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Art Therapists and Computer Technology

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Abstract

The purpose of this study was to understand the impact of technology on art therapists by exploring how art therapists own and use technology and to determine barriers to ownership and use. A survey was conducted at the 2002 annual conference of the American Art Therapy Association in Washington, DC. Of the 250 surveys distributed, 195 were completed and returned, yielding a 78% return rate. The survey asked respondents about their personal, professional, and with-client applications of technology. Participants also responded concerning the barriers they face pertaining to ownership and use of technology. The survey results demonstrated that art therapists own and use a variety of technological devices. Statistically significant differences were found between respondents' use, ownership, and application of technology in the categories of age, professional registration, and education. It was concluded that art therapists as a group are informed about technological devices and their applications.

Introduction

Access to and ownership of technology are steadily increasing in the United States, with the latest census report showing that half of U.S. households have computers (United States Census Bureau, 2001). This is a considerable increase from the 15% of households that owned a computer in 1989. The application of technology in the home and at the office is affecting the field of art therapy. One of the most notable recent examples of the impact of technology on the art therapy profession was the dedication of an entire issue of this journal (Volume 16, Number 4, 1999) to the use of computers in art therapy. And the technological possibilities have expanded since then. There is *digital imagery technology* (DIT), any of the digital devices or software programs that record or are used to produce art including digital cameras, digital camcorders, scanners, and computer-based graphic design programs, and *health information technology* (HIT), the use of information and communication technology in healthcare including electronic health information, personal health records, and e-mail communication (National Institute of Mental Health [NIMH], 2005). Although art therapists have written about their use of and experiences with technology (Malchiodi, 2000; McNiff, 1999; Parker-Bell, 1999), quantifiable information has not been obtained about exactly how many in the field use technology, what forms of technology they use, and how they are using technology.

To assess HIT and DIT use by art therapists, we developed and administered a survey. The survey gathered data from a criterion sample of art therapists regarding ownership and use of HIT and DIT. To obtain information about HIT and DIT use in the home and office, the survey questioned participants about personal, professional, and with-client technology use. The goals of the study were to determine (a) if art therapists are using technology for personal and professional tasks, (b) what forms of technology art therapists own and use, and (c) the barriers art therapists face concerning the ownership and use of technology. The returned surveys provided useful data pertaining to all of this study's goals.

Literature Review

Professional counseling associations have demonstrated the importance technologies are having in their fields and to their clients by devoting entire journal issues to technology-related topics. The March/April 2002 issue of *Family Therapy Magazine,* a publication of the American Association for Marriage and Family Therapy, centered on relationships in cyberspace (Bowers & Gautney, 2002). Topics discussed included online sex, technical ethics, e-communication, and online therapy. A similar theme was selected for the March/April 2001 *Psychotherapy Networker,* entitled "Our Technology Ourselves: How the Digital Revolution Is Changing Psychotherapy" (Simon, 2001). Topics discussed included ways to use the Internet in professional practice and online therapy, and how technology is influencing relationships. Therapists from various disciplines have noted the impact that technology is having and are speculating on the impact that technology will have in the future.

Many art therapists have found that computers and DIT have benefits over traditional practices (Malchiodi, 1999, 2000; McNiff, 1999; Parker-Bell, 1999). Technology is influencing the way art therapists archive artwork, record progress notes, communicate with each other, provide services for individuals living in rural communities, provide art production adaptations for disabled persons, and produce their own artwork. The adoption of HIT and DIT for artistic and professional purposes has begun.

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Telehealth is the emerging area of healthcare that is attempting to meet the needs of individuals who cannot access services due to disability, illness, or distance. Art therapy services with the aid of technology are emerging for individuals who are unable to access a treatment facility (Collie & Cubranic, 1999). With the assistance of specialized computer software, art therapists can view the creation of a client's artwork on a monitor using microphones and earphones to provide sound. The researchers have concluded that distance art therapy has real potential for expanding health care services.

Barbara Parker-Bell (1999) wrote about the possibilities associated with the use of computers for art therapy. Her article considered the notion that computers may be underutilized because many art therapists are not educated in the operation of computer hardware and software related to graphic design. Hartwhich and Brandecker (1997) concluded, "Prejudice against the computer comes more from therapists than from patients" (p. 372). Art therapists may resist the use of DIT for therapy more than their clients.

Computers have a built-in "do over" function that allows clients to return their artwork to a place where it was pleasing to them without having to start over from the beginning (McLeod, 1999). Digital editing programs like Photoshop© have commands that allow the artist to undo each step taken during the creation of an image (Adobe Photoshop, 2001). Each time an individual applies a tool or filter to his or her artwork, the program records the change to the image, allowing it to be undone. A client who becomes frustrated easily by undesirable changes to his or her artwork can correct errors with a few simple clicks of the mouse. The ability to correct mistakes may promote exploration within digital media because the integrity of the client's artwork will not be damaged during experimentation. A computer has a way of creating a safety net for a client that is not readily available in other media.

McLeod (1999) wrote, "The best part of computer-assisted art therapy is the empowerment for clients who find natural dimensional media limited" (p. 201). Computer-generated art programs allow clients to draw perfectly straight lines and make perfect circles. They also have special-effect tools that can simulate brush strokes and airbrush spray as well as crayon and pencil marks. These tools allow reluctant clients the freedom to explore the possibilities a graphic program has to offer without worrying about ruining their final product, thus experiencing success that contributes to the development of self-esteem.

One benefit computer-generated artwork has over traditional forms of artwork is the ability to easily create a presentation of the steps involved in the artwork (McLeod, 1999). Computer-generated images can be saved with a chronological number added to the end of each file. Within PowerPoint©, each file can be placed in the order in which it was created and presented as a slide show that documents the steps taken to produce the artwork. This process is fast and easy enough to be completed during a session with a client and available for review before the client even leaves the session (McLeod). The ability to recreate the construction of the artwork is simplified and assisted by the implementation of DIT.

Computer art has a perceived disadvantage in that some feel it may be hard to transfer knowledge from traditional media to the digital world. Art therapists have argued that this is not so. McNiff (1999) wrote, "Since I spend a great amount of time each day interacting with a computer, familiarity with the machine is a significant reason why I immediately adapted to the process of digital painting" (p. 198). Although the process appears different and distinct from other forms of art production, a client's familiarity with computers and digital imagery appliances should provide a natural foundation for digital art exploration. Tools, such as special drawing pens and pressure-sensitive drawing pads, are available for a more traditional method of entering freehand images into a computer. The combination of the computer and drawing pad allows an individual the comfort of drawing in a traditional manner along with the rewards of digital design.

Gussak and Nyce (1999) stated that art therapists might not use technology because computer programmers were not designing software programs around the needs of art therapists and their clients. Therapists use the software tools provided for graphic designers because they have little or no input concerning the creation of software products. Only by the creation of a "visual toolbox," a program designed to meet the needs and desires of therapists and clients, will technology be tailored to meet the specific needs and wants of art therapists. Until the creation of such a program, art therapists will be reliant on adapting mainstream digital design programs to art therapy practices.

Despite the availability of information about technology use in art therapy, no data were available regarding use and ownership of technology by art therapists as a group. Our survey was designed to gather data on art therapists' ownership and use of DIT in their personal and professional endeavors. This information is important because technology has altered—and is expected to continue to alter—the way art therapists communicate, archive artwork, record notes, complete tasks, and interact with clients. In short, DIT is changing the way art therapists administer art therapy treatment.

Method

Participants

One of the 195 respondents omitted gender. The remaining 194 were 94.85% female and 5.15% male. This information closely approximates the gender data (91.3% female, 6.2% male, 2.5% not specified) found in the report of the 2001-2002 American Art Therapy Association (AATA) membership survey (Elkins, Stovall, & Malchiodi, 2003). In addition, the respondents were 40.10% Board-Certified Art Therapists (ATR-BC), 21.35% Registered Art Therapists (ATR), and 38.54% who had no art therapy credentials.

Caucasian Americans (80.43%) made up the majority of respondents. The remaining respondents were African-

American (2.72%), Hispanic-American (2.17%), Asian-American (1.09%), Native-American (0.54%), mixed ethnicity (2.17%), international (2.72%), and other (4.89%), with 9.24% of the participants not responding. These data are also similar to those of recent AATA membership surveys (Elkins & Stovall, 2000; Elkins et al., 2003), which recorded ethnic compositions that were 87.8% and 90.2% Caucasian American, and support the representative nature of this sample.

Instrument

The instrument used to conduct this study was a 22-item questionnaire developed by us, the investigators (Appendix A). Each individual participated voluntarily and anonymously. A Scantron© (2003) form was used to administer the questionnaire and participants were provided with a No. 2 pencil to fill in the bubbles. As the goals of the survey were to analyze and code information pertaining to the use of computers and DIT, we deemed closed-ended questions to be more suitable than open-ended questions. Therefore, the survey did not give participants the option of writing in answers as a list of choices was provided for each question. This form of survey may have limited the respondents' ability to convey their opinions on the subject matter (Babbie, 2003).

The questionnaire gathered demographic information on gender, education, art therapy credentials, age, and ethnicity. It also asked respondents to identify the forms of DIT they personally owned, such as computers or digital cameras. As DIT can be used at home, at work, and with clients, respondents identified whether they use DIT and HIT personally, professionally, or with clients. Respondents also identified the personal, professional, and with-client tasks for which they use DIT and HIT, such as word-processing and e-mail. Following that, the questionnaire asked respondents to identify device-specific tasks they perform using camcorders, cameras, scanners, and printers.

The study also sought to identify reasons respondents were not using certain forms of technology. Therefore, respondents were asked to identify all applicable reasons for not using technology and, in a follow-up question, to identify their main reason for not doing so. Because there are a variety of ways to store artwork, respondents were asked to identify their methods for storing client artwork. Respondents also answered questions pertaining to using graphic or photo-editing software that was not included with the computer's original operating system. The survey concluded with respondents identifying how many days a week they accessed the Internet and to state whether they had a personal web page.

Procedure

This study was approved by the Institutional Review Board at Eastern Virginia Medical School. A formal consent form was not used as consent was inferred by the respondent's willingness to complete the survey. The survey was distributed by hand to 250 attendees at the 2002 AATA conference. Participants were not asked any personal questions prior to receiving the survey. Participants filled out the survey during the conference and returned it to us or left it in one of the two drop-off baskets. One survey was returned by regular mail. Of the 250 surveys distributed, 195 (78%) were completed and returned.

Data Analysis

We coded each survey with a response identification number. The surveys were then scanned by an optical mark reader (OMR). A computer then converted the survey responses into a spreadsheet program. We checked the spreadsheet against the original surveys with the utmost rigor to insure accuracy and made corrections as necessary. The corrected spreadsheet was utilized for computer-based statistical analyses. Percentages and statistically significant items were verified and recorded. An alpha level of .05 was used for all statistical tests.

Analyzing the data exposed problems in the study design. The survey did not directly ask respondents if they were working with clients. Indirectly, work with clients was determined by whether an individual selected any of the "with-client" items. In this fashion, it was determined that 137 survey respondents (70.26%) indirectly stated they worked with clients. Computer-based chi-square analyses were run to assess any statistical differences between the with-client respondents and those respondents who did not select any with-client items. All with-client items originally found to be statistically significant either remained significant or maintained a strong trend toward significance. The additional analyses suggested that the entire data set accurately reflected with-client technology use. Therefore, no survey responses were omitted from the reporting of with-client percentages or statistics.

Results

Device Ownership

The survey found that all of the survey respondents owned one or more forms of technological equipment. Almost all (99%) survey respondents stated that they owned a computer. Of computer owners, 32.60% stated they own two or more computers. Respondents also reported owning printers (89.74%), 35mm cameras (82.05%), scanners (47.69%), digital cameras (31.28%), VHS camcorders (20%), PDA/Palm Pilots (14.87%), digital camcorders (10.26%), and digital voice recorders (3.08%). The survey demonstrated that art therapists as a group own DIT.

Device Use

Computers were the most common form of technology used for personal, professional, and with-client tasks (Table 1). Personal and professional technology usage followed personal and professional ownership figures. Whereas more survey respondents used a VHS camcorder than a PDA for personal purposes, more survey respondents used

Table 1
Percent Reporting Personal, Professional, and With-Client Device Use (*N* = 195)

Device	Personal	Professional	With-Client
Computer	96.92	83.08	30.77
Digital camera	33.85	31.79	17.95
35mm camera	78.46	39.49	24.10
Digital camcorder	10.77	7.18	3.08
VHS camcorder	18.46	9.74	7.18
Printer	85.64	69.74	22.05
Scanner	40.21	33.85	11.28
Digital voice recorder	3.08	1.54	1.03
PDA/Palm Pilot	11.79	10.77	1.54

Table 2
Percent Reporting Personal, Professional, and With-Client Tasks (*N* = 195)

Tasks performed with technology	Personal	Professional	With-Client
E-mail	96.41	72.82	14.36
Word processing	93.33	82.05	20.51
Internet information searches	78.97	52.82	11.79
Art therapy research	62.56	51.28	8.21
Presentations	54.87	60.51	8.72
Photo archiving	48.21	31.79	16.92
Instant messaging/ Online chatting	29.74	8.21	2.05
Photo editing	28.72	19.49	12.82
Creating digital artwork	18.46	16.92%	12.31
Web-Camera communication	3.08	2.56%	1.54
I do not use a computer	1.03	3.59%	20.00

a PDA than a VHS camcorder for professional purposes. With-client device usage trends did not follow personal or professional technology usage trends. Digital voice recorders (1.03%) were the least utilized form of technology in all three categories.

Comparing with-client, professional, and personal device use revealed some trends (Table 1). Participants were found to use every device more for personal business than for professional tasks or with clients. Likewise, participants were found to use every device more for professional tasks than with clients. The survey indicated that of those who use a device for personal reasons, approximately three-fourths use the device for professional purposes, and approximately one-third use the device with clients. Table 1 shows that a high percentage of individuals who use a 35mm or digital camera for professional tasks (39.49% and 31.79%, respectively) are also using the camera with their clients (24.10% and 17.95%, respectively). The survey found that personal digital camera and PDA use (33.85% and 11.79%, respectively) is almost identical to professional use (31.79 and 10.77%, respectively; Figure 1). Respondents demonstrated that they use the forms of DIT they own in both personal and professional endeavors.

The results indicated that for a few technology-based devices, use exceeded ownership. Personal use of a digital camcorder slightly exceeded personal ownership, (10.77% and 10.26% respectively). Personal (33.85%) and professional (31.79%) digital camera use exceeded personal digital camera ownership (31.28%). In addition, personal scanner use (48.21%) exceeded personal scanner ownership (47.69%). The digital voice recorder was the only device surveyed to have the same percentage of personal use and personal ownership (3.08%). These results suggest that people elect to use or are required to use technology that they do not own.

Tasks Performed

Survey respondents reported using technology to perform various types of personal tasks; e-mail (96.41%) was the task most commonly performed (Table 2). Word processing was the most common form of HIT used for professional tasks, with 82.05% of survey respondents using word processing in the workplace. Only 3.59% of respondents reported that they did not use computers in their work, which was just a little more than the 1.03% who reported that they did not use computers in their personal lives.

The survey found that approximately 70% of respondents have used technology to complete various tasks with clients. Word processing was the most common task used with clients (20.51%). Instant messaging-online chatting (2.05%) and web-camera communication (1.54%) were the least utilized tasks between therapists and clients. Web-camera communication was also the least common form of technology used to perform personal (3.08%) and professional (2.56%) tasks. Although these latter percentages are small, they demonstrate the presence of web-camera communication in our field.

For those technology devices used by over 10% of respondents in all areas, the creation of digital artwork was the most evenly reported use of technology across personal (18.46%), professional (16.92%), and with-client (12.31%) classifications. Respondents reported creating presentations for professional purposes (60.51%) more than they did for personal use (54.87%) or with clients (8.72%). A noticeable difference was found between computer use with clients (20% do not use) versus personal use (1.03% do not use). However, as indicated above, Table 1 may not accurately represent with-client use.

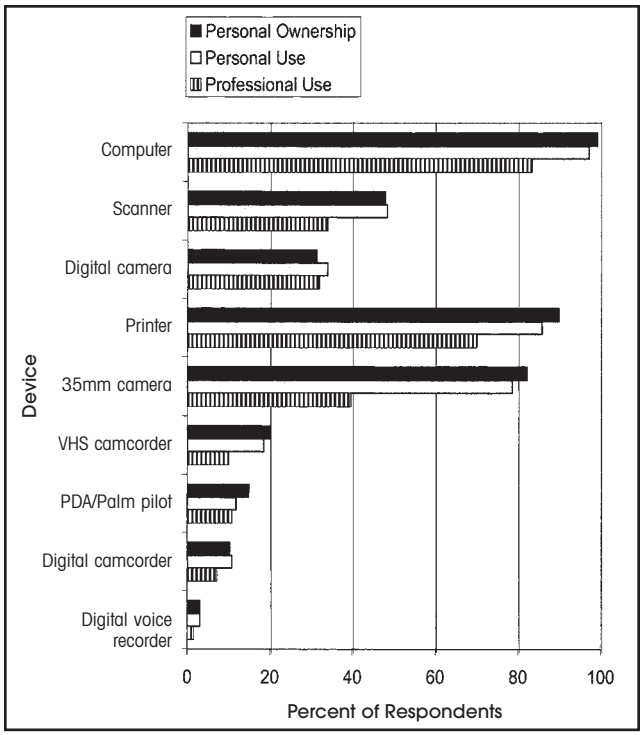

Figure 1
Personal device ownership as a function of use (*N* = 195)

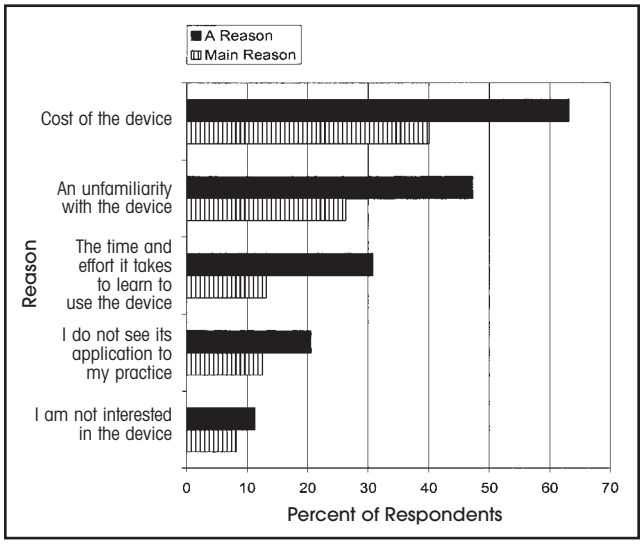

Figure 2
Reasons for not using technology (*N* =195)

Device Ownership and Application

Survey respondents own and use a variety of DIT and HIT devices (Figure 1). Of the 173 camera owners, 7.51% owned only a digital camera, 27.75% owned a digital and 35mm camera, and 64.74% owned only a 35mm camera. Over one-third of respondents reported taking digital photographs (37.44%), which slightly exceeded digital camera ownership (35.26%). VHS camcorder ownership constituted 66.10% of total camcorder ownership, with digital camcorder ownership making up the remaining 33.90%; one respondent reported owning both a VHS and digital camcorder. Over two-thirds (69.74%) of survey respondents stated that they use a scanner, whereas only 47.69% reported that they own a scanner. Scanning photographs (61.03%) was the most popular use for a scanner.

Printers were among the most frequently used forms of technology with only 2.05% stating they do not use a printer. Printer use (92.31%) was also found to exceed printer ownership (89.74%). Traditional cabinet storage (68.72%) remains the most common form of artwork storage with slides (34.36%), digital pictures (23.59%), and 35mm film (23.08%) also utilized. Internet access occurred daily for 35.42% of respondents with 30.21% accessing the Internet 5 to 6 days per week. The survey also found that only 2.60% of respondents reported that they did not access the Internet in a given week.

The survey assessed reasons that individuals were not using technology (Figure 2). First, respondents reported all barriers that deterred them from using DIT. The high cost of electronic devices was a deterrent for 63.08% of the respondents with 47.18% reporting "unfamiliarity with the device" as their reason for not using it. Next, respondents indicated their main reason for not using technology among the previous choices. Of those surveyed, 40% stated that the cost of a device was the main deterrent with unfamiliarity making up 26.25% of the responses. The cost of DIT was found to be both the most often reported reason as well as the most often reported main reason respondents were not using technology. Only a very small percentage of respondents (8.13%) stated that their main reason for not using DIT was due to a lack of interest.

Respondents were also asked if they had a personal web page and if they were using graphic or photoediting software that did not come with their computer. It was found that 59.46% had added such software to their computer. Personal web pages (13.09%) were one of the least utilized forms of technology.

Statistical Analyses

Age Groups

The respondents were grouped into the following age categories: 20s, 30s, 40s, 50s, and 60+. Individuals in their 20s (85.45%) were found to be significantly more likely to own only a single computer than respondents in their 30s (69.05%), 40s (53.06%), 50s (57.58%), and 60+ (66.67%) ($\chi^2 = 14.28$, $p < .01$). Conversely, individuals in their 30s (30.95%), 40s (46.00%), 50s (48.48%), and 60+ (40.00%) were more likely to own multiple computers than individuals in their 20s (12.73%) ($\chi^2 = 15.12$, $p < .01$). Respondents in the 60+ age category were found to use DIT for personal archiving of photographs significantly less than individuals in all other categories ($\chi^2 = 9.84$, $p < .04$). Personal art therapy research using technology was more likely to be done by individuals in their 20s (74.55%), 30s

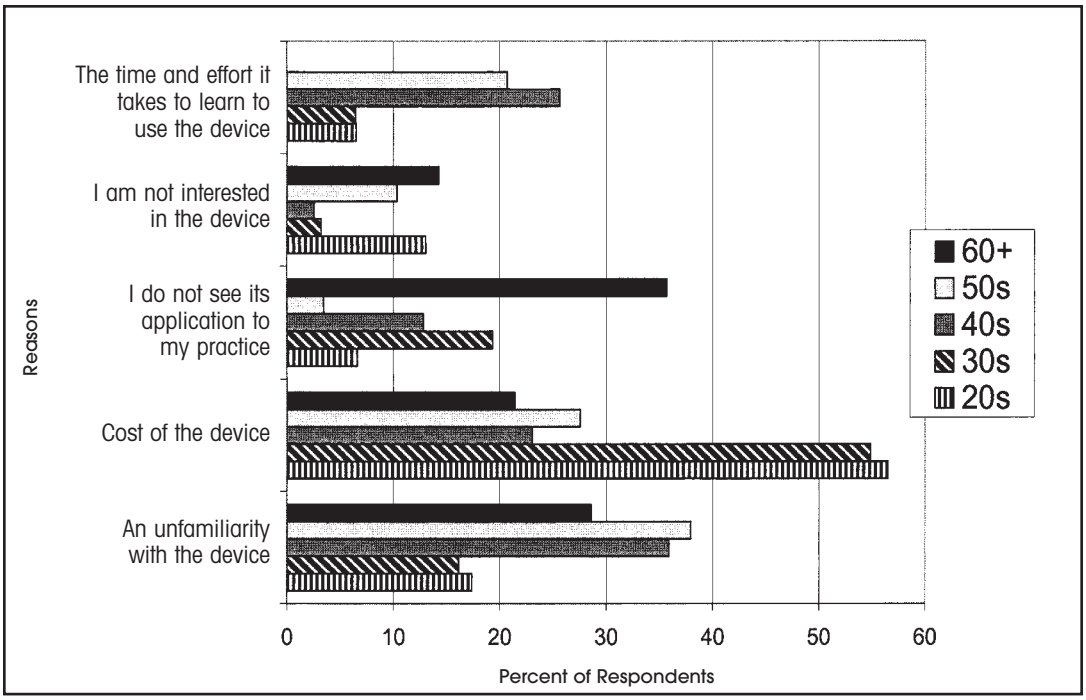

Figure 3 Main reason for not using technology as a function of age ($N = 195$)

(66.67%), and 40s (65.31%) than it was by individuals in their 50s (42.42%) and 60+ (46.67%) ($\chi^2 = 11.19$, $p < .04$).

Printer use for documents and e-mails was significantly greater among individuals in their 20s (94.55%), 30s (97.62%), and 50s (96.97%) than it was for individuals in their 40s (85.71%) and 60+ (80.00%) ($\chi^2 = 9.22$, $p < .05$). Respondents in the 60+ (13.33%) and 40s (4.08%) categories were the only age groupings with individuals who indicated that they did not use a printer ($\chi^2 = 13.16$, $p < .01$). Lack of familiarity with a device was less of a deterrent for using a form of technology for individuals in their 20s (32.73%), 30s (47.62%), and 40s (46.94%) than it was for individuals in their 50s (63.64%) and 60+ (60.00%) ($\chi^2 = 9.19$, $p < .05$).

The main reason individuals chose not to use certain forms of technology also differed across age groups (Figure 3), ($\chi^2 = 40.71$, $p < .01$). Unfamiliarity with a device was less of a deterrent for individuals younger than 40 than those over 40. The cost of a device deterred more individuals younger than 40 than it did those older than 40. An inability to see a device's applications to a respondent's practice was the main reason not to use it for individuals over 60 (35.71%) and for respondents in their 30s (19.35%) and 40s (12.82%). Respondents in their 20s (6.62%) and 50s (3.45%) were significantly less likely to choose this reason. Additionally, respondents older than 60 were less likely to store client artwork than were individuals younger than 60.

Education Levels

A significant relationship was obtained between education level and DIT use. Of computer owners, those with doctorates (61.54%) were found to own two or more computers, more often than those with master's (30.06%) or bachelor's degrees (13.33%) ($\chi^2 = 7.94$, $p < .02$). The use of a scanner in professional practice was significantly greater for doctoral-level respondents (76.92%) ($\chi^2 = 12.04$, $p < .01$), with a good percentage of bachelor's- (40.00%) and master's-degree holders (30.06%) utilizing the device as well. Doctoral-level respondents (23.08%) were also found to use digital camcorders in their professional endeavors significantly more than bachelor's- (13.33%) and master's-degree holders (5.52%) ($\chi^2 = 6.33$, $p < .04$). In addition, those with doctorates (76.92%) were found to use technology for personal photo archiving significantly more than those with master's (49.08%) or bachelor's degrees (26.67%) ($\chi^2 = 7.05$, $p = .03$).

Additional significant differences were found between doctoral, master's, and bachelor's degree holders (Figure 4). Every doctoral degree holder stated he or she uses e-mail for professional business; this represents a significant difference when compared to master's- (73.62%) and bachelor's-degree holders (60.00%) ($\chi^2 = 6.15$, $p < .05$). The survey indicated that all doctoral-level respondents reported using technology for professional presentations as compared to 58.90% of master's- and 60.00% of bachelor's-degree holders ($\chi^2 = 8.63$, $p < .01$). Professional use of photo archiving was significantly greater for those with doctorates (63.23%) than for those with master's (30.67%) and bachelor's degrees (20.00%) ($\chi^2 = 9.31$, $p < .01$). Following the trend of photo archiving, professional use of photoediting was significantly greater for those with doctorates (46.15%) than for those with bachelor's (33.33%) or master's degrees (16.56%) ($\chi^2 = 8.48$, $p < .01$). Art therapy research using

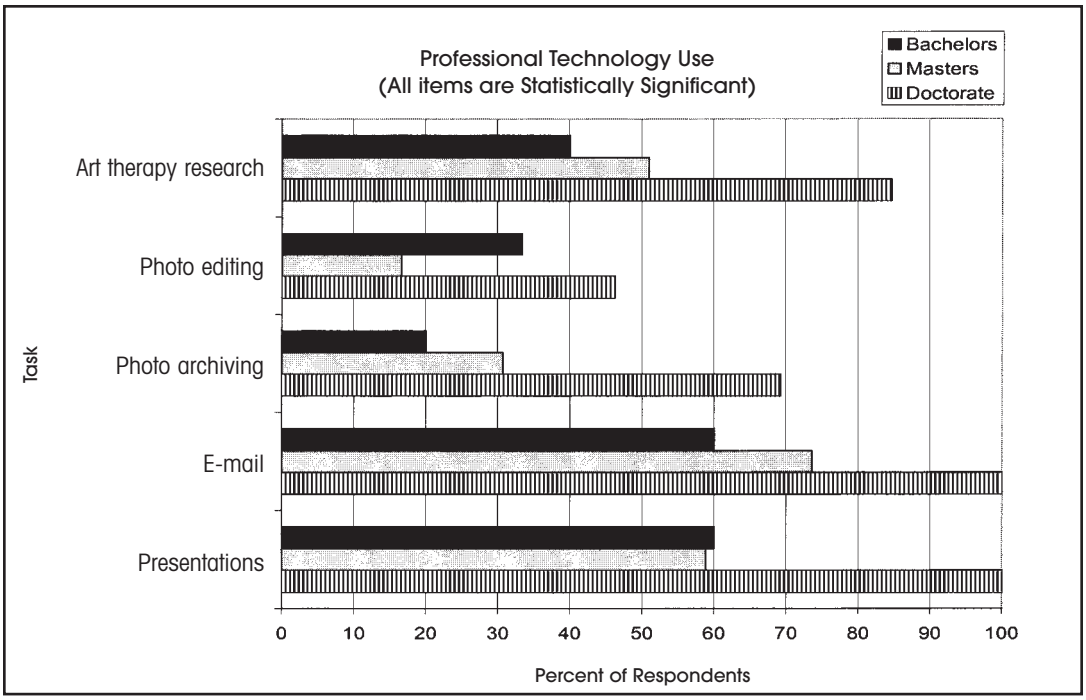

Figure 4 Professional technology use as a function of education (N = 195)

technology was reported by a significant percentage of doctoral-degree holders (84.62%) with master's- (50.92%) and bachelor's- (40.00%) degree holders also reporting research activity ($\chi^2 = 6.47$, $p < .04$).

The use of a camcorder for teaching was found to be significantly greater for doctoral-level respondents (38.46%) than for master's- (15.34%) or bachelor's- (6.67%) level respondents ($\chi^2 = 5.83$, $p < .05$). Again, those with doctorates (53.85%) were found to use a printer to produce transparencies significantly more than those with master's (15.34%) or bachelor's (6.67%) degrees ($\chi^2 = 9.23$, $p < .01$). Doctoral- (76.92%) and master's- (72.39%) degree holders were found to use cabinets to store artwork more frequently than bachelor's-degree holders (33.33%) ($\chi^2 = 10.26$, $p < .01$).

The survey found significant differences in the frequency of Internet access between educational groups ($\chi^2 = 15.85$, $p < .04$) (Figure 5). Further, significant differences were found within each educational grouping between daily Internet users (76.92% of doctoral, 30.63% of master's, and 46.67% of bachelor's degree holders) and those who stated that they did not use the Internet at all (7.69%, 2.50%, and 0%, respectively). Internet use for all educational groupings was frequent with 84.61% of doctoral-, 63.13% of master's-, and 80.00% of bachelor's-level respondents accessing the Internet 5 or more days a week.

Art Therapy Credentials

Overall, ATRs reported using more technology than ATR-BCs. Further exploration of the demographics found that 58.54% of ATRs were in the age groups 21 to 30 and 51 to 60 compared to 31.17% of ATR-BCs. As reported above, these two age groups were found to use more technology than the other age groups. Thus, the credential statistics have been omitted from this report because they appeared to be age biased.

Discussion

The results of this study suggest that registered art therapists and those interested in art therapy own and use

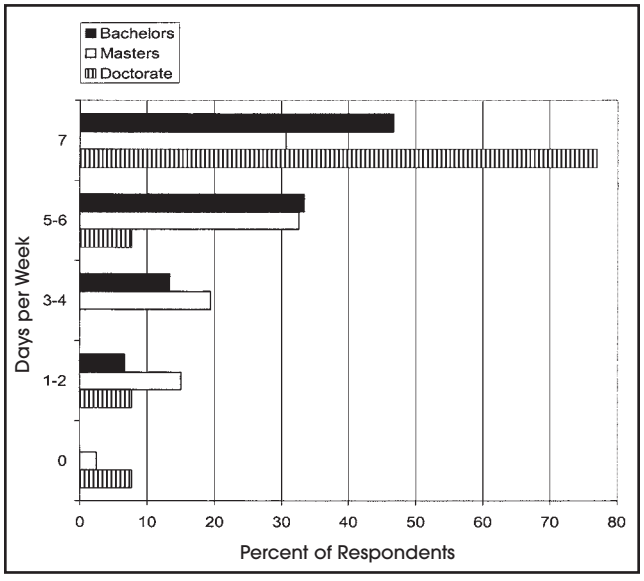

Figure 5
Frequency of Internet access as a function of education (N = 195)

DIT and HIT. Personal computer ownership (99%) and use (96.62%) were almost universal. Personal e-mail use was close behind (96.41%). Although the high level of DIT and HIT reported might have been influenced by a self-selection process, the findings suggest that the presence and use of technological devices has migrated across personal, professional, and with-client settings. Unfortunately, the low number of published experiments and experiences with DIT and HIT raises questions about the generalizability of the high percentage of users. Research investigating experiences with DIT and HIT by a larger sample of art therapists would provide a better understanding of the state of DIT and HIT in the art therapy profession.

This survey demonstrated a movement toward the use of DIT, with respondents purchasing digital versions of devices that they already owned. The survey also indicated several devices in which respondent usage exceeded ownership. For example, printer use (92.31%) exceeded printer ownership (89.74%). These data indicate that individuals are required or choose to use technology that they do not own. Are people using technology they do not own because they cannot afford it? Or is it because it is required of them? If technology use exceeds ownership, it may be important for future research to understand why.

Limitations and Future Research

This survey is limited in its generalization to the AATA population as a whole because it was a criterion sample taken at the national conference. The similarity in the demographic makeup of the technology survey to the 2003 AATA membership survey suggests that this study's sample was representative of the AATA population. However, future research would benefit from using a random sample.

The results indicated that cost was the most common barrier to device use and ownership. These numbers might not reflect the AATA population as a whole because individuals who can attend the conference are, in most cases, those who can afford to pay the conference fees and travel expenses. A survey that included people who do not attend the conference might add valuable information pertaining to the full effect of cost as a deterrent to DIT and HIT use and ownership.

The survey could have been improved in a few areas. It should have directly asked respondents if they were working with clients; this would have prevented having to infer whether respondents were deliberately not using technology with clients or did not have clients. Because education plays a role in technology use, it would have been useful to learn if survey respondents were art therapy educators. Their thoughts and use of technology may affect the way technology is (or is not) utilized during the course of study at their schools. A better understanding of with-client use and art therapy educator's practices could have added helpful insights for future research. For example, educators may require the use of technology by students to produce papers and presentations but not teach or allow applications of DIT in therapy. Because applications to AATA-approved programs require the presentation of a portfolio, it would be important to know if these programs allow digital artwork submissions. (One school, Eastern Virginia Medical School, is known to allow such submissions.) Knowing more about the attitudes of educators towards technology and actual with-client figures could have increased the implications of this study.

With the ever-increasing presence of DIT and HIT, art therapists will need to educate themselves, their colleagues, and their students about ethical applications and implications of technology. The current ethical guidelines offer little assistance in navigating through the seas of appropriate and inappropriate uses of such technology. DIT and HIT have already changed the ways art therapists perform tasks. As the barriers to access and affordability break down and computer-based, third-party payment becomes standardized, DIT and HIT can be expected to permeate more of the practices and activities of art therapists. Many professional associations in other fields have come to the conclusion that technology can neither be ignored nor universally implemented. As art therapists continue to adopt varieties of DIT and HIT in diverse ways, further research and publications will be needed to answer how and why DIT and HIT are adopted and integrated into art therapy practices.

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Book Reviewers Needed

Members are invited to review one or more of these or other books of interest to readers following *Art Therapy's* Guidelines for Book Reviews. Guidelines can be obtained from Book Review Editor, Patricia St. John, via e-mail pstjohn@cnr.edu or by mailing your request to review to her at P.O. Box 2417, Amherst, MA 01004. Prospective reviewers are asked to e-mail or enclose a copy of their resume.

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Appendix A

Art Therapy and Technology Survey

Fill in bubble completely
Erase completely to change

Gender
- Male
- Female

Education
- Doctorate
- Masters
- Bachelors

Registration
- ATR-BC
- ATR
- Not a registered Art Therapist

Age
- 18-20
- 21-25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 61-65
- 66-70
- 71 +

Origin of Race
- African American
- Asian American
- Caucasian American
- Hispanic American
- International
- Multiple Ethnic Groups
- Native American
- Not Specified
- Other

Which of the following devices do you personally own?
(Mark all that apply)

- A Computer
- Two or More Computers
- 35mm Camera
- Digital Camera
- Digital Camcorder
- VHS Camcorder
- Scanner
- Printer
- Digital Voice Recorder
- PDA/PalmPilot

Which of the following devices do you use?
(Mark all that apply)

Personally	Professionally	With Clients
Computer	Computer	Computer
Digital Camera	Digital Camera	Digital Camera
35mm Camera	35mm Camera	35mm Camera
Digital Camcorder	Digital Camcorder	Digital Camcorder
VHS Camcorder	VHS Camcorder	VHS Camcorder
Printer	Printer	Printer
Scanner	Scanner	Scanner
Digital Voice Recorder	Digital Voice Recorder	Digital Voice Recorder
PDA/Palm Pilot	PDA/Palm Pilot	PDA/Palm Pilot

Which of the following tasks do you use any of the above devices for?
(Mark all that apply)

Personally	Professionally	With Clients
Word Processing	Word Processing	Word Processing
E-mail	E-mail	E-mail
Presentations	Presentations	Presentations
Photo/Picture Archiving	Photo/Picture Archiving	Photo/Picture Archiving
Photo Editing	Photo Editing	Photo Editing
Creating Digital Artwork	Creating Digital Artwork	Creating Digital Artwork
Web Camera Communication	Web Camera Communication	Web Camera Communication
Art Therapy Research	Art Therapy Research	Art Therapy Research
Internet Information Searches	Internet Information Searches	Internet Information Searches
Instant Messaging/Online Chatting	Instant Messaging/Online Chatting	Instant Messaging/Online Chatting
I Do Not Use a Computer	I Do Not Use a Computer	I Do Not Use a Computer

Appendix A

Art Therapy and Technology Survey cont'd.

Which of the following tasks do you use a camcorder for? (Mark all that apply)

- ☐ Educational/Teaching
- ☐ Animation
- ☐ Art Therapy
- ☐ Personal Movies
- ☐ I Do Not Use a Camcorder

Which of the following tasks do you use a camera for? (Mark all that apply)

- ☐ Negative Photographs
- ☐ Digital Photographs
- ☐ Slides
- ☐ I Do Not Use a Camera

Which of the following tasks do you use a scanner for? (Mark all that apply)

- ☐ Scanning Photographs
- ☐ Photocopying
- ☐ Adding Images to Web Pages
- ☐ Adding Attachments to E-mail
- ☐ Optical Character Recognition (OCR)
- ☐ Scanning Negatives and/or Slides
- ☐ I Do Not Use a Scanner

Which of the following tasks do you use a printer for? (Mark all that apply)

- ☐ Documents/E-mails
- ☐ Pictures/Photographs
- ☐ Transparencies
- ☐ I Do Not Use a Printer

Of the forms of technology that I do not use, a reason for not doing so is? (Mark all that apply)

- ☐ A. An unfamiliarity with the device
- ☐ B. The cost of the device
- ☐ C. I do not see its applications to my practice
- ☐ D. I am not interested in the device
- ☐ E. The time and effort it takes to learn to use the device

Of the reasons to the left, the main reason for not doing so is? (Mark One)

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E

How do you currently store client artwork? (Mark all that apply)

- ☐ Slides
- ☐ 35mm Film
- ☐ Digital Pictures
- ☐ Scanning
- ☐ Cabinet Storage
- ☐ I Do Not Store Client Artwork

Do you currently use a graphic or photo editing program on your computer that did not come with the operating system?

- ☐ Yes
- ☐ No

How many days a week do you access the Internet?

- ☐ 0
- ☐ 1 - 2
- ☐ 3 - 4
- ☐ 5 - 6
- ☐ 7

Do you have a personal web page?

- ☐ Yes
- ☐ No