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SPEC Kit 328

Collaborative Teaching and Learning Tools

July 2012

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SPEC Kits are published by the

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Washington, DC 20036-1118
P (202) 296-2296 F (202) 872-0884
http://www.arl.org/resources/pubs/spec/
pubs@arl.org

ISSN 0160 3582

ISBN 1-59407-881-5 / 978-1-59407-881-1 print
ISBN 1-59407-882-3 / 978-1-59407-882-8 online

The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (R1997) Permanence of Paper for Publications and Documents in Libraries and Archives.

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Introduction

Collaborative teaching and learning tools include a variety of hardware used to view, create, and present information. This survey specifically focused on equipment, devices, or systems being offered to research library users in a self-service environment for individualized, user-initiated, collaborative teaching and learning. Many of these tools have steep learning curves, while others are much more intuitive and are used extensively across research institutions. They may be located at the libraries or elsewhere at the institution. While some tools lend themselves to collaborative teaching and learning, others may be associated with individualized teaching and learning scenarios. Although many institutions provide loanable technology for educational use, there is little documentation of such programs. The survey provides a snapshot of what is or will be offered in 63 libraries at 61 of the 126 ARL member institutions.

Equipment Offered

The 13 types of tools addressed in the survey range from traditional classroom-based resources (e.g., whiteboards) to more sophisticated technologies repurposed for educational uses (e.g., videoconferencing systems). Respondents were asked to identify which of the tools are currently offered at their libraries, which technologies they are planning to provide, which they do not plan to provide, and, if the library does not offer the tool, whether it is available elsewhere at the institution. The survey also asked how many of each type of tool is or will be available. Sixty-one of the 63 respondents (97%) currently offer at least one form of collaborative teaching and learning tools to their users.

Not surprisingly, non-interactive whiteboards are the most available tools identified in the survey. Fifty-eight institutions (97%) have or plan to have them; only two libraries have no plans to offer whiteboards. The number offered ranges from two to 100 per owning institution, with an average of approximately 23 units.

Laptops are the next most commonly available tool. Forty-one of 62 responding libraries (66%) offer or plan to offer laptops. These libraries offer about 59 laptops, on average. At least one respondent reported that while the institution strives to offer emerging technologies, the laptop loan service continues to be "one of [the] most popular and appreciated services" offered by the libraries. In contrast, another respondent noted that they are discontinuing laptop checkout and are instead encouraging students to bring in their own. One institution described the transition from a laptop to netbook loan service as a way to increase the number of units available to users, "given the lower price of [them]." Touchscreen tablet computers such as iPads and Android tablets (e.g., Motorola Xoom) are or will be available at 38 institutions (61%), with owning libraries offering an average of 12 units. E-book readers are also offered or will be offered at 24 ARL libraries (39%), with an average of 10 readers at each library.

Collaborative devices for multimedia production are widely available. Forty libraries (63%) offer video recording devices such as the FlipVideo tapeless camcorder. These institutions reported supporting an average of 13 units each. Fifteen libraries (24%) do not plan to offer these devices, and eight (13%) indicated the equipment is available elsewhere within the

institution. Similarly, more than half the respondents reported having audio recording aids at the library (34 responses or 55%). Several (11 or 18%) reported that other locations on campus have these devices.

Thirty institutions (49%) reported they currently offer or plan to offer interactive whiteboards. These collaborative tools are available elsewhere at 11 institutions (18%), but 20 others (33%) reported that they do not plan to offer this tool. Although interactive whiteboards are used in libraries and throughout several reporting institutions, interactive learning centers (touch tables) that use comparable technologies are only available or will be available at 15 libraries (25%). The specialized nature of content to optimize use of a tool, such as GIS, may contribute to its low response rate. A tool commonly associated with the interactive whiteboard—the audience response system with clickers—is or will be in place at 29 institutions (48%), with an average of 120 clickers at each owning library. Twenty-three respondents reported that audience response systems are being used at locations other than the library. One institution commented that ABTutor or polleverywhere served as an alternative to the audience response system.

Handheld videoconferencing devices such as webcams are offered or will be offered at 14 of the reporting institutions (23%), with an average of 32 units, and one respondent commented that some tablet computers and laptops are equipped with a built-in camera with audio and video capability; since this capability enables use for videoconferencing purposes, purchase of standalone devices was deemed unnecessary. Thirty-six institutions (61%) currently offer or will offer videoconferencing systems. Few libraries offer their patrons gaming systems (eight institutions or 13% with an average of four units each) and personal digital assistants are no longer popular (three institutions or 5%).

Thirty respondents reported they support a variety of other devices, electronics, systems, and workspaces to allow creation, viewing, and editing of information. Viewing devices are mentioned most frequently; monitors and projectors allow a larger group of users to work together without having to crowd around a small monitor. Nine institutions (30%) have anywhere from two to "dozens" of display monitors (LCD and plasma). Eight have between two and 25 projectors (portable to larger data projectors). An alternative to a single, large display is collaborative workspace offered by Steelcase. Mentioned in eight of 30 responses (27%), this media:scape workstation system is described as providing a "collaborative seating arrangement [with] a large screen monitor and table for laptops that connect." media:scape allows users to shift quickly between displays of connected laptops and other devices such as an iPad. Responding institutions had as few as one station and as many as 20 at some libraries.

Several institutions offer other computer electronics such as scanners, drawing tablets, and various storage media. Headphones (three institutions owning a range of 16 to 60 units) and microphones (six institutions ranging from three to 37 units each) vary from very basic to professional quality. Smaller accessories necessary to optimize use of computing and productivity tools (such as adapters and cables) are noted to be available in "kits" or as standalone items to be used in the library.

Reference to multimedia production was in connection to technology-rich spaces within the libraries, sometimes referred to as information commons, media centers, or knowledge commons. One library reported jointly administering the spaces with institutional/campus technology departments and reported those holdings. Among the equipment frequently maintained for video and audio production are digital cameras (ranging from four to 18 units each at seven institutions) and accessories, including tripods. One respondent explained, "[providing] editing facilities [is] used to integrate media from our collection into academic projects. In addition to using found footage and content in digital productions, our users can also create new content using the digital still and video cameras, audio recorders, and accessories like lighting and microphones." Audio players, video editing equipment, and video conversion tools, audio editing equipment, imaging technology, music keyboard and mixing boards, transcription kit, and 3-D modeling and animation equipment were reported as available by at least one institution. Appropriate software packages to use these tools are installed when necessary.

Unique responses designated as collaborative tools by respondents included large-scale poster plotters, GPS, and PA systems. Non-electronic tools offered included graphing and scientific calculators, project lockers, media viewing rooms, presentation practice areas, module and mobile furniture, green screens, and carts for transporting equipment.

Equipment Location

The locations of learning and teaching tools include open user areas (such as reference or information commons areas), classroom or teaching/training labs, group study rooms, the circulation desk, and other facilities across the institution, including library conference rooms, campus computing centers, media centers or information technology labs for instructional support services, student unions, and dorm study rooms.

Non-interactive whiteboards are found in many locations at the 63 responding institutions, including open areas (32 responses or 57%), classrooms/labs (30 or 54%), and group study rooms/spaces (43 or 77%). The prevalence of this non-digital collaborative tool is likely due to its inexpensive and easy-to-maintain nature.

Interactive whiteboards are in open spaces at nine institutions (25%), though more often they are housed in classrooms/labs or group study rooms. Nine of the 14 libraries that have interactive learning centers put them in public spaces in the library; one library indicated a touch table is available in an exhibition area within the special collections library.

Although some tools are available in open spaces, expensive equipment is typically not found in open, unregulated areas in the library unless mounted (e.g., plasma displays), grounded (e.g., media:scape tables), or installed to another device (e.g., videoconferencing devices or scanners).

Videoconferencing systems, interactive whiteboards, and audience response systems are commonly found in classroom/lab environments and group study rooms. In the classrooms they are usually only for faculty use. Respondents' additional comments showed six instances of videoconferencing systems housed in conference rooms.

Many of the tools available for loan and use onsite include laptops, video recording devices, audio recording devices, touchscreen tablet computers, calculators, and e-book readers. Associated peripherals such as keyboards, portable scanners, projectors, power cords, and cables for monitors and webcams are also loaned by at least one institution. Monitors, keyboards, and some other tools/devices for media or video production are sometimes held in the group study rooms (five institutions) and are, in effect, checked out at the time of reserving the user space. The media:scape tables are held in various locations throughout the libraries; institutions varied by making them either openly accessible on a first come-first serve basis or loaned via check out of a group study room.

Scheduling

Forty-six of the responding institutions (74%) indicate they use some kind of scheduling process to reserve collaborative teaching and learning tools. The most common methods are scheduling equipment in person (20 responses or 44%) and using a form on the library's website (19 or 41%). A few libraries accept reservations by sending an email, scheduling via the catalog, calling in a request, and using an online calendar such as Oracle or Outlook. Four institutions use a commercial booking system (e.g., OnShore Development). The catalog or homegrown systems are most often used for advanced booking. One institution indicated that, "Check out of more advanced/expensive equipment… sometimes requires faculty sign-off." One institution uses touchscreen tablets outside of study rooms for on-the-fly scheduling.

While respondents are not consistent with the systems used to schedule and reserve tools, they reported some consistency with what is scheduled. Respondents focused either on a specific tool or on booking user spaces that are equipped with tools not individually checked out. Fifteen institutions (68%) reported they book group study rooms or classrooms that house various tools. Examples of this practice are booking the media production room to reserve video equipment and green screens, presentation space to check out monitor and cables, or a group study room to reserve the interactive whiteboard or videoconferencing system. Examples of devices that can be reserved include laptops and e-book readers. These are

barcoded and checked out to the user's institutional identification/library card.

Decision Drivers

Libraries decide to make learning and teaching tools available to users based on a number of drivers. Respondents to the survey indicated that user request is the most compelling reason to purchase collaborative tools (54 institutions or 87%), while recommendations from a library committee or staff member is the second highest driver (52 or 84%). The third highest driving factor comes from university department collaborations, where libraries focus equipment purchase on tools integrated into the classroom and curriculum (36 or 58%). Adding the tool to designated technology-rich spaces in the libraries (e.g., the information commons) was the fourth highest reported driver (34 or 55%).

Other decision drivers for the purchase and support of collaborative teaching and learning tools range from a consideration of trends and best practices to input from faculty or students. Opportunities such as new construction projects, donations from private donors, improved wireless coverage, and allocation of student technology fees influenced the decision for other institutions. One respondent noted that a plan for continuous assessment of user needs should be in place before including technology. As this plan develops, user demands and expectations may also evolve.

Use Policy

When asked about restrictions on the use of teaching and learning tools, many of the respondents (26 or 43%) indicated that some tools are available to some users while others are restricted. Eighteen (30%) indicated that use is restricted based on user category, while a comparable number (17 or 28%) revealed that all tools are available to all users.

Forty-five respondents provided additional information about restrictions on tool use. In the majority of cases (29 or 64%), currently affiliated students, faculty, and staff can use any of the offered collaborative tools. In some cases (11 or 24%), only students can use the equipment, as purchase and use agreements are governed by the student technology fee paid or other grants specifically targeted to students. At two institutions, students can only reserve an interactive whiteboard if faculty have "signed-off (via email)" on their use. In other cases (nine or 20%), teaching staff (both faculty and graduate students) are eligible to use tools such as cameras, audio recording devices, and laptops. In one case, the library restricts use to a specific population: "Video cameras and digital audio recorders are available to faculty/students teaching/enrolled in a class using oral history or other guided interview methods in coursework."

Twenty-six of the responding libraries (43%) require a registration process for use of many of the collaborative tools, while the same number of respondents indicated that neither training nor registration is required. The registration process typically requires users to sign an agreement, when they checkout such items as laptops, iPads, MacBooks, cameras, and audio recording devices, that specifies, "They agree to certain responsibilities including how the equipment can be used and their financial obligation in the event of theft, loss, and/or late return" (15 responses or 54%). Registration is usually a paper agreement form, but one respondent indicated that users must complete an online agreement form to book a Kindle in the catalog.

In four instances (14%), users contact staff directly to register to use videoconferencing tools, iPads, and Blackberries. At six institutions (21%) students are automatically registered when they check out laptops and iPads in the library system or during advanced booking by web form.

Training and Technical Support

A quarter of the responding libraries require users to complete training before using these tools. In some cases, library staff simply provide brief presentations that cover use policies, basic equipment operation, and "general how-tos." One institution requires training for iPads that are used in instructional seminars they offer on the use of medical apps. More complex or very specialized equipment, such as recording studios, multimedia workrooms, videoconferencing equipment, and video cameras, require more extensive training. One institution uses online videos—student technology workers in the media center developed online training modules that users must complete before receiving any equipment. Another institution offers

a workshop for interactive whiteboard use. In one instance, certification is required for "some complex equipment." Where training is not required, instructions on how to use the equipment is offered upon request.

More than half of the 58 responding libraries (33 responses or 57%) reported that both library IT/systems and non-systems staff play a role in training their coworkers to use and troubleshoot collaborative tools. About a third of these 33 also turn to their parent institution IT staff and/or commercial vendors for training. At 12 libraries only non-IT library staff provide training or troubleshooting. Five rely solely on library IT staff. Only two respondents report training or troubleshooting only by the parent IT staff. The high number of respondents who depend on non-systems staff for training/troubleshooting (47 or 81%) indicates the need for immediate support for staff in public service functions. One respondent describes staff being trained by "super users" in their area. Another commented, "It depends. Most troubleshooting is done and documentation developed by front-line staff. When necessary, IT staff will help resolve technical problems. We intentionally wanted equipment and systems that were readily usable and wouldn't require staff help."

When asked who provides technical support for library users, the responses were almost identical to who provides training. The majority of respondents once again depend on either non-systems library staff (47 of 61 responses) or library IT/systems staff (40 responses). With a few variations, the same libraries rely on the parent institution's IT/systems staff for user support. Only four respondents receive user technical support from vendors. This suggests a dependence on "train-the-trainer" sessions for library staff who receive the training directly from vendors and then pass that knowledge on to the users. Comments on this question also hint at support for students by students.

Not surprisingly, maintenance and repair of collaborative teaching and learning tools shifts more to library IT/systems staff (49 or 81% of responses overall). The number of libraries that rely on non-systems library staff goes down to roughly half. Most of these 30 respondents also depend on library and parent institution IT staff and vendors for maintenance and repairs. Most of the remaining 31 respondents rely on a combination of library and parent institution IT staff and commercial vendors. Additionally, responses in the "other" category imply that institutions are willing to go "out-of-house" (e.g., outsource) to keep highly technical tools in good working order. Reliance on commercial vendors for repairs and maintenance is also likely a reflection on the contractual obligations of the suppliers to honor warranties for malfunctioning parts or hardware.

Considering the complex nature of new technology and hardware involved with the wide variety of collaborative teaching and learning tools, responses to this question and the previous support questions clearly indicate that institutions depend greatly on their IT/systems staff for maintenance and troubleshooting of highly technical hardware and software. However, right along with them are non-IT/systems library staff members that provide assistance in about half of each of the troubleshooting, technical support, and maintenance scenarios.

Financial Support

Initial purchase of collaborative teaching and learning tools in libraries is done through a variety of funding sources, but chiefly they are acquired through the general library budget (53 responses or 86%). The library's IT/systems budget came in second as a source of funding for half of the responding libraries. About a third relied on the parent institution's IT/systems budget or student technology fees. Grant funding from outside agencies is used by roughly one-fifth of the libraries. Only six respondents reported using a public/private partnership for funding. The "other" responses fall into several discernable categories: donations/donor funds (seven responses); other institutional departments (four responses); endowment funds (three responses); and renovation/construction funds (three responses). One respondent reported using library fines and fees. Another is considering using collection development funds in the near future to buy e-readers and iPads. A third received funding for laptops and netbooks from a local credit union, while one library system used "shared funding" of student technology fees by collaborating with other units on campus. Such creative and varied responses suggest libraries

themselves are being innovative when seeking outside funding streams to purchase cutting-edge tools.

Funding for ongoing maintenance and replacement of equipment follows a very similar pattern to that of initial purchase funding: most respondents depend on the general library and/or IT/systems budget. Funding from student tech fees drops to 25% of respondents and from the parent institution's IT/systems budget falls to 20%. As might be expected, grant funding and public/private partnerships drop off considerably after initial purchases of equipment and the parent institution or library takes over maintenance and repair. Two libraries use library fines and fees for maintenance and repair. One institution generates income from a "Distance Learning Library Services program." One library hopes that as some collaborative tools gain popularity across campus that university administration will acquire a site-license.

Only four libraries report charging fees for the use of collaborative teaching and learning tools. One institution charges unaffiliated users a fee to use some equipment and rooms. At one library, late fees are $5 an hour for electronic equipment and $1 an hour for accessories. Another library charges a fee for late return of laptops ($20/hour, up to a maximum of $200). While no up-front fees are charged to affiliated users of these institutions, refusal to adhere to use policies and due dates for electronic equipment potentially can be seen as additional revenue stream for their purchase, maintenance, and repair.

Publicity and Evaluation

When offering a new service, libraries often try to publicize the new service through a variety of media such as library websites, fliers, social networking sites, email, newsletters, and the campus newspaper. However, when asked how they promoted the availability of new collaborative teaching and learning tools in their libraries, respondents overwhelmingly relied on simple word of mouth (59 responses or 95%). Not far behind that response are announcements on the library website (56 or 90%), followed by mentions in library classes and tours (54 or 87%). Such seemingly passive promotion of a new service may be due to the technical support and large learning curves associated with tools that may be deemed technologically advanced for library staff and users. Even a traditional method of promotion like signs and flyers (42 or 68%) ranks slightly ahead of "web 2.0" social networking methods like Facebook, Twitter, YouTube, etc. (40 or 65%). Fewer than half of the respondents reported using email (30 or 48%), library newsletters (29 or 47%), or campus newspapers (16 or 26%), signifying much less reliance on these methods as a means to reach a more technologically advanced user. Open-ended responses indicated use of various "digital signs," e.g., electronic signs on campus or screen savers on workstations, to reach potential users. Three respondents relied on library outreach or liaisons to campus departments. Two libraries used institutional websites, while one had not started marketing initiatives, yet.

Similar to the methods employed in publicity, assessing the success of offering collaborative teaching and learning tools is largely informal in most of the responding libraries. Informal user feedback (57 or 93%) and tracking the number of uses of each tool (55 or 90%) are the two most common evaluation methods. Surprisingly, fewer than half indicated they use formal surveys of users (26 or 43%), though an analysis of the "other" responses shows this number is misleading. Three libraries report using focus groups, two others use faculty surveys, one uses an "Opinions Survey," and yet another relies on the library's annual survey—all of which can be viewed as methods of formalized user surveys. As a measure of user demand, the fourth most popular evaluation technique is tracking the number of requests for each tool (24 or 39%). Some libraries track the number of technical support requests for each tool as an evaluative measure (16 or 26%). One library has recently hired an "Assessment Librarian," whom they hope will be able to track evaluation of support for collaborative teaching and learning services. Interestingly, one library somehow tracks "turn aways" (i.e., number of users turned away from a service desk because all of the needed tools are checked out).

Benefits and Challenges

Some of the most informative and thought-provoking comments in the survey come from the sections in which respondents were asked to list up to three benefits and three challenges associated with

offering collaborative teaching and learning tools in the library. The amount of benefits and challenges are nearly equal, but the number of unique statements for challenges seems to outnumber the beneficial ones. Although the responses are quite varied, several noticeable themes emerge.

The benefits of providing collaborative teaching and learning tools cover many needs of the research community. Their very nature seems to be the inspiration for a large majority of the respondents who feel these tools support a collaborative teaching and learning environment, as evidenced by responses that mention the benefits of team learning, supporting collaborative work and new teaching styles, and meeting the changing needs of teaching, learning, and research at their institutions.

The second most common perception held by respondents is that the popularity of collaborative tools serves as good publicity and outreach for the libraries:

- "Brings users to the library."
- "Broadens the identity of the library on campus."
- "Allows us to reach people who might not normally visit."
- "Good marketing for the library as a technologically relevant place."
- "Fulfills a user need, thus providing good PR."

Several comments emphasize the importance of having access to new tools and technology for users in developing the much-needed knowledge, skills, and abilities within a 21st century knowledge discovery environment:

- "Access to technology for workplace skill development."
- "Improves their skills for future entrance into the work force."
- "Provides students with valuable skill-sets that will make their resumes and grad school applications more competitive."

Quite a few responses point out the added benefit for users of increased access to new tools and cutting edge technology. The libraries absorb the sometimes prohibitive cost for researchers to experiment with new tools, thus evening the playing field for economically disadvantaged users.

A few institutions stress the mere convenience and flexibility of being able to check out laptops and how that too extends learning beyond the classroom. Another common theme is that offering these tools enhances the users' learning experiences in and out of the library and also provides improved patron services. Other responses mention satisfying user needs and demands, as well as keeping the library up-to-date and relevant.

When respondents were asked to identify challenges, an overwhelming number of comments concerned costs associated with the initial purchase of these tools. They also expressed the need for recurring funds devoted to technology maintenance, repair, and replacement. Even though not requiring institutional funds, one respondent interestingly pointed out that, "even free apps require having a credit card on file." Technologies that are lent out could easily be damaged and expensive to repair or replace. Several respondents were concerned that the budget for more traditional library materials (e.g., books) would be cut in favor of buying technology tools.

Another prevalent issue is that collaborative teaching and learning tools always need updating:

- "Keeping up with rapidly changing technologies."
- "Things change so quickly, deciding where to invest is a challenge."
- "iPads are challenging to keep updated."
- "Some technologies are on their way towards obsolescence by the time a service for them is launched."

A number of the responding libraries mentioned the effect on staff workload and the learning curve involved in keeping up with the latest hardware and software. The time involved in assisting patrons and troubleshooting seems to be taking a toll on some library staff, as one pointed out they, "must maintain a bigger workload with the same number of hours in a day."

With the influx of new technology comes a rise in the need for technical support that includes the maintenance and upkeep of a variety of devices and platforms. Several libraries seem to be struggling with defining who provides this support and how. Their concerns include:

- "Difficulty in supporting combination of university-owned and student-owned equipment."
- "How to provide technology support and content/reference support at point of need."
- "Library IT support for tools that often fall outside the profile of equipment routinely supported."

The public relations activities involved in getting the word out effectively to influence user buy-in seem to be challenging for one or more libraries:

- "Instructors are not always supportive or interested in their students using these resources."
- "Some faculty and staff (including library staff) do not understand why the library is involved in providing these tools to users."
- "Communication between partners is essential and any breakdown can negatively impact services and user experiences."

Other challenges mentioned include meeting user demand, security, developing policy and procedures, and scheduling. Lack of space, or adequate space at least, in existing libraries for collaborative tools and learning is also a concern for some: "It's hard to carve out space for group rooms in the current footprint of our buildings." Surprisingly, only one respondent mentioned the issue of copyright and licensing as a concern. One library aptly pointed out an often overlooked challenge: personal privacy can sometimes be compromised when using shared teaching and learning tools.

Conclusion

Results and documentation from this survey demonstrate the variety of collaborative equipment, devices, and systems available or soon to be available to research library users. When considering the provision of collaborative teaching and learning tools, one must take into account the institutional mission, policies, infrastructure, budgetary constraints, staffing, and user demand and expectations. What should be purchased? How many to purchase? Who can use them? Where can they use them? When can they use them? How will they use them? When and how will they be updated? Who will do the updating? Who will train the users? Who will train the staff? Institutions thinking of offering such resources in the future can perhaps make more informed decisions by assessing the experiences reported by ARL libraries in this survey. The study seems to indicate these tools not only enhance current services at libraries but also improve the libraries' image as a dynamic and responsive partner of the research community.