



ARTICLE

What Drives Attendance at Informal Learning Activities? A Study of Two Art Programs

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Abstract Multiple reasons shape how young people and families choose to participate in informal learning programs at museums and other settings. Youth interest is likely a factor, but so might be geographic proximity, institutional affiliation, household income, and race/ethnicity. We examined the relative impact of these factors through a comparative study of two art programs; one a small, neighborhood-based organization focused on art and STEM, and the other a program in a well-established art museum. The smaller program tended to draw youth from closer geographic proximity. Interest in art drove attendance at both programs, but institutional membership was also important. Demographic factors also were a factor, and race/ethnicity was more strongly associated with program placement than household income. We discuss the importance of better understanding of such factors as museums and other programs continue to grow as important sites for learning.

Learning occurs across diverse settings where youth spend their time, including schools, homes, afterschool programs, and museums. Learning outside the confines of formal education is often stimulated by child or youth¹ interest and supported by progressive, deepening challenges (Akiva et al. 2017). Young people have the opportunity to pursue topics that can lead to pathways of deeper learning across settings. These kinds of interest-based learning pathways have existed for decades. For example, Crowley and Jacobs (2002) described how young children may develop “islands of expertise”, learning deep and rich knowledge about topics like trains or dinosaurs. A child or parent’s interest in piano, ballet, or soccer can be supported through private lessons or camps in families who can afford them. Now, the availability of informal learning

opportunities at a range of costs (including free) is more plentiful than ever in the U.S. (After-school Alliance 2014). Networks and intermediary organizations that bring together and coordinate informal learning programs are growing in cities across the country (Browne 2015). These networks are moving toward providing better, connected learning opportunities across contexts. However, in order to do this well, more needs to be learned about participation decisions. To address this gap we examined summer, informal, art-based programs, seeking to understand what drives youth attendance in these programs.

Adults play important roles in encouraging and shaping youth interest development and in connecting youth to events, programs, internships, people and other organizations (Barron et al. 2013; Ching et al. 2016).

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Louw et al. (2017) found that parents can support their children’s interests by helping youth find programs in areas of their interest, exposing youth to new potential areas of interest, or expanding on existing interests. Allard and Small (2013) argue that parents with less education and reduced access to professional networks may not be as able to play this role of connecting youth to interest-based experiences, and instead may rely on organizations, institutions, and systems to coordinate learning opportunities. Thus, interests are shaped and supported by adults; however, adults may also consider additional factors beyond interest in decisions about program participation.

Overall, a complex constellation of factors likely determines whether young people and families choose to participate in art-based enrichment programs outside of school. In this study, we describe and investigate a likely set of factors that may promote or inhibit such participation. The factors we examine, shown in Table 1, represent competing theories about what drives program attendance. We organized these factors into three categories: interest, pragmatics, and demographics.

INTEREST-DRIVEN LEARNING

One line of reasoning argues that *youth interest* is a critical factor in driving participation in informal learning programs. When a child expresses an interest in art, parents may support that interest and enroll them in art-related programs after school, on weekends, and during the summer. Youth interest may take on increased salience as young people grow older, since teens tend to report that they (not parents) are the primary decision-makers when choosing to attend (Akiva et al. 2014).

Encouraging children and youth to find, follow, and deepen their interests is not as simple as it may seem. The process of forming and developing interests is highly contextual and deeply tied to identity and the values that cultures and communities place on topics and activities (Azevedo 2011; Hidi and Renninger 2006; Järvelä and Renninger 2014). Researchers have found that adult and peer relationships play a critical role in exposing youth to new areas of interest and in fostering interest development (Barron et al. 2009; Weiss 2015). In other words, interest-driven learning is not a matter of learners simply doing activities they find fun or intriguing; but rather it is a

Table 1.
What drives youth attendance?

Area	Factor	Underlying Logic
Interest	Youth interest	Youth will attend programs based on their topical interests.
Pragmatics	Institutional affiliation	Parents trust institutions and will likely enroll youth in programs associated with an institution they already have experienced.
	Geographic proximity	Youth will attend programs close to their home for reasons of convenience and transportation by parents.
Demographic characteristics	Household income	Higher cost programs will tend to have youth with higher household incomes and free or low cost programs will tend to have youth with lower household incomes.
	Race/ethnicity	Based on the Homophily Principle, youth will tend to attend programs with other youth of the same race/ethnicity.

complex, socially-embedded process. If early interests are pursued in the absence of adult support, happenstance rather than real child preferences is likely to drive participation, and unequal early access to topics will serve as a barrier to broad participation.

PRAGMATIC FACTORS IN SELECTING ENRICHMENT EXPERIENCES

It is possible that more pragmatic considerations such as transportation and logistical conveniences take precedence over youth interest. For example, simple things like cost, location, and scheduling (e.g., time conflicts) may drive attendance decisions. These factors combined with network-based participation may leave children with attending programs by convenience, rather than by interest. A key factor of this type may be *institutional affiliation*. In assessing the potential value of a program, the brand name of the organization or network may influence adult choices. In interviews with parents about selecting programs, some parents revealed that they relied on well-known university names associated with program curriculum as markers of quality (Louw et al. 2017). For example, if “Fun University” offers both science and sports day camps, a parent whose child already attended “Fun Science” might enroll them in “Fun Sports”, regardless of the child’s interest or disinterest in sports. This is a pragmatic factor, as a busy parent may stick with an institution rather than taking the time to explore other options that may better fit with a child’s interests.

Relatedly, conveniences associated with *geographic proximity* may drive attendance (Akiva et al. 2017). That is, parents may be more likely to encourage and support a youth to attend a program that is close to their home. If geographic proximity is a decisive factor, we

would expect many program attendees to live near the informal programs they attend.

DEMOGRAPHIC CHARACTERISTICS AS DRIVING FACTORS

Besides youth interests and pragmatic factors, demographic characteristics may influence attendance at informal learning programs and the importance of these characteristics is supported by separate hypotheses. First, strong evidence (discussed below) suggests that *household income* is an important driver that predict overall amount of participation in informal learning programs. In the U.S., the parental approach of intentionally cultivating youths’ non-school learning (i.e., parents spending time and resources taking kids to music, dance, and sports activities) tends to correlate with higher socio-economic status (Lareau 2003; Putnam 2016). Looking across countries, motivation appears to play a larger role in learning and achievement when there is wealth to support it. In countries with a high gross domestic product (GDP), science interest and science achievement is significantly correlated; by contrast, in countries with lower GDP, the correlation is close to zero (Tucker-Drob et al. 2014). A similar pattern is found within countries: science interest correlates with science achievement only in high socioeconomic status families. These findings suggest that youth from high socioeconomic status families are more likely to access interest-based learning pathways. Conversely, being able to pursue one’s interest is less likely with limited access to resources.

A second hypothesis is that people tend to associate and bond with similar others creating homogeneous personal networks. This well-established predilection of people to associate with like others is called the Homophily Principle in sociological theory (McPherson et al. 2001). Based on this principle, we might expect

youth and families to select informal programs with youth that share the same *race/ethnicity*, among other community characteristics. This may occur by youth attending programs with friends, as friendship also tends to follow the Homophily Principle.

Several studies have found overall lower rates of out-of-school participation for youth of color and researchers have suggested that the fit between a young person's culture and the culture of a program may affect continued attendance decisions (Vandell et al. 2015; Villarruel et al. 2005). Russell and Van Campen (2011) suggest that program-to-youth cultural incongruities are often unintentional and unnoticed by adult leaders: "many mainstream programs unintentionally fail to authentically attract youth who are marginalized" (p. 99). Example areas for incongruity include differences in communication styles, the degree to which individual achievement is emphasized, and the persistence of adult deficit-based thinking, specifically related to African American youth (Baldrige 2014; Russell and Van Campen 2011). Simply wanting to be in a space with friends or perceived similar peers may also affect attendance decisions. In one example, Simpkins et al. (2011) found with a sample of Latino/a adolescents that the number of co-ethnic friends predicted participation in extracurricular activities whereas family resources did not. Yet, prior work has not pulled apart economic resource and ethnicity effects from parental education effects, a likely confound in the US context.

TEASING APART FACTORS THAT INFLUENCE YOUTH PARTICIPATION IN INFORMAL LEARNING PROGRAMS

In sum, the past literature suggests that a number of factors influence program participation, but past research has not attempted to look

across these factors to uncover which are important and which are merely correlated with the important factors. In order to tease apart the relative importance of each of the factors in Table 1, we conducted in-depth case studies of child attendance at two art programs in the same city—one at an established museum and one at a smaller, community-based, youth-serving organization—and we compare the demographic and motivational characteristics of youth participation. Established museums typically struggle to recruit diverse participants, despite extensive financial supplements and advertising campaigns. Many community-based organizations inherently follow a placed-based strategy for diversifying participation. Specifically, we first addressed the research question: (1) Are youth pathways driven by interest, pragmatics, or demographic factors? We expected interest to be one factor but, based on previous research, not to be the primary driver of attendance decisions. Second, we asked: (2) For demographic drivers of attendance, is it primarily parental income, parental education level, or race/ethnicity that is most predictive?

A COMPARATIVE STUDY OF PARTICIPATION TWO ART PROGRAMS

We focused on two out-of-school arts-based organizations (named here as Local STEAM and Art Museum) in one medium-sized city in the Midwest of the US. Both organizations ran multiple programs with voluntary attendance and therefore regularly dealt with recruitment issues. In addition, both had internal learning pathway options; that is, program and event options for youth to continue advancing their arts interest within the organization. The two organizations were selected to represent end-points on the continuum from a new organization not associated with a large cultural

institution and seeking to grow enrollments serving a lower SES population (Local STEAM) to a well-established organization situated in large cultural institution with strong existing enrollments and serving a higher SES population (Art Museum).

Youth participants from the Local STEAM organization (N=81) were sampled from seven different program offerings (all focused on creative digital media and/or mixed media crafts) that occurred during the school year, ranging from drop-in programs in the afternoons, evenings, and weekends to sign-up programs that extended over a four- to eight-week period once a week. Although these programs occasionally had younger children participate, we include only the data from the youth who were at least 10 years old. None of the programs had any youth fees—all programming was supported by private or foundation funding, and the organization specifically aimed at recruiting youth from underserved populations in its neighborhood; in particular, youth from lower SES households.

Youth participants from the Art Museum (N=95) were drawn from six different program offerings occurring during the school year during vacations periods, and were all five-session programs, half- or full-day. The programs focused on architecture, drawing, and mixed media crafts. The programs cost at least \$200 per child for a full day program, although scholarships (half-price) were available based on a household income threshold set to approximately twice the US poverty line (e.g., annual income of \$38,000 for a household of three).

The youth participants at both organizations were very similar by gender (70% female at the Local STEAM organization and 72% female at the Art Museum). The sample of Art Museum participants was statistically significantly older on average (M=12.5, SD=1.6) than

at the Local STEAM organization (M=11.6, SD=1.5), but exhibited generally overlapping age distributions.

We investigated these two programs via a youth survey instrument. The survey was designed to be brief enough to have a high response rate and to be easily completed by youth without detracting from program activities. The survey included five sections designed to allow us to disambiguate a set of factors that may influence youth participation in arts-based programming:

- Interest.* Given some differences in program content, interest in art, science, and technology were each marked on a 5=love it to 1=hate it scale.
- Gender.* Given the inclusion of relatively young children, respondents were only given the binary distinction of circling Boy or Girl.
- Age.* Respondents entered their ages as a free response.
- Neighborhood demographics.* The survey asked for home neighborhood as a free response. Demographics were then determined using additional information described below.
- Other organization attendance.* The survey included a series of checkboxes for youth to indicate whether they had attended programming at seven different science, technology, and art program organizations in the city. The organizations listed were selected based on fit to the topical focus of science, technology, or art, as well as size and proximity such that a relatively short survey would capture the most commonly selected choices.

We examine evidence of movement of youth into informal arts programming based on three analytic lenses: *by interest*, given the intent of these programs to support interest and skill development; *by pragmatics* of a geographic

distance or participation in a network of programs; and *by demographics*, given that cost and ethnicity are often named as challenges by informal program providers (Akiva et al. 2017), and parental education may reflect comfort levels of the parents in going to the formal buildings used by museums.

We analyzed demographics in terms of ethnicity, parental education, and income. The city where this study took place is comprised of approximately 90 named neighborhoods varying widely from one another in terms of ethnicity, education level, and socio-economic status. Demographic information for these neighborhoods was obtained from a report on all city neighborhoods based on American Community Survey responses between 2006 and 2010 (UCSUR 2012). 85% of Local STEM and 75% of Art Museum participants provided a neighborhood name that could be matched against the categories in the report (the remaining responses were a mixture of blanks, unreadable, and neighborhoods outside the city). We extracted three variables for each neighborhood. First, in order to address traditionally underserved populations, we used percentage of African American residents (participant sample mean=41%, range=[1,93]). In this city at the time of the research, the combined rate of Hispanic/Latino, American Indian, Alaska Native, and Native Hawaiian ethnicity was below 1, so percent African American is a reasonable measure to use. We also extracted % of residents living below the poverty line (mean=22%, range=[0,44]), and % of residents with at least a bachelor or higher (mean=32%, range=[10,75]). As expected given typical patterns in the US, the three neighborhood characteristics are moderately correlated with one another (between $r=.39$ and $r=.47$). However, the characteristics are not so highly correlated as to prevent analyses that examine the separate contribution of

each characteristic. For some of the analyses, each characteristic was converted into high, medium, and low categories to form approximately equally sized groups: African American (low<10%, 10%≤medium<50%, high>50%); poverty (low<15%, 15%≤medium<30%, high>30%); and education (low<15%, 15%≤medium<40%, high>40%).

Next, we describe the influence of these various factors—by interest, by two different forms of pragmatics, and by various kinds of demographics—on youth participation in art programs at two different organizations.

INTEREST

As expected, given the specific domain foci of the programs, the youth attending the Art Museum were generally most interested in art, whereas the youth attending the Local STEAM organization were more broadly interested in art, science, and technology (see Figure 1). In general, the samples of youth at both programs shared very positive views of art and technology and, to a lesser extent, science. The mean interest differences between programs were statistically significant in all three domains ($p<.01$), but most youth were generally for (or at least not strongly against) science and technology.

PRIOR PARTICIPATION AND INSTITUTIONAL AFFILIATION

Figure 2 presents relative prior participation rates in various other science, technology, and arts organizations in the city. Several salient patterns emerge from these data. First, participants at the Local STEAM organizations were significantly less likely to attend programs at five of the seven organizations ($p<.01$), in many cases at rates that were half of those from the Art Museum participants. In other words,

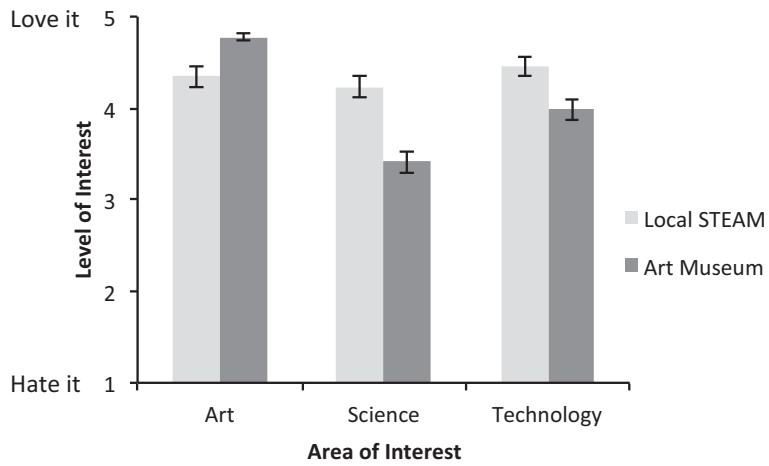


Figure 1. Interest levels for youth attending the Local STEAM and Art Museum programs.

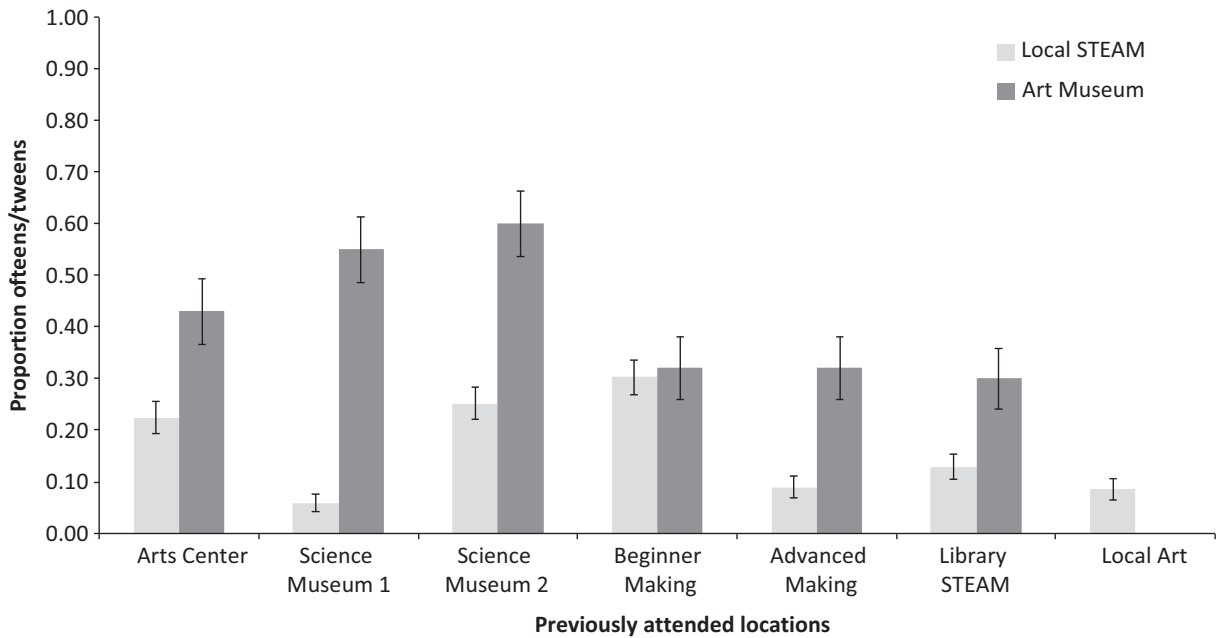


Figure 2. Previously attended locations for youth attending the Local STEAM and Art Museum programs.

youth attending the Local STEAM programs had generally experienced informal programming in science, technology, and the arts from fewer organizations in the network. The only cases where the Local STEAM participants had prior attendance rates comparable to Arts Museum participants were: (a) an introductory making organization (“Beginning Making”), that was similar in focus to the Local STEAM program; and (b) a local art program within a few blocks of the Local STEAM organization. Second, although the Arts Museum youth were very focused on the arts in particular by interest, they were most likely to have also attended programming at the two science museums, two institutions that were formally part of the same umbrella organization as the Art Museum. Further, youth at the Local STEAM, who represented a lower SES group, appeared to participate less broadly in the informal learning ecosystem. In general, their profile of prior organization participation was broadly distributed across interest areas. However, the pattern of participation at the Local STEAM organization was more consistent with an interest pathway rather than an affiliation pathway, with highest participation in Beginning Making. Thus, we see evidence for both interest-based and affiliation-based pathways, but to differing degrees across programs, with the more established programs having a stronger affiliation-based pathway.

GEOGRAPHIC AND DEMOGRAPHIC FACTORS

Participants named 59 unique neighborhoods (44 for Art Museum and 27 for Local STEAM), and we used the demographics characteristics of these neighborhoods to analyze patterns of participation. As can be seen in Figure 3, youth attending the Local STEAM

program were most likely to come from neighborhoods with high proportion of African American residents, households living below the poverty line, and household without bachelor’s degrees or higher; by contrast, those attending the Art Museum program were most likely to come from: neighborhoods with low proportions of African American residents, households living below the poverty line, and household without bachelor’s degrees or higher. In other words, the two programs served very different neighborhood demographics.

Some of these demographic differences likely come from the location and degree of location-based recruiting. The Local STEAM program was situated on the edge of a neighborhood with high poverty (37% living below two times the federal poverty level) and recruited heavily from that neighborhood, whereas the Art Museum was located near multiple universities (with high proportions of college students rather than families) and used citywide recruitment methods (e.g., newspapers advertisements, website, direct mailing). As a result, 40% of the attendees to the STEAM program came from the local neighborhood, whereas only 1% of the Art Museum attendees came from the local neighborhood ($\chi^2(1)=42.44$, $p<.001$).

But this strategic location and local recruiting can only account for part of the difference in program attendance. First, the difference in percentages from high African American and high poverty neighborhoods is larger than the 40% attributable to the local neighborhood. Second, there is a large difference in percentages from low vs. medium African-American neighborhoods ($\chi^2(1)=5.46$, $p<.02$). For example, participants from the Local STEAM program were over three times as likely to come from a neighborhood with medium versus low African American representation, whereas the participants from the Art Museum program were

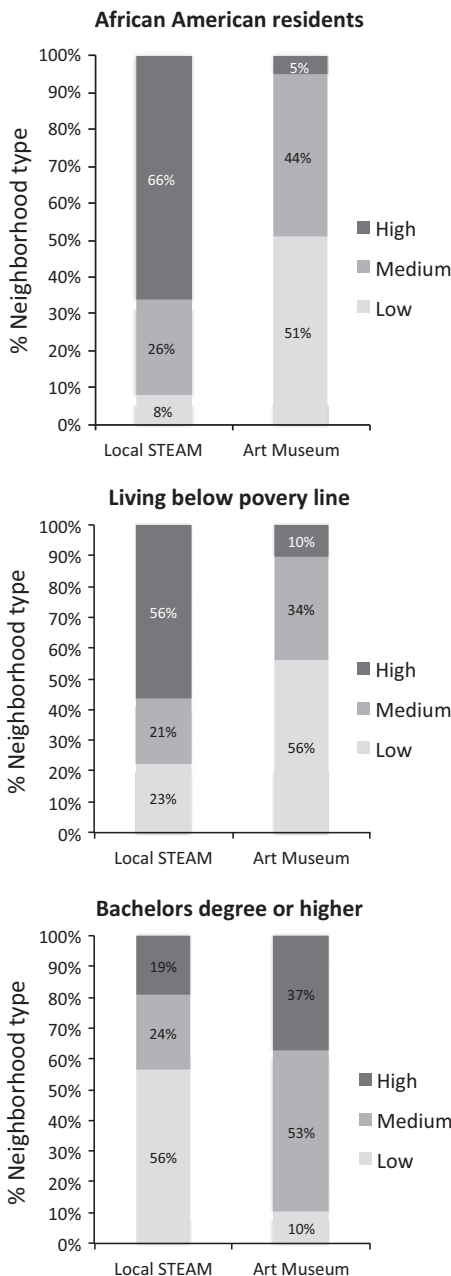


Figure 3. The percent of youth within the Local STEAM programs and the Art Museum programs that came from neighborhoods categorized by proportion of A) African American residents, B) households living below the poverty line, and C) households with a member having a bachelor's degree or higher.

more likely to come from a neighborhood with low African American representation than a medium neighborhood.

DIRECTLY COMPARING FACTORS

To compare the relative predictive power of participation factors, we conducted a stepwise logistic regression analysis predicting attendance at the Art Museum ($=1$) or Local STEAM ($=0$), with focal predictors of: ethnicity, poverty, and bachelor and beyond education level neighborhood characteristics (raw percentages, not high/medium/low categories), along with youth interest in art, science, and technology. We first ran a full model that explained 72% of the variance (Nagelkerke R^2). This initial model included other predictive factors that might have been confounded in this dataset: gender, age, and interest in each of the three topic domains. Three significant predictors emerged, two of them as strong predictors (neighborhood ethnicity and interest in art), and one as a weak predictor (interest in science). We see evidence of the expected interest and demographic effects, but it is ethnicity not education or income that is the strongest predictor, despite the cost difference of programs across organizations.

We then removed the non-statistically significant predictors to produce the more parsimonious model shown in Table 2. This model includes the statistically significant predictors from the full model, and produced the best overall fit considering how many predictors it included (i.e., the model explained 68% of the variance compared with 72% for the full model, but with fewer than half as many predictors). The odds ratios were comparable across the full and best fitting models: for each additional point on the interest in art scale, youth were 6 to 8 times more likely to attend an

Table 2.
Best fitting model predicting attendance in an Art Museum program relative to attendance in a Local STEAM program.

Predictor	B (Std. Err.)	Odds ratio
% African American in neighborhood	−0.06 (0.01)	0.94***
Youth interest in art	1.80 (0.60)	6.04**
Youth interest in science	−0.63 (0.28)	0.53*

*=p<.05, **=p<.01, ***=p<.001

Art Museum program than a Local STEAM program, and with each one percentage point increase of underrepresented minorities in the home neighborhood, youth were 6% more likely to attend the Local STEAM program. Although this may seem smaller than youth interest, it’s important to note that the metrics are different; a 1-point change in a 5-point survey response is considerably larger than a 1% change in neighborhood demographics.

MAKING SENSE OF MULTIPLE DRIVERS OF ATTENDANCE

Our results provided further evidence that multiple factors drive student participation in informal learning arts programs. As expected, *youth interest* indeed played a strong role. Youth at the Art Museum on average showed significantly higher interest in art and lower interest in science and technology than youth at the Local STEAM program. In a logistic regression, children were substantially more likely to go to programs at the Art Museum versus the local STEAM program if they had a strong interest in art. Pragmatic factors also clearly affected program attendance. *Institutional affiliation* appeared to play a powerful role with some youth reporting attending previous programs offered by a provider, even if they had little connection to the youth’s core interests. For

example, the highly art-focused youth were actually more likely to have attended programs at the museum’s science-focused network institutions than the children coming from the Local STEAM program. We also found that *geographical factors* were at play; youth at Local STEAM were much more likely to live near the program.

The influence of *demographic factors* in predicting participation was also supported by the results or our regression analysis; however, demographic characteristics predicted participation in a particular way. Even though two programs had clear, substantial cost differences (i.e., free versus significant cost), the main driver of participation appeared to be race/ethnicity rather than financial or based in parents’ educational attainment. Because we relied on information about the home neighborhood rather than about the child’s family *per se*, we do not know whether the effects are at the level of family or neighborhood demographics. However, the results were striking in that participation between an organization that charges significant program fees and an organization that provides free programs was strongly predicted by racial rather than income predictors

As discussed in the introduction, this may reflect the Homophily Principle; youth and families may seek out (intentionally or unintentionally) programs with other students of the same race/ethnicity. These neighborhoods also reflect different racial/ethnic makeup and average levels of household income—so geography and demographic characteristics are intertwined. It is possible that various logistical and neighborhood factors together were more influential than financial considerations for households in this sample. In any case, the predictors for choosing art programs in this sample are complex, and this finding likely generalizes beyond this sample. Future studies

should seek to unpack these findings further, answering critical questions: Are the factors of neighborhood's racial characteristics or family demographics relatively more critical for attendance (i.e. kids who look like me or kids from this neighborhood)?; are participation patterns an issue of identity (i.e., I feel like I belong here) or an issue of avoiding locations (i.e., I do not feel safe or welcomed here)?; is participation driven by youth perceptions or adult caregiver/parents perceptions of program offerings?

Several characteristics of this research limit our ability to draw conclusions. The relatively small sample of two art-based summer programs is limited for generalizability. In addition, our brief student survey was designed for portability and ease of use and did not include individual demographic information so we relied on neighborhood demographic information that limits our precision in addressing our research questions. Our research design only allowed us to investigate the motivations of youth attendees; we did not address why some youth or families that may have interest do not enroll in any program—such a study would require a different approach (perhaps through schools). Our case study approach focused only on the motivations for youth currently enrolled in programs, not on the decision-making pathways that lead to enrollment—this is an area for future study.

To better understand youth and family decision-making regarding informal learning art opportunities, it will also be important to understand how malleable these factors are in order to design for change. For example, to what extent do the content and methods of information distribution contribute to or shape these effects? Cross-cultural differences in interpretation of messages are likely, as are relative access to different information dissemination and marketing channels by demographics (van Dijk

and Hacker 2003; Kreuter et al. 2003; Nakamura and Chow-White 2012). In addition, organizations that offer informal learning opportunities—especially established cultural institutions such as the art museum in our case study—tend to have a long history of serving a predominantly white and affluent clientele that does not reflect the diverse populations of the cities or communities where these organizations exist. If participation decisions are driven in part by the Homophily Principle, how can existing museums move toward serving more diverse, more representative communities?

PRACTICAL IMPLICATIONS

Understanding the reasons that shape youth and families' decisions to attend enrichment programs like those in this research has important practical implications for recruitment and retention. Our results support the notion that youth do indeed attend programs based on their interests. This suggests that it is worthwhile to devote marketing and recruitment energies toward creating and offering programs that are compelling to youth. Our measures for interest were very large grained (art, science, technology), and yet we found those interests to be highly predictive of participation. It may be that more specific interests are even more powerful drivers of youth participation. A good way for individual programs to find out is to ask their participating youth or structure program offerings in partnership with youth.

It likely will come as little surprise to program providers that pragmatic concerns also drive participation decisions. Our evidence suggests that geographic proximity matters differently for different types of programs. In our sample, youth came from a wide distance to attend programs at an established, museum-based art program; whereas, the smaller, newer

STEAM program primarily served youth who lived nearby. We also found that institutional affiliation can be more of a driver than youth interest in some cases. Based on these findings, building institutional reputations—or connecting with institutions that already have positive reputations—is probably a worthwhile endeavor. Building networks of programs with a shared reputation (e.g., a named network of arts programs) could also be a way to build from the power of institutional affiliation. We also found in our sample of two programs that race/ethnicity was a more powerful driver than household income. This finding should be taken with caution due to the limitations described earlier; however, it may suggest that program cost differences are less influential in participation decisions than they may seem.

Another important implication relates to organizational partnerships. Although funding incentive structures tend to reward youth enrichment programs for the number of youth they recruit and retain (Akiva et al. 2017), building organizational partnerships between related programs may actually produce program recruitment and retention benefits. For example, if the Local STEAM program encouraged art-interested youth who complete a program to then enroll in a program at the Art Museum, that youth might then serve as a sort of informational ambassador for Local STEAM.

The data used in this study came from a small survey administered at two locations that offered arts-based programming. It provides an example of the kind of short, focused survey that might, if deployed at scale, provide useful information for decision-making within a larger learning ecosystem. Most city networks do not have systems for easy access to information that informs questions about what types of learners' programs serve, how recruitment is conducted, and what gaps

currently exist in access across a region's offerings. When such data *are* collected, they are often kept in house. Such information, however, could be valuable to researchers and policy makers focused on an overall learning ecology. The design of citywide learning pathways calls for a shift in models of knowledge sharing around program content and greater transparency to improve broad access to relevant pathway opportunities. **END**

NOTE

1. The term 'youth' is associated with a variety of age ranges around the world. We use the term generally to refer to young people who are older than children (age 10+) and not yet adults, and this research focuses on middle-school age youth (age 11-14).

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