Natural History
Kansas State University	Beach Museum of Art	Fine Arts
Lawrence University	Wriston Art Gallery	Fine Arts
Middlebury College	Museum of Art	Fine Arts
The Ohio State University	Orton Geological Museum	Geology
U.S. Naval War College	U.S. Naval War College Museum	Naval Warfare
University of Alaska	Museum of the North	Polar Regions
University of California at Berkeley	Berkeley Natural History Museums	Natural History
University of California, Los Angeles	Fowler Museum	Archaeology and Anthropology
University of Colorado	Museum of Natural History	Natural History
University of Connecticut	Connecticut State Museum of Natural History	Natural History
University of Delaware		Mineralogy
University of Florida	Florida Museum of Natural History	Natural History
University of Iowa	Stanley Museum of Art	Fine Arts
	Museum of Natural History	Natural History
University of Mississippi	University of Mississippi Museum	Cultural heritage of Mississippi and the American South
University of Nebraska	University of Nebraska State Museum	Botany, Entomology and Paleontology
University of Oregon	University of Oregon Museum of Natural and Cultural History	Natural History
University of Pennsylvania	Museum of Archaeology and Anthropology	Archaeology and Anthropology
University of Tulsa	Gilcrease Museum	History of the West
University of Virginia	The Fralin Museum	Arts
University of Washington	Burke Museum	Natural History
University of Wyoming	Geological Museum	Geology
Yale University	Peabody Museum	Natural History