

**A Needs Assessment  
Of Physical Space and Technological Resources  
To Support Educational Programming**

**Report to the Assistant Secretary for Education and Access**

March 2012



Smithsonian Institution

Office of Policy and Analysis  
Washington, DC 20013

## Methodology

Questionnaires were distributed electronically via Qualtrics survey software to a total of 36<sup>1</sup> Smithsonian programmatic units. (See Appendix A for the full contact chart). These 36 units were the following:

- Anacostia Community Museum
- Archives of American Art
- Asian Pacific American Program
- Center for Folklife and Cultural Heritage
- Cooper-Hewitt, National Design Museum
- Friends of the National Zoo
- Freer and Sackler Galleries
- George Gustav Heye Center
- Hirshhorn Museum and Sculpture Garden
- Lemelson Center
- Museum Conservation Institute
- National Air and Space Museum / Mall
- National Air and Space Museum / Udvar Hazy Center
- National Museum of African American History and Culture
- National Museum of African Art
- National Museum of American History
- National Museum of Natural History
- National Museum of the American Indian
- National Portrait Gallery
- National Postal Museum
- National Science Resources Center
- National Zoological Park
- Smithsonian Affiliations
- Smithsonian American Art Museum

---

<sup>1</sup> In several cases, multiple surveys went out to units that share an administration and/or a physical facility, but retain separate programs: the National Zoological Park and the Friends of the National Zoo; the Lemelson Center and the National Museum of American History; the George Gustav Heye Center and the National Museum of the American Indian (Mall); and the Udvar-Hazy Center and the National Air and Space Museum (Mall). Note also that the Smithsonian Early Enrichment Center and Friends of the National Zoo are not, strictly speaking, Smithsonian units per se, but rather non-profit organizations closely affiliated with the Smithsonian.

- Smithsonian Astrophysical Observatory
- Smithsonian Center for Education and Museum Studies
- Smithsonian Conservation Biology Institute
- Smithsonian Early Enrichment Center
- Smithsonian Environmental Research Center
- Smithsonian Gardens
- Smithsonian Institution Archives
- Smithsonian Institution Libraries
- Smithsonian Institution Traveling Exhibition Service
- Smithsonian Latino Center
- Smithsonian Tropical Research Institute
- The Smithsonian Associates

Questions included a mix of closed-ended and open-ended (write-in) questions. Responses were received from and tabulated for all units except one.

## Physical Space: Findings

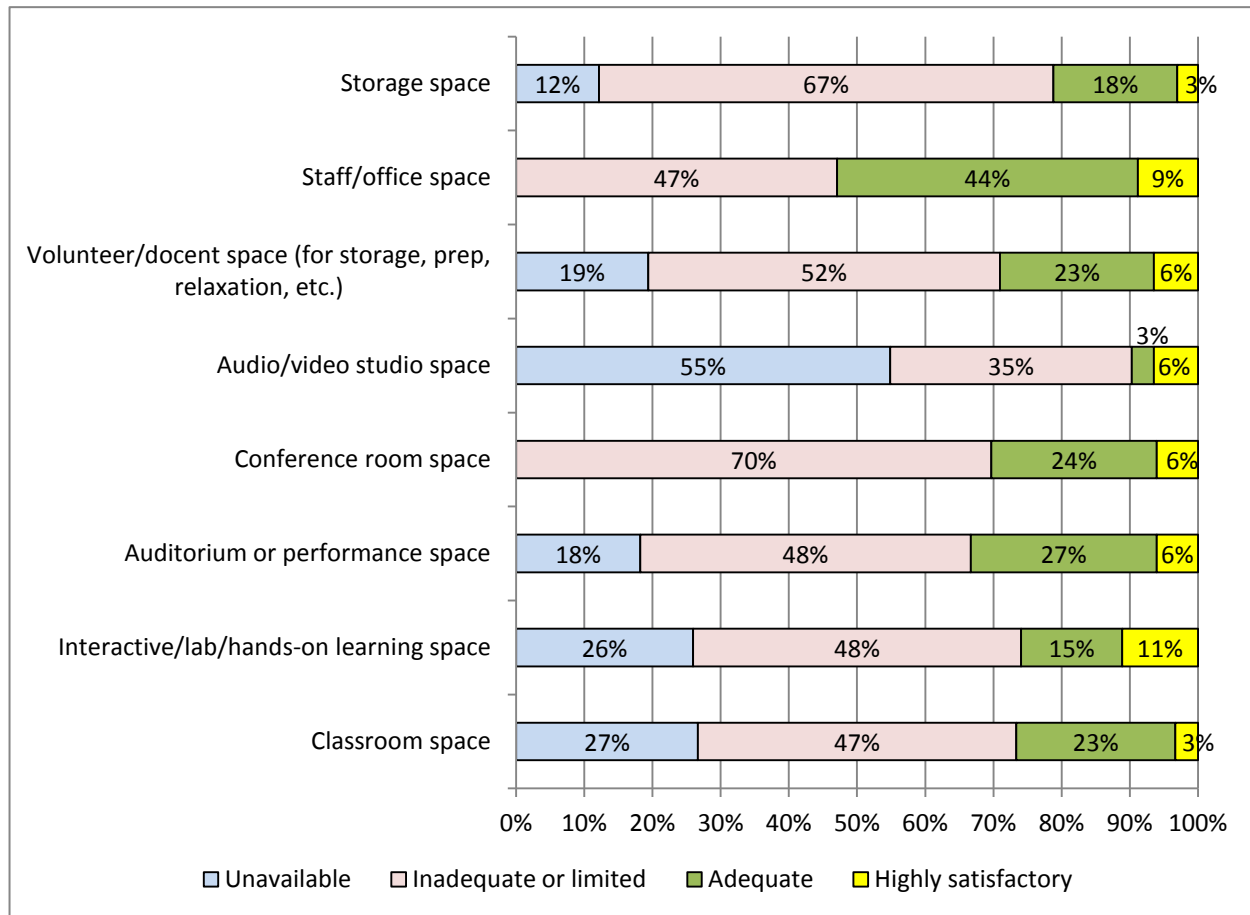
Units were asked to rate each of the following types of physical space for education at their disposal as (1) *Unavailable*, (2) *Inadequate or limited*; (3) *Adequate*; or (4) *Highly satisfactory*:

- Classroom space
- Interactive/lab/hands-on learning space
- Auditorium or performance space
- Conference room space
- Audio/video studio space
- Volunteer/docent space (for storage, prep, relaxation, etc.)
- Staff/office space
- Storage space
- Other needed types of space (to be specified)

A visual summary of the results is presented in Figure 1 (next page). Note that the percentages shown here and elsewhere in this report, unless otherwise specified, represent percentages of units that considered the question applicable and provided an answer other than *not sure* (or the equivalent). In other words, non-responses, non-committal responses (*not sure* and the like), and *not applicable* responses were not counted in figuring these percentages.

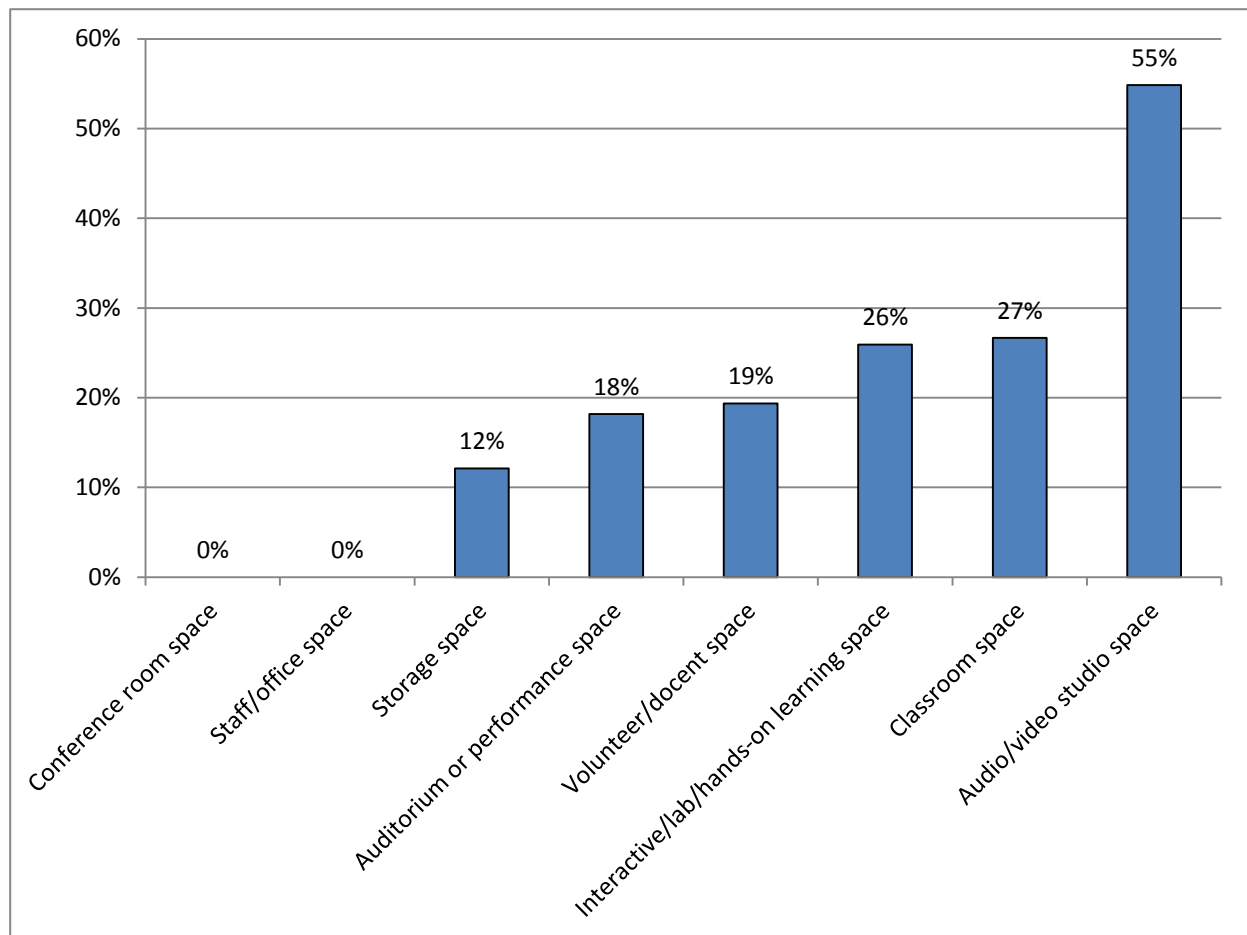
In the context of a particular question, we will refer to those units that considered the question applicable and provided an answer other than *not sure* (or the equivalent) as “responding units”—as opposed to “all units,” which refers to the total of 35 units that returned questionnaires.

**Figure 1: Summary Results of Physical Space Needs Assessment  
(Percent of Responding Units)**



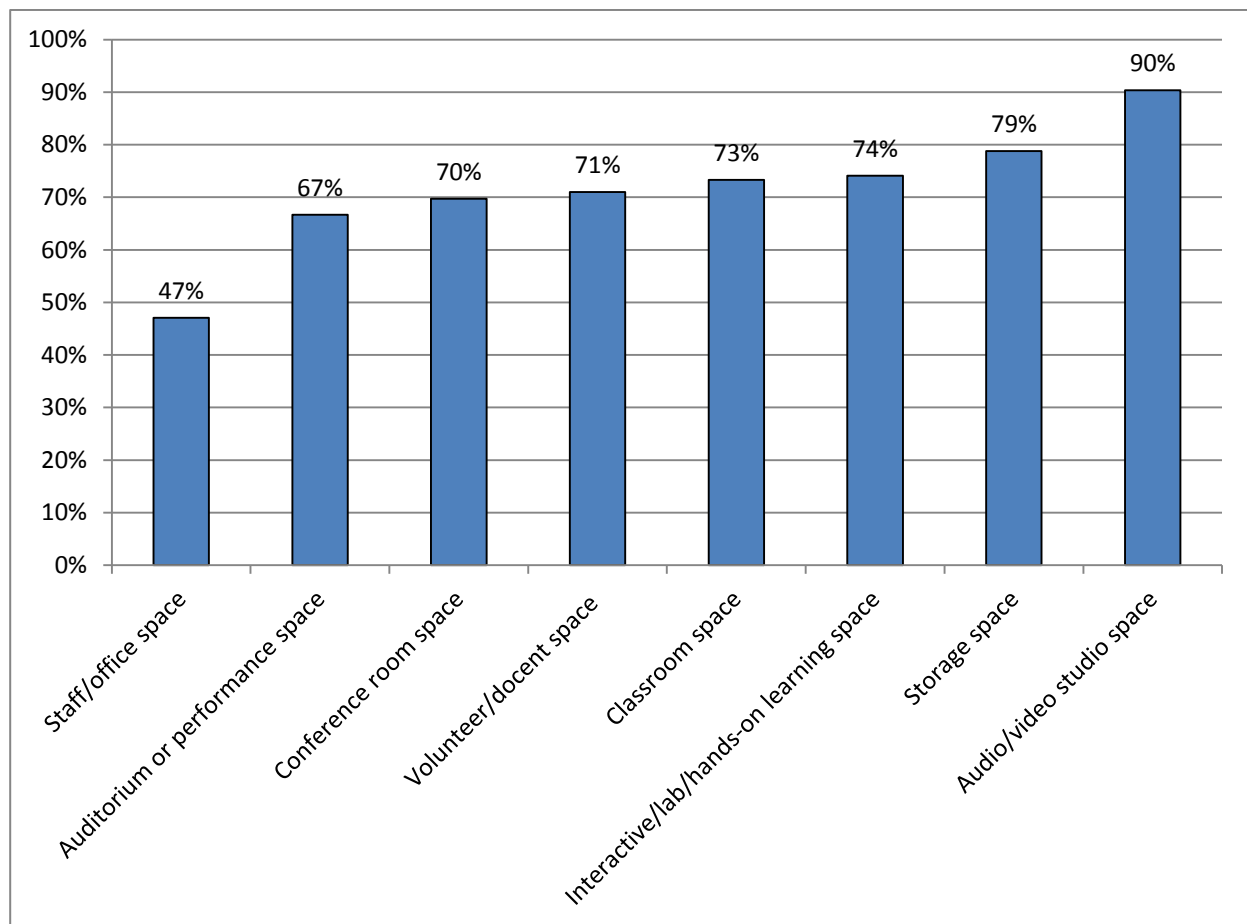
**Unavailable space.** Over half the responding units (55%) rated “audio/video studio space” as *unavailable*, the most acute category of unmet need. About a quarter also said that “classroom space” (27%) or “interactive learning space” (26%) were *unavailable* in their units. Lower percentages rated “volunteer/docent space” (19%), “auditorium/ performance space” (18%), and “storage space” (12%) as *unavailable*. No units rated “office/staff space” or “conference room space” as *unavailable*. (Figure 2)

**Figure 2: Percent of Responding Units Rating Each Type of Space as *Unavailable***



**Unavailable or inadequate space.** Combining types of space rated *unavailable* with those rated *inadequate or limited* produced a more dramatic picture of unmet space needs for education at the Smithsonian. Even the highest-rated type of space—“staff/office space”—was rated at best *inadequate or limited* by about half of the units (47%), and all other types of space were rated at best *inadequate or limited* by two-thirds or more of the units. In the case of “audio/video studio space,” 90% of the units considered the space at their disposal no better than *inadequate or limited*. (Figure 3.)

**Figure 3: Percent of Responding Units Rating Each Type of Space  
As Unavailable or Inadequate/Limited**



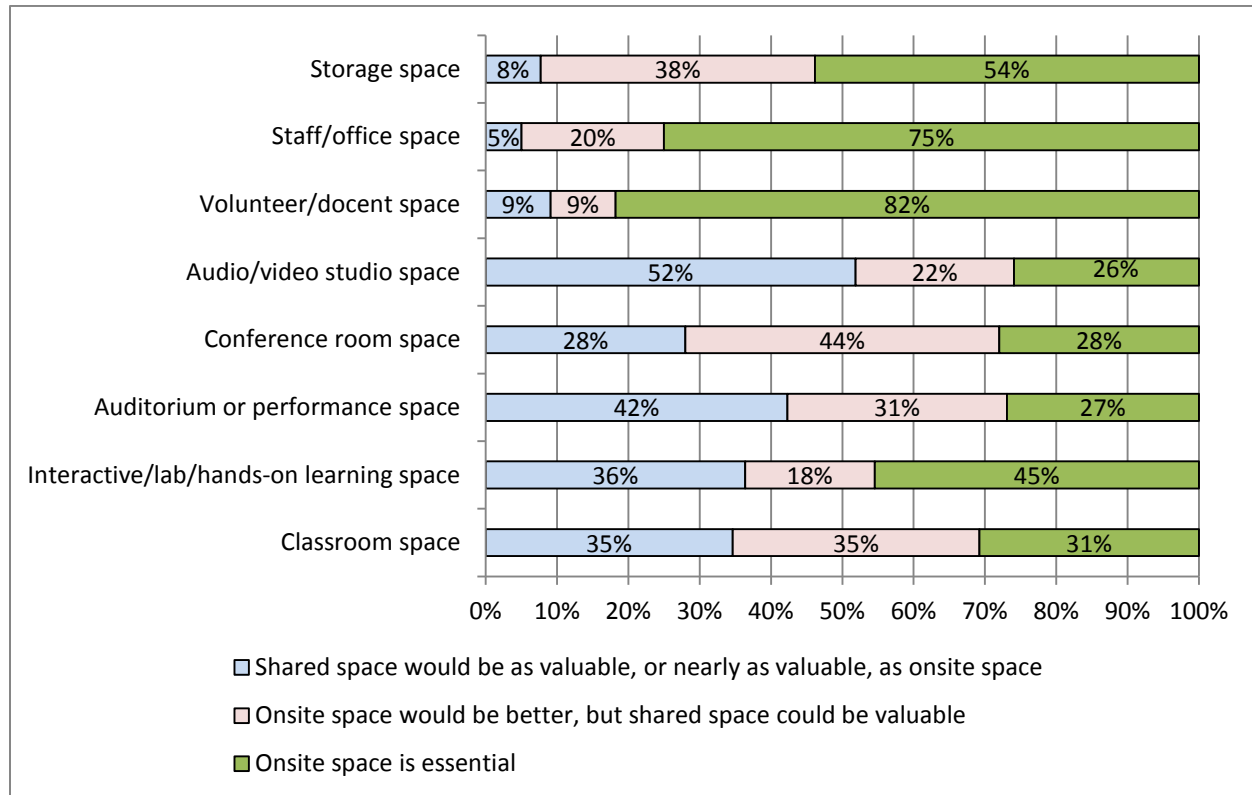
In addition to the specific types of space about which the survey asked, about two-fifths of all units (39%) listed other types of physical space for which they had an unmet need. These included the following:

- Exhibit, exhibit-based, and flexible programming space
- Informal gathering space
- Pavilion-type structures for outside programs
- Computer labs
- Work space
- Audience evaluation space
- Eating area for students and visitors
- Lockers/storage space for coats and school-group lunches
- Meeting rooms for staff and small meetings
- Space for props/handling objects
- Book storage/archival space
- Information/welcome area in gardens or on Mall campus

For each type of space that a unit identified as *unavailable* or *inadequate* or *limited*, the survey went on to ask how imperative it would be for the needed space to actually be on site at the responding unit. The choices were as follows: (1) *Shared space would be as valuable, or nearly as valuable, as onsite space*; (2) *Onsite space would be better, but shared space could be valuable*; and (3) *Onsite space is essential*. The results of this question are summarized in Figure 4, on the following page.



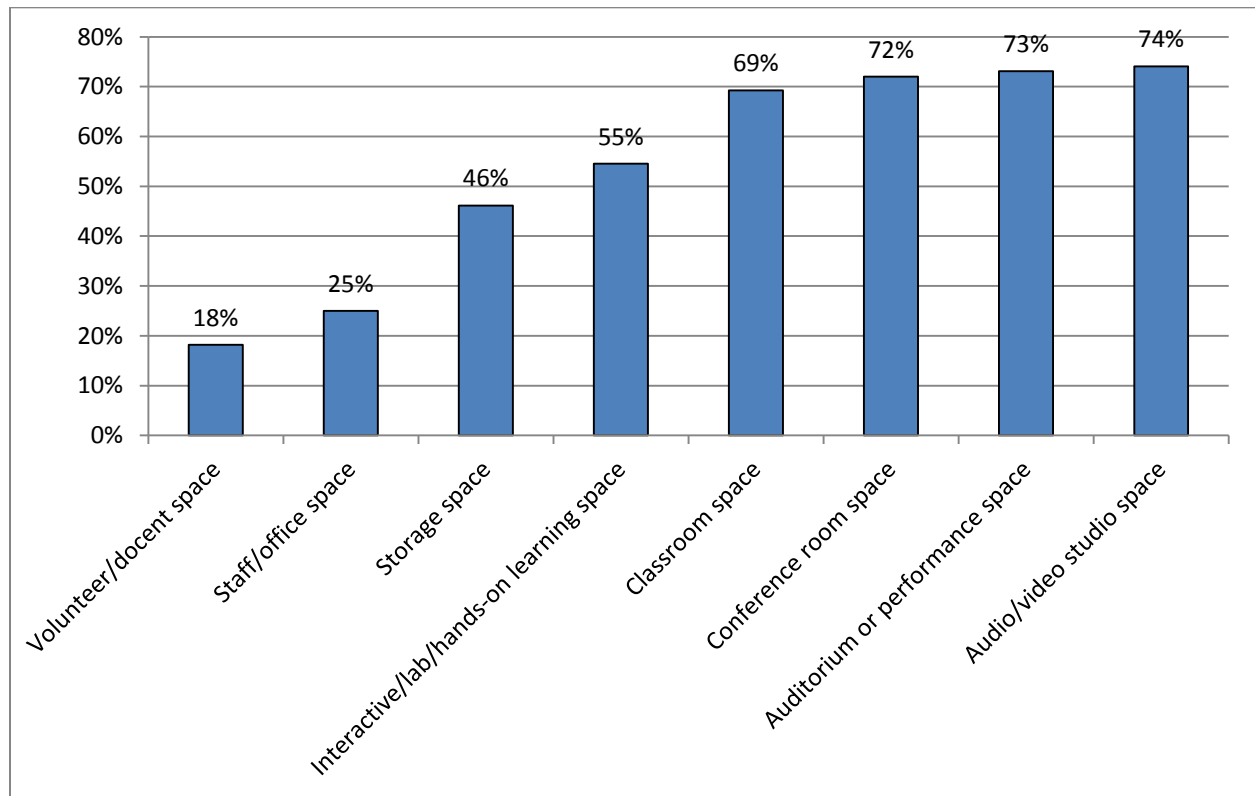
**Figure 4: Summary Results, Need/Desirability of Onsite Space  
(Percent of Responding Units)**



The perceived need for onsite space varied widely but in predictable ways, with three quarters or more of the responding units saying *onsite space is essential* for “staff/office space” (75%) and “volunteer/docent space” (82%), but only about a quarter saying the same for “audio/video studio space” (26%), “conference room space” (28%), and “auditorium or performance space” (27%).

For all types of space except “staff/office space,” “volunteer/docent space,” and “storage space,” at least half of the responding units considered shared space to be acceptable, if not optimal—that is, they answered either *shared space would be as valuable, or nearly as valuable, as onsite space* or *onsite space would be better, but shared space could be valuable*. For most types of space, the percentage of units considering shared space to be acceptable was closer to three quarters. (See Figure 5, next page.)

**Figure 5: Percent of Responding Units  
For Which Shared Space of Each Type Would be Acceptable**



The survey also asked respondents, in open-ended questions, to expand or explain their answers to the previous queries and to describe the audiences who would benefit from additional space resources. See Appendix B for respondents' open-ended comments on their space needs, and Appendix C for descriptions of the audiences who will benefit from additional space.

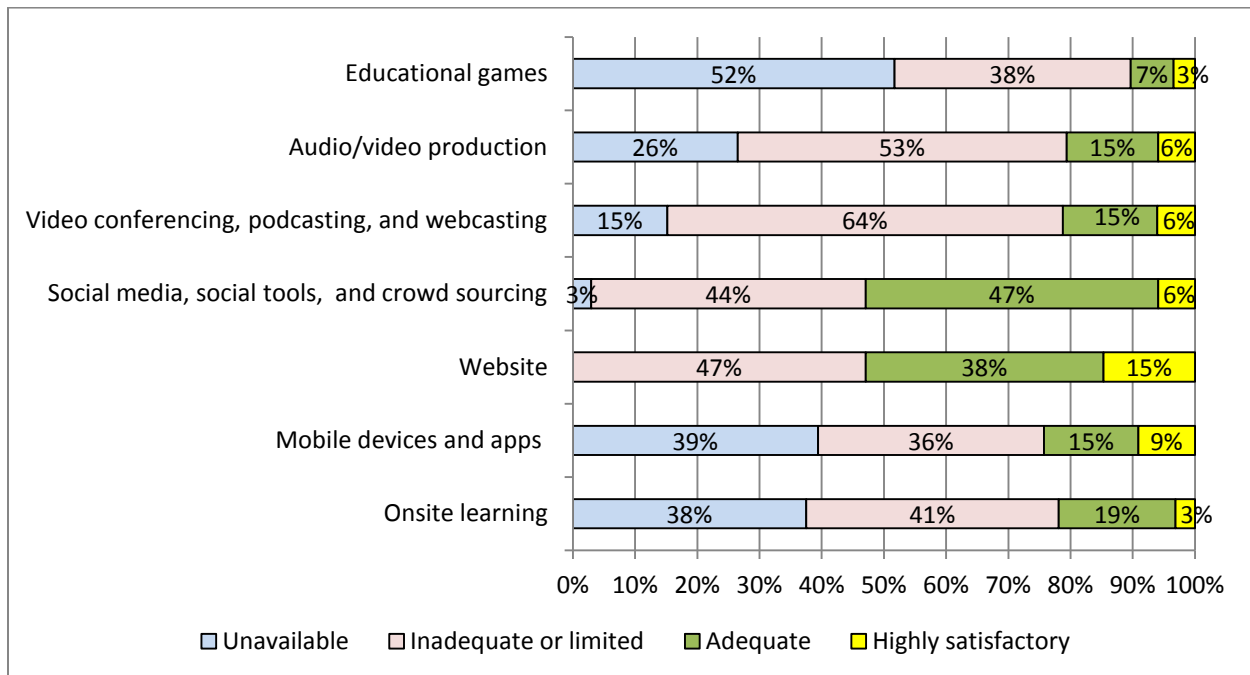
## Technological Resources for Programming: Findings

Units were asked to rate the availability/adequacy of technological resources to support educational programming in the following areas as (1) *Unavailable*, (2) *Inadequate or limited*; (3) *Adequate*; or (4) *Highly satisfactory*:

- Onsite learning (e.g. computer terminals for public/ programmatic use, interactive kiosks, etc.)
- Mobile devices and apps (including augmented reality and code-reading apps)
- Website
- Social media, social tools, and crowd sourcing
- Video conferencing, podcasting, and webcasting (e.g. virtual field trips, web conferences, etc.)
- Audio/video production
- Educational games
- Other technologies (to be specified)

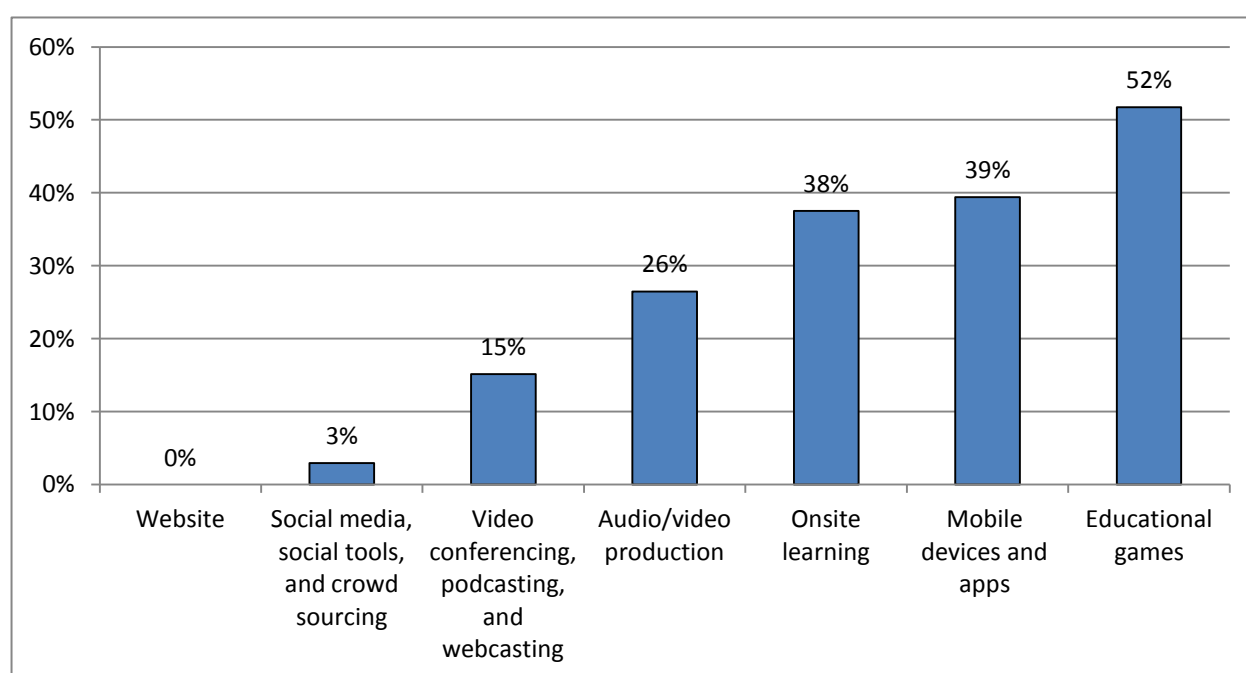
A visual summary of the findings is presented in Figure 6.

**Figure 6: Summary Results of Technological Resources Needs Assessment  
(Percent of Responding Units)**



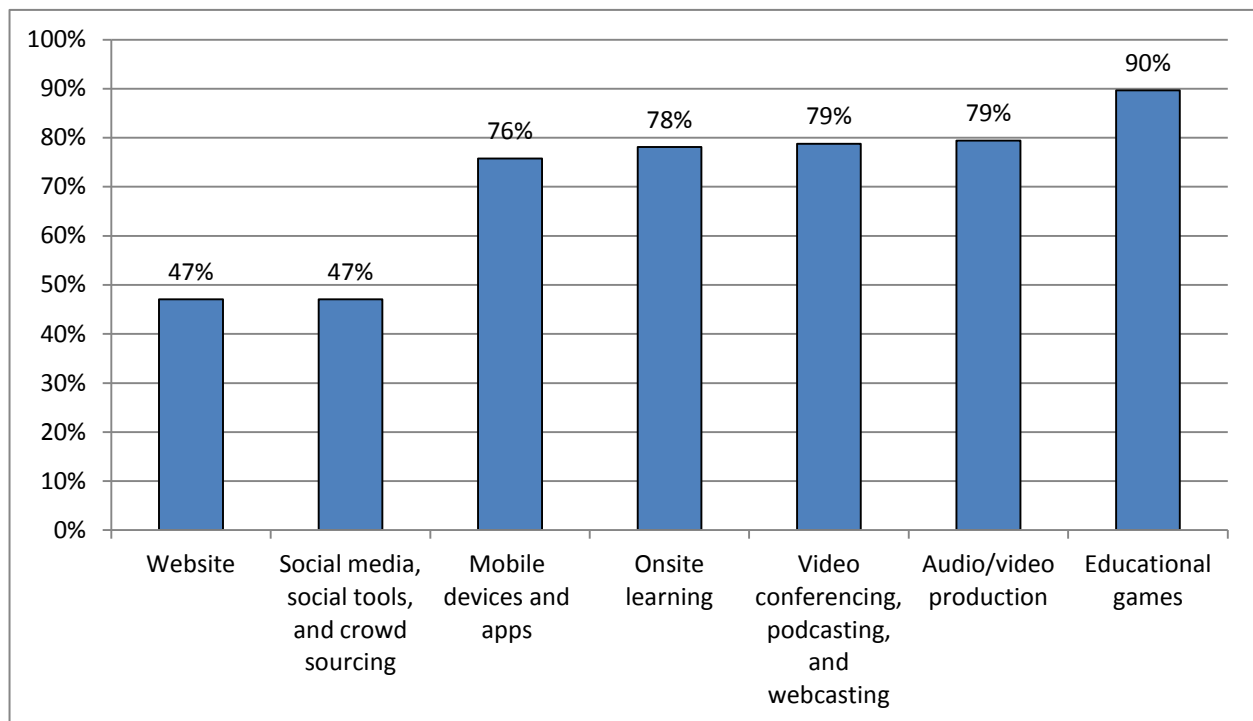
**Unavailable technological resources.** Over half the responding units (52%) rated the technological resources available to support “educational games” as *unavailable*, the most acute category of unmet need. About two in five also said that resources to support “mobile devices and apps” (39%) and “interactive learning space” (38%) were *unavailable* in their units. A quarter said the same for technological resources to support “audio/video production,” and about one in six (15%) said the same for “video conferencing” resources. No units rated resources to support a “website” as *unavailable*, and only one unit rated resources to support “social media” as *unavailable*. (Figure 7)

**Figure 7: Percent of Responding Units Rating Resources in Each Area as *Unavailable***



**Unavailable or inadequate technological resources.** Combining areas where technological resources were rated *unavailable* and those where these resources were rated *inadequate or limited* produced a more dramatic picture of unmet technological needs for education at the Smithsonian. Even the best-supported areas, “website” and “social media,” were rated at best *inadequate or limited* by about half of the units (47% in both cases). All other types of resources were rated at best *inadequate or limited* by three quarters or more of the units. In the case of “educational games,” 90% of the units considered the technological resources at their disposal no better than *inadequate or limited*. (Figure 8.)

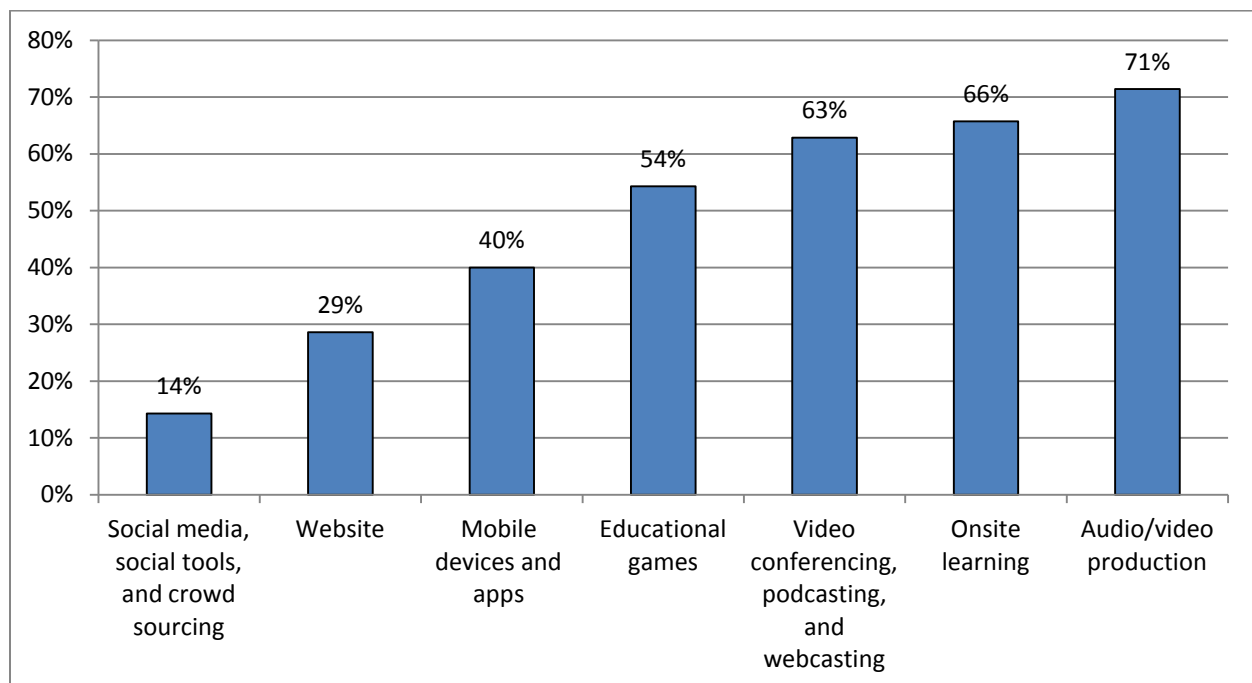
**Figure 8: Percent of Responding Units Rating Resources in Each Area  
As Unavailable or Inadequate/Limited**



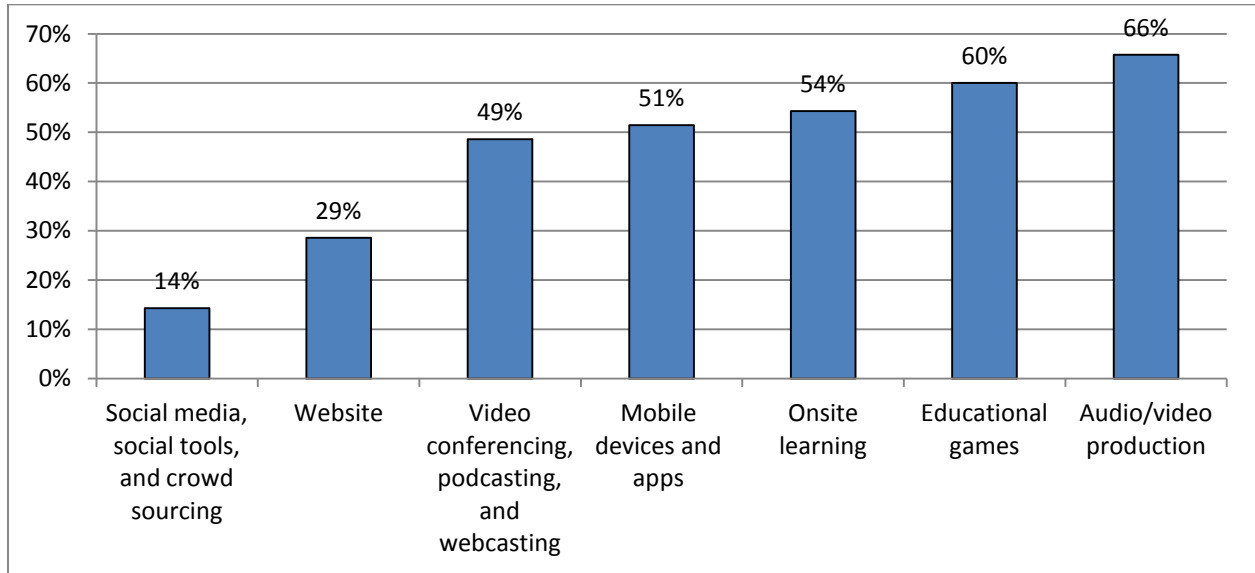
The survey asked units, for each type of technological resource judged to be *unavailable* or *inadequate or limited*, to select whether the deficiency was evident in the areas of *hardware/infrastructure*, *software*, and/or *skilled technical personnel*. The results are presented in Figures 9–11. (Note here that responses are presented in terms of percentages of *all* units returning the survey, to give a sense not only of relative magnitude of a particular type of deficiency—*hardware, software, or personnel*—across technology areas, but also of the relative magnitudes of the three different types of deficiencies.)

All three types of deficiencies were widespread across all areas of technology covered in the survey, although *hardware* deficiencies in the areas of “social media” (14%), “website” (29%), and “mobile devices” (40%), and *software* deficiencies in the areas of “social media” (14%) and “website” (29%), afflicted less than half of the responding units. *Software*, *hardware*, and *skilled personnel* deficiencies in all other technological areas afflicted about half or more of the responding units. On the whole, *skilled personnel* deficiencies appeared to be more acute than the other types, particularly with respect to areas (such as “social media” and “website”) that were in fairly good shape with respect to *hardware* and *software* deficiencies.

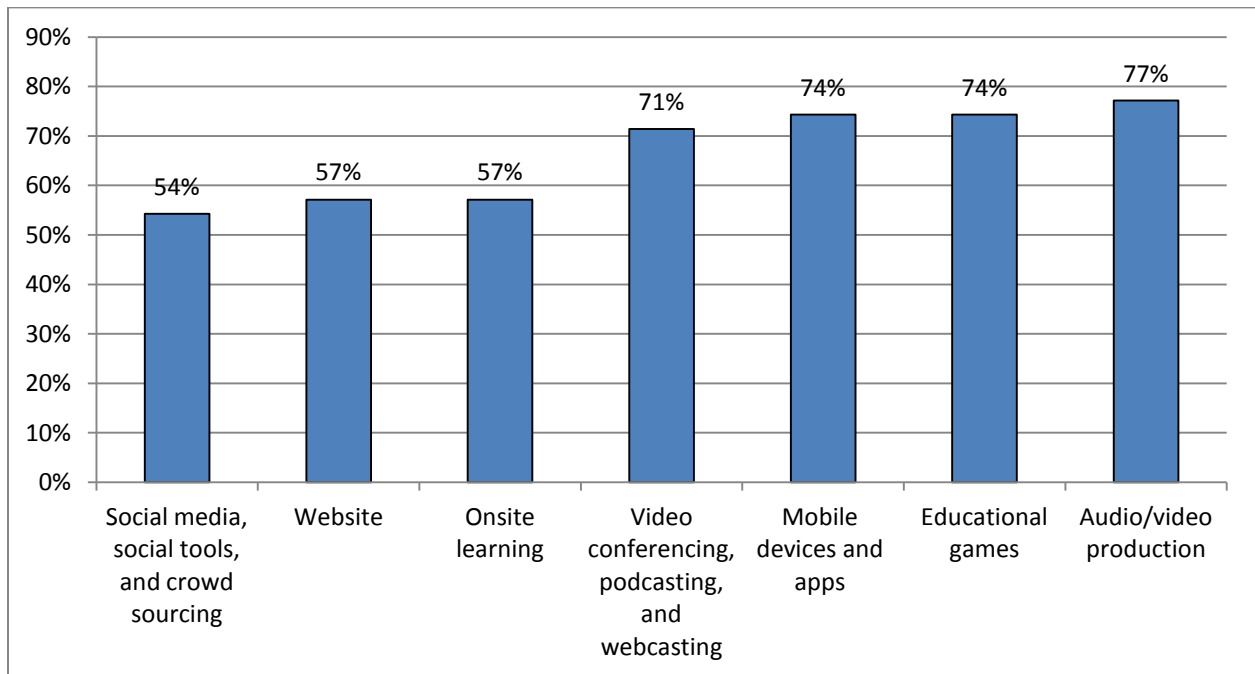
**Figure 9: Units Citing *Hardware/Infrastructure* Deficiency in Each Area  
(Percent of *All* Units)**



**Figure 10: Number of Units Citing *Software* Deficiency in Each Area  
(Percent of *All* Units)**

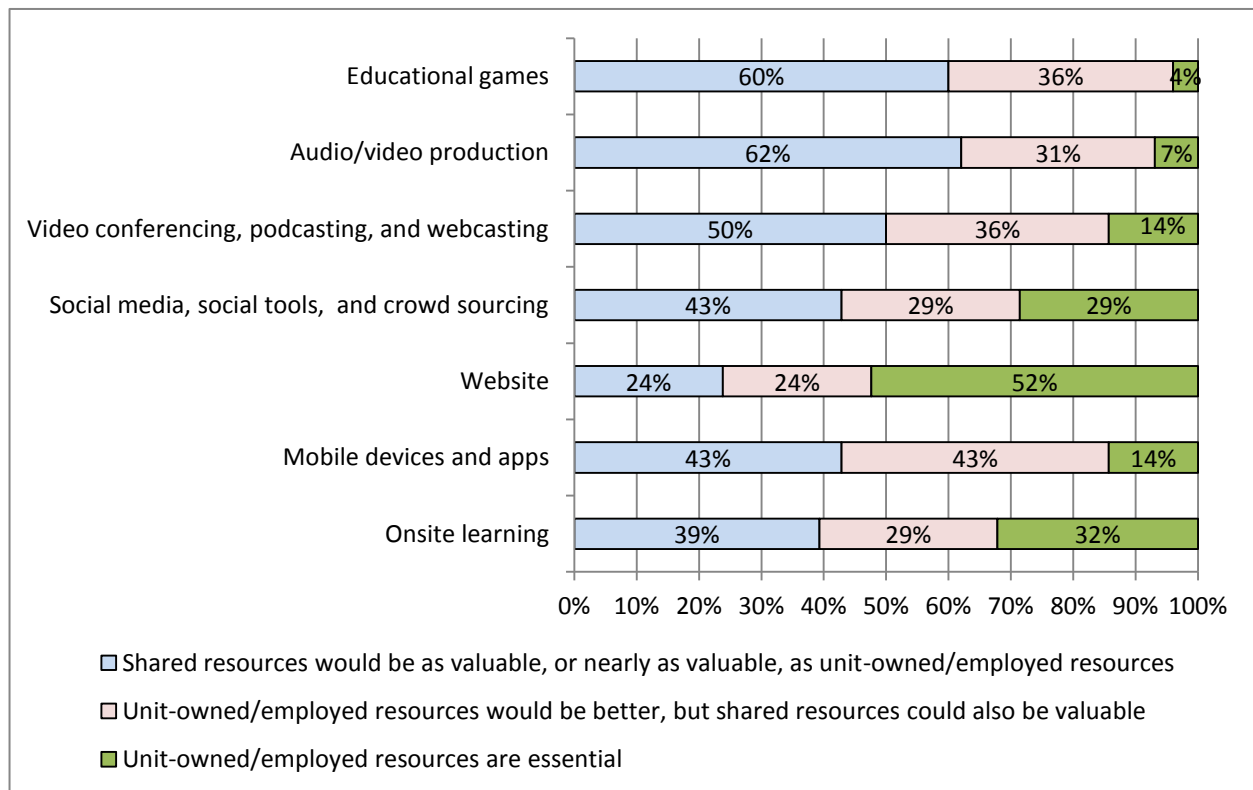


**Figure 11: Number of Units Citing *Skilled Technical Personnel* Deficiency in Each Area  
(Percent of *All* Units)**



For each area of technology resource that a unit identified as *unavailable* or *inadequate* or *limited*, the survey went on to ask how imperative it would be for the needed resources be owned or employed by the unit itself. The choices were as follows: (1) *Shared resources would be as valuable, or nearly as valuable, as unit-owned/employed resources*; (2) *Unit-owned/employed resources would be better, but shared resources could be valuable*; and (3) *Unit-owned/employed resources are essential*. The results of this question are summarized in Figure 12.

**Figure 12: Summary Results, Need/Desirability of Unit-Owned/-Employed Resources (Percent of Responding Units)**

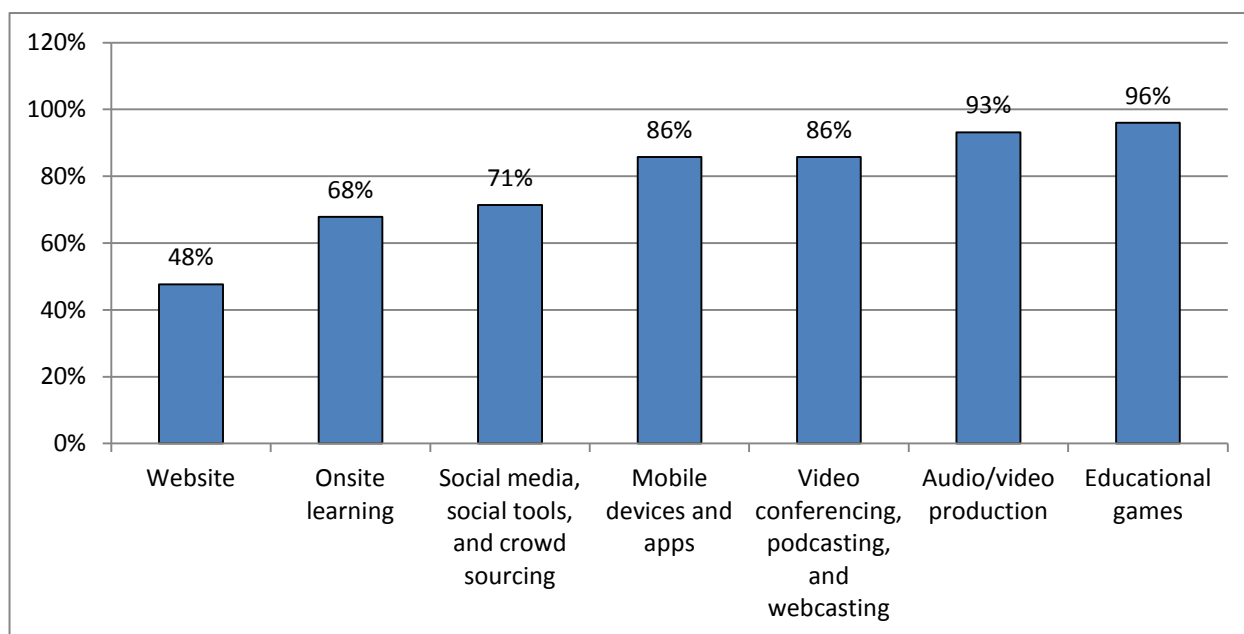




The perceived need for unit-owned/employed resources varied widely, with about half (52%) saying *unit-owned/employed resources are essential* with regard to “website” resources, but only one unit (4%) saying the same for resources to support “educational games.”<sup>2</sup>

For all types of resources except those for “website” support, about seven out of ten or more of the the responding units considered shared resources to be acceptable, if not optimal—that is, they answered either *shared resources would be as valuable, or nearly as valuable, as unit-owned/employed resources* or *unit-owned/employed resources space would be better, but shared resources could be valuable*. For most types of resources, the percentage of units considering shared resources to be acceptable was well over four out of five. And even for “website” resources, the figure was nearly half (48%). (Figure 13)

**Figure 13: Percent of Responding Units  
For Which Shared Resources of Each Type Would be Acceptable**



<sup>2</sup> Somewhat surprisingly, only a third of responses said that unit-owned/-employed resources for “onsite learning” were essential. This is probably because many of the responding units (e.g., SITES, SLC, APAP, SIL, etc.) have little or no public space of their own, so “onsite” has a different connotation for them— not literally in the space they occupy, but in the programmatic space they secure (whether from other Smithsonian units or external organizations) for their programmatic purposes.

In addition to the specific types of technological resources about which the survey asked, six units (17%) listed other types of resources for which they had an unmet need. These included the following:

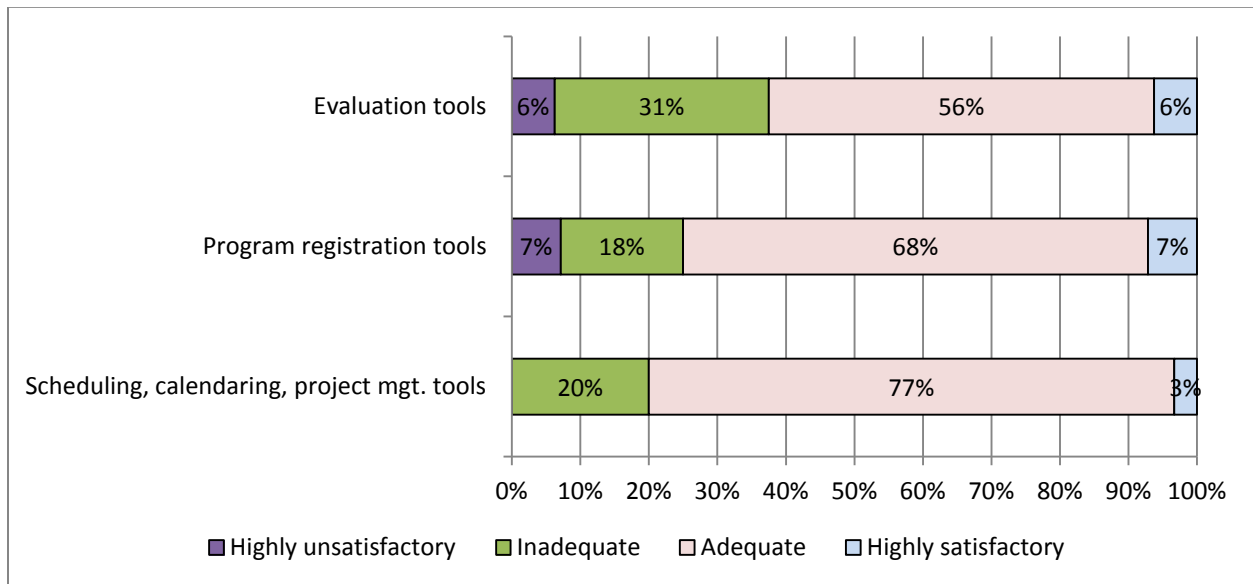
- Surface tables
- Digital media for teens
- Emerging technologies and training
- Multi-user virtual world environments
- Wifi in the museum/to allow technologies such as Vidyo

The survey also asked respondents, in open-ended questions, to expand or explain their answers to the previous queries, and to describe the audiences who would benefit from additional technology-related resources. See Appendix D for respondents' open-ended comments on their technological needs, and Appendix E for descriptions of the audiences who will benefit from additional technology resources.

## Technological Resources for Administration: Findings

With respect to the administrative technologies of “scheduling, calendaring, and project management tools,” “program registration tools,” and “program evaluation tools,” most units appeared to be more satisfied, although they were slightly less likely to see their “evaluation tools” as *adequate* in comparison with the other two areas. (Figure 14)

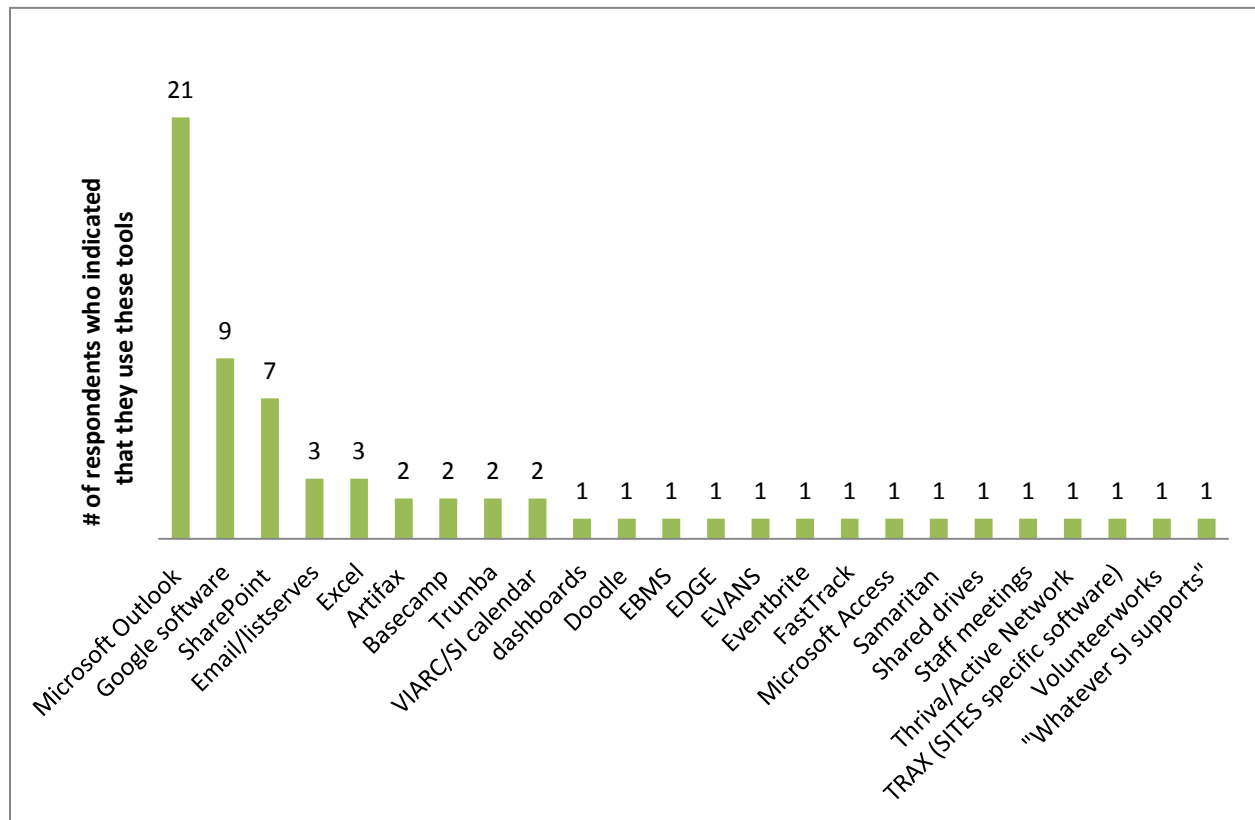
**Figure 14: Adequacy of Technology Tools for Administrative Purposes**



The survey asked the units to briefly describe the platforms/processes/methods, if any, that they use in these three administrative areas, with the following results.

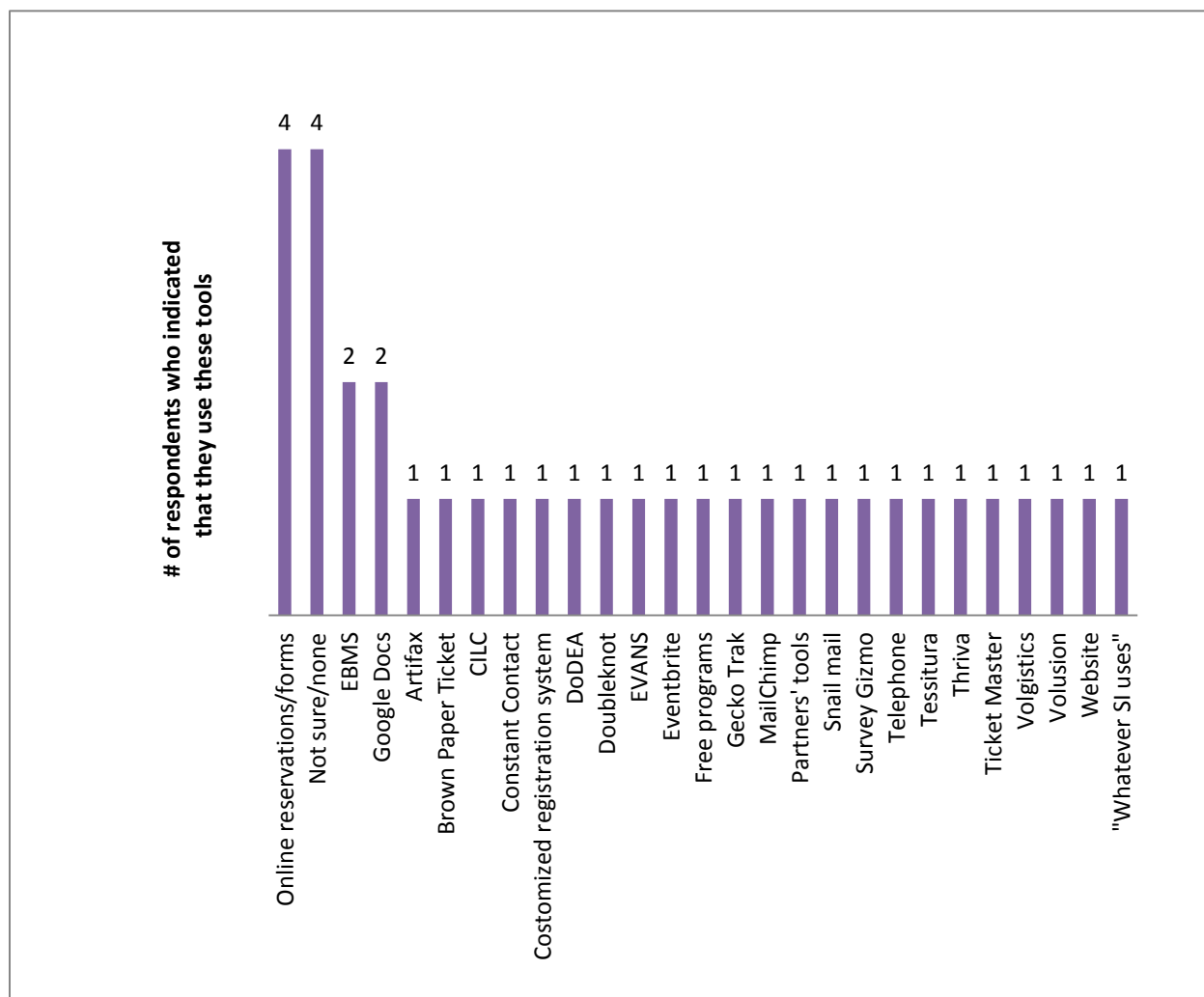
**“Scheduling, calendaring, and project management” tools.** Microsoft Office, particularly Outlook Calendar, was mentioned by the largest number of units (21) in this area. Google software (Calendar, Google Docs, Googlewiki) was the second-most-commonly-used product (9), followed by Microsoft SharePoint (7). Email/listserves and Microsoft Excel were mentioned three times. Artifax, Basecamp, Trumba, and VIARC/Sl’s online calendar were each cited twice. Dashboards, Doodle, EBMS, EDGE, EVANS, Eventbrite, FastTrack, Microsoft Access, Samaritan, shared drives, staff meetings, Thriva/Active Network, TRAX, Volunteerworks, and “whatever SI supports” were each mentioned once. (Figure 15) A few respondents mentioned that some programs they used are compatible with the SI-wide online calendar (e.g. Trumba), while others are not.

**Figure 15: Scheduling, Calendaring, and Project Management Tools**



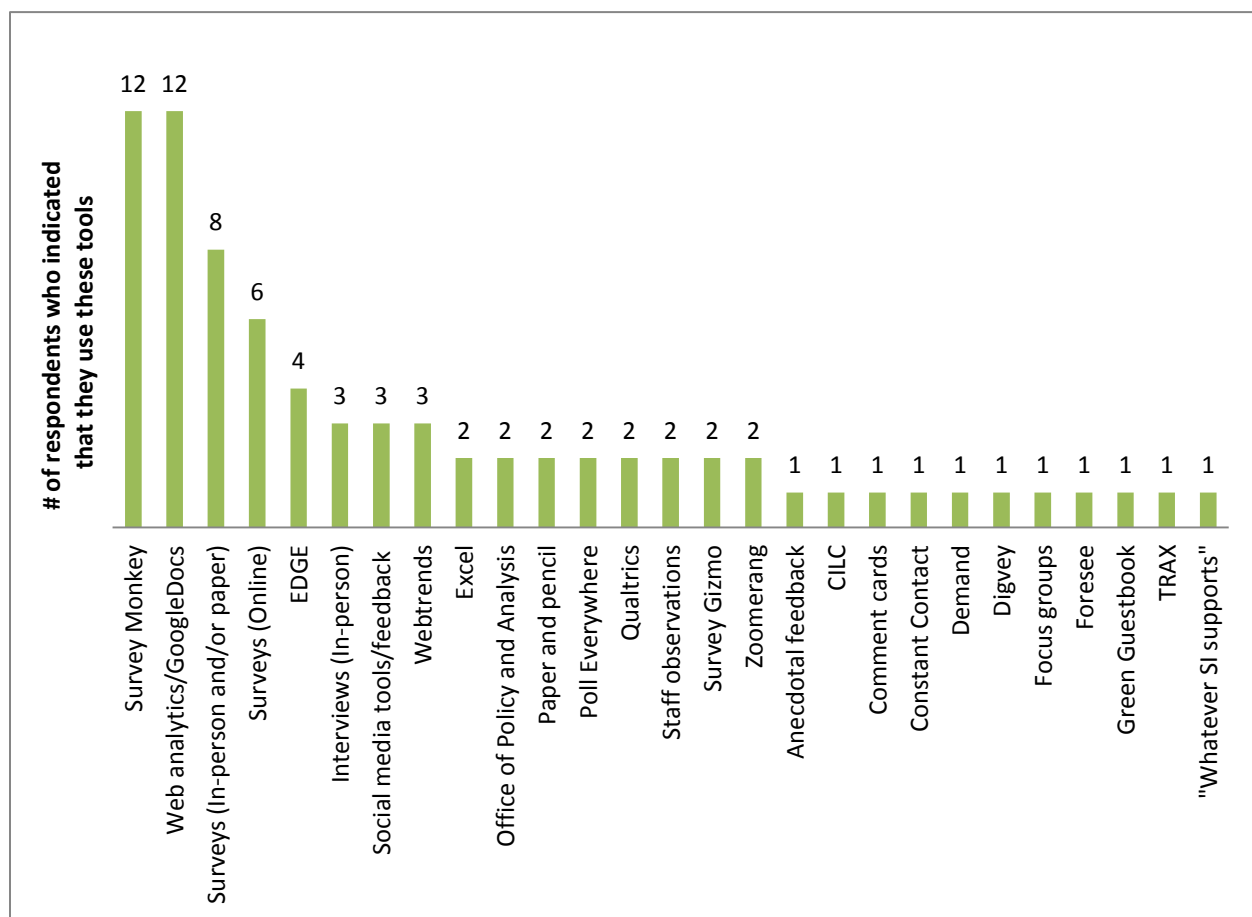
**Registration tools.** Four units indicated that they use online reservations and/or online forms. Another four wrote that they do not know, or do not use, registration tools. Two relied on Google Docs and EBMS, while the following tools were each mentioned once: Artifax, Brown Paper Ticket, CILC, Constant Contact, customized registration system, DoDEA, Doubleknot, EVANS, Eventbrite, free programs, Gecko Track, MailChimp, partner organizations' registration tools, snail mail, Survey Gizmo, telephone, Tessitura, Thriva, Ticket Master, Volgistics, Volusion, website, and "whatever SI uses." (See Figure 16)

**Figure 16: Program Registration Tools**



**Evaluation tools.** For the units' evaluation needs, Survey Monkey and web analytics/ Google Docs were mentioned by the most units (12 each), followed by surveys administered in-person and/or on paper (8), surveys conducted online (6), and the EDGE system (4). In-person interviews, social media tools and feedback (e.g. Facebook hits), and Webtrends were each mentioned three times. Excel, services from the Office of Policy and Analysis, paper and pen, staff observations, and Survey Gizmo were each mentioned twice. The following methods or tools were each mentioned once: anecdotal feedback from teachers, CILC, Constant Contact, Demand, Digvee, focus groups, Foresee, Green Guestbook, comment cards, TRAX, and "whatever SI supports." (Figure 17)

**Figure 17: Evaluation Tools**



Some respondents expressed a desired to improve their evaluation processes and tools. One respondent wrote: “We definitely would like to move from a paper pencil evaluation of our activities to electronic capture. The time and accuracy benefits would be substantial.”

The survey asked the units, in an open-ended question, to describe any other technology infrastructure-related resources or issues that were relevant to education at their units. For comments by unit, see Appendix F.