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The Media Adoption Stage Model of Technology for Art Therapy

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Abstract

This study examined survey data from professional credentialed members of the American Art Therapy Association and 8 follow up interviews to determine how art therapists adopt or reject technology and/or new digital media for therapeutic use with their clients. Using Rogers's (2003) "diffusion of innovation" model, the author identified a two-stage process of media adoption used when respondents were introduced to new media with potential artistic or therapeutic applications. The Media Adoption Stage Model described in this article is an iterative process of selection, experimentation, and reevaluation of art media based on their properties. The findings have implications for art therapy, art therapy education, and personal use of technology.

The recent emergence of digital artistic media has provided researchers with a unique opportunity to study how therapists determine whether and how new image-based media can be implemented with clients to promote positive therapeutic outcomes. This article identifies the stages of the media adoption process used by art therapists based on a survey of professional practitioners. Research by Peterson, Stovall, Elkins, and Parker-Bell (2005) formulated the term Digital Imagery Technology (DIT) to denote a digital computer-based device or software program that can be used to produce art. As DIT continues to evolve, research into the adoption of these technologies by art therapists becomes increasingly important.

Throughout the history of art therapy the adoption of innovations has resulted in the use of new, improved, and safer media for treatment. Toxic chemicals such as mercury and lead have been removed from art materials and replaced with safer alternatives (Jacobs & Milton, 1994). New innovations like Polaroid and digital cameras originally were adopted for phototherapy because they did not require film to be sent out for development (Wolf, 2007). Once certain media are adopted for use, they can continue to be utilized, be replaced with better materials, or be discontinued altogether. The decision-making process behind the adoption, modification, continuance, or discontinuance of art materials is an essential element of treatment, as it reflects trends and alterations in the therapeutic tools that art therapists present to their clients. What has not been studied in depth, however, is the thought process that art therapists undergo as they determine whether a new medium has potential as a therapeutic tool. This study focused on two research questions. First, how do art therapists determine whether to adopt or reject existing and emerging DITs as expressive therapeutic tools? Second, do therapists progress through an identifiable decision-making process when presented with a new medium that may have artistic and/or therapeutic applications with clients?

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Review of the Literature

The first question examined by this study was whether the adoption of DIT for use in art therapy with clients differs from the adoption of any other innovation. The diffusion model developed by Rogers (2003) is applicable across multiple disciplines, from anthropology to marketing, and was a suitable research perspective for this study. However, the model by itself fails to address the use of an innovation with another person and thus is insufficient to explain how therapists decide to use DIT with their clients. To assist in the creation of a suitable model for the context of art therapy, I focused on the adoption process and adopter categories.

Adoption Process

The adoption process for media innovation is comprised of five stages: awareness, interest, evaluation, trial, and adoption (Rogers, 2003). Awareness is the stage in which an individual is exposed to an innovation but lacks sufficient information to decide whether it is useful. When interested in the innovation, he or she first will seek more information about it and then will evaluate the innovation by applying it to present and anticipated situations, and deciding whether to try it or not. After trying out the idea the individual finally reaches the adoption stage, in which he or she decides whether to continue or to discontinue use of the innovation. Rogers's adoption model was important for this study because it explained how therapists arrived at personal knowledge and use of an innovation. However, it did not explain how that knowledge could be transferred to their clients.

Adopter Categories

All users in a system do not adopt a new innovation at the same time. Adopter categories identify when an indi-

vidual implements a new innovation. Rogers's (2003) categories consist of innovators, early adopters, members of the early majority, members of the late majority, and laggards. For an adoption process model to be credible and useful it has to apply to innovators as well as to laggards.

Dewey (1980) stated that the technological arts are an art discipline to the extent that they "carry over into themselves something of the spontaneity of the automatic arts" (p. 227). The automatic arts are based on the use of the body, such as singing and dancing, rather than on external media. Therefore, digital media such as computer-generated graphics and digital photography (both of which are considered by many as acceptable but much debated art forms) provide a precedent for the inclusion of DIT as an art-making tool because it can meet aesthetic expectations. For art therapists to use technology in the therapeutic sense, the technological object has to be accepted as an art-making tool as well as seen as appropriate for treatment. Gussak and Nyce (1999) argued that adoption often does not take place because the market has not produced the tools art therapists need or want. Often therapists have to use tools created for other professions, in an adaptive function, to treat their clients.

The use of imagery is an essential and fundamental component of art therapy treatment. Because art therapists are also artists, they have personal experience with most media and processes, which is how they become acquainted with such media and help others learn to use them comfortably (Rubin, 2010). Many potentially useful technologies for art therapists fall into the categories of DIT and HIT, or Health Information Technology. These technologies include but are not limited to electronic health records, e-mail communication, clinical alerts and reminders, computerized provider order entry, computerized decision support systems, hand-held computers, electronic information resources technology, and electronic monitoring systems for therapy. Personal experience with DIT and HIT remains important because the educational standards of the American Art Therapy Association (2007) do not require coursework on the uses of technology in art therapy treatment. Therefore, art therapy students may not be learning technology; their educational programs may need to revisit its relevance to contemporary techno-cultural contexts (Kapitan, 2007). Art therapists who use technology generally have had little formal training (Orr, 2006). Asawa (2009) found that emotional factors such as anxiety were additional barriers to the adoption of technology. Thus, there is a need for research to determine how technology can best be integrated into art therapy education and treatment practices.

Therapists have been adopting technology for use in mental health treatment since the invention of the telephone. Murphy (2003) reviewed the historical adoption of telephones, recording equipment, and computer technologies for use in psychological practice. He concluded that psychologists had an initial resistance to the application of these technologies due to ethical concerns and the need to modify standard practices. The first wave of technology adoption consisted of office utilities such as telephones, fax machines, copy machines, and computers for billing systems and word processing use. The second wave included computer assessment and interviewing programs. However, after the initial resistance the relative advantages of technology motivated widespread adoption and application.

Close attention has been given to the impact computers have on professional treatment practices (Austin, 2009; Kapitan, 2007; Klorer, 2009; Potash, 2009). Computers are assisting in the treatment of obsessive–compulsive disorder (Greist et al., 2002), traumatic illness (Collie & Cubranic, 2002), anxiety and depression (Proudfoot et al., 2003), aphasia (Wallesch & Johannsen-Horbach, 2004), speech and language therapy (Mortley, Wade, & Enderby, 2004), and children with medical illnesses (Thong, 2007). These authors have found that computers often have specific properties that are appealing to the treatment of their patients' specific needs. For example, people with speech delays can now use a microphone to speak into a computer and have their speech analyzed without the presence of a speech therapist. This method allows them to receive feedback any time they are willing to practice. As more sophisticated software and hardware programs are developed, new technologies likely will have an even greater impact on health care practitioners and the services they render.

The process by which DIT becomes adopted for art therapy treatment is not well documented. The use of technology in art therapy has met with resistance (Asawa, 2009; Thong, 2007) or has proceeded in large part outside of graduate art therapy coursework. This study explored how personal experiences with HIT and DIT factored into a therapist's decision to implement a particular technology as a therapeutic medium with clients.

Method

The Florida State University Human Subjects Committee approved the mixed methods study. I used a survey instrument to sample credentialed professional members of the American Art Therapy Association (AATA) in order to obtain direct reports of personal experiences with media adoption from experienced practitioners. Next I purchased a list directly from AATA containing the contact information of randomly selected credentialed professional members. Of the 1,000 professional AATA members on the list, 785 met all the contact information criteria needed for inclusion in the study and each was assigned a survey ID number. I sent an e-mail to each of the respondents informing them of the study and inviting them to participate. E-mail delivery confirmation notices were not received for 51 participants, who were immediately mailed a survey packet.

Participants completed the survey using either postal mail or the Internet for two reasons. First, the method by which each participant completed the study provided insights into his or her use of technology. Second, two formats for completing the survey were offered in order to increase the response rate. The use of mail surveys was deemed essential for this study so as not to alienate individuals who do not use technology. The postal mail survey and online survey were identical.

Of the 785 total participants, 136 completed and returned the survey. This resulted in a response rate of 17.4%. I assigned each participant an Overall Technology Adoption Score (OTAS) based on his or her responses to the close-ended survey items. Interview participants were chosen from this sample by means of their OTAS and written survey responses, both of which were used to identify them as representative members of adopter categories. Maximum variation sampling was the purposeful sampling technique utilized to determine which participants would be interviewed. This sampling technique allowed me to identify responses from individuals in the innovator, early majority, and laggard adaptor categories (Rogers, 2003).

Eight participants were chosen for follow up interviews. I conducted interviews with 3 participants identified as "innovators," 3 participants identified as "laggards," and 2 participants identified as members of the "early majority" (Rogers, 2003). Each interview was conducted over the telephone. With each participant's consent, I recorded our conversation and then transcribed and coded the interview data for patterns and themes using semantic content analysis (Lemke, 2005). This method helped determine whether agreement pertaining to the use and reasons for use of DIT could be established among interview participants.

A single database was generated by combining the surveys that were returned via the Internet and postal mail. Qualitative information from the postal surveys was typed and then verified for accuracy though peer review. I then used the corrected spreadsheet for computer-based statistical analyses (SPSS) to organize and summarize the data.

Results

Participants provided feedback that illuminated why technology adoption takes place in their art therapy practices. They stated that a client's response to a form of DIT was the basis for their decision as to whether that DIT was an effective therapeutic medium. Respondents also identified two criteria for determining a client's response: ease of use and "trialability" (the degree to which a new product is capable of being tried on a limited basis). The art therapists stated that a medium must be simple enough for the client to learn how to use it effectively. It must also have a trial-and-error quality that allows a client to explore the medium's possibilities safely. Some participants asserted that DIT provided clients with an opportunity to learn new skills, which positively affected the clients' self-esteem. The evaluation of DIT as a therapeutic tool was reported to be no different than the evaluation of nondigital tools. Almost all participants agreed that if a medium could safely produce a desirable change in a client, then it warranted inclusion in art therapy treatment. The fact that the medium was digital or nondigital was found to be less relevant than its capacity to produce change.

Participants listed therapeutic tasks for which they use DIT that were not listed in the survey. Clients who cannot type on a keyboard use voice recognition software to create stories and journals. Therapists and people with disabilities have adopted DIT for the creation of digital imagery and motion pictures. In addition, the participants observed that computer technology was effective for individuals who did not want to get messy during their art therapy treatment. DIT also was seen as being effective for people with disabilities—especially those with mobility disabilities—who may need to connect with others via e-mail, web cams, and online communities. The results demonstrate that some art therapists have found that the impact of DIT has expanded treatment options.

Adoption Process

The survey results indicated that the decision to adopt new technology was most often influenced by replacement discontinuance, meaning the replacement of one innovation with a superior one (Rogers, 2003). The study identified four main examples: (a) e-mail replacing telephone calls, (b) digital photography replacing various forms of artwork storage and archiving, (c) assistive technologies replacing traditional art media, and (d) computer-based word processing replacing handwriting and typewriters. Art therapists make conscious decisions to replace old practices with new ones when they find them to be advantageous. For example, many participants replaced film cameras with digital ones because they found the latter to be more effective for framing photos using the camera's LCD screen. Digital photography also allowed for easy editing, was more cost effective, provided immediate access to the images, and was not dependent on chemicals and darkrooms. Interviewees often based their decisions to adopt an innovation upon the quality of the DIT to improve on established media.

Adoption Factors

I identified several factors that influenced the adoption of DIT and HIT. Among them was cost. Respondents stated that a digital single lens reflex (SLR) camera was the device that was most desired but was difficult to obtain due to its high price. They viewed the digital SLR camera as the ideal combination of convenience, image quality, and continuance of existing photographic knowledge. Participants who worked in medical settings were an exception: they reported that they were able to purchase various forms of technology due to larger material budgets and existing widespread technology adoption in their field.

Cost also appeared as an adoption deterrent for those who had access to DIT but chose not to use it with clients. Art therapists often had to use personal funds to buy technology that they wanted to use with their clients. One participant stated, "I am not letting my young clients touch my brand new digital camera." Many art therapists reported owning art materials that they reserved for their own personal use. Whether that material was expensive oil paints or a digital camera, therapists may not have presented every tool that they had to their clients based on a desire to protect or reserve some media for themselves. Thus, personal adoption did not always lead to client use.

The value of DIT in providing the therapists and/or their clients with new capabilities was an additional adop-

tion factor. A digital camera and computer provide many of the features once only found in darkrooms. Art therapists can crop, change the exposure, and modify the contrast and brightness of an image without the need of chemicals. Digital technology also allows individuals to change color photos to black and white, add special effects, and digitally add or remove portions of an image, each of which fostered adoption and continued client use.

Art therapists in different adopter groups were found to use different features of the digital darkroom. Innovators often edited and removed portions of the image, used more than one program to edit the same image, and developed custom filters for their work. Those in the early majority group often cropped or turned color images to black and white, and removed red eye from images. Laggards mostly limited themselves to selecting the images they wanted to print; at times they also made simple crops and one-click software edits to images. Each adopter category consisted of art therapists with varying degrees of technological skill related to image manipulation. Nonetheless, each fulfilled the same desire of gaining control over the editing processes of their digital imagery.

An art therapist's occupation was an additional media adoption factor. For example, there was a significantly greater use of LCD projectors and digital camcorders by art therapy educators. These two devices were used for presentations, teaching, and providing student interns with feedback on their presentations and therapy sessions. Art therapists teaching in higher education, as compared to art therapy practitioners, used additional and/or specific technologies. These significant differences between art therapy educators and the general survey population offer insight into how individuals in related occupations might use similar forms of technology out of common necessity. This was also true of participants who worked with special needs populations. These art therapists were using assistive technologies more often than those who were not working with clients with special needs. The occupational tasks that respondents carried out were strong indicators of the forms of DIT and HIT they had adopted.

Forced adoption, which is the requirement to use HIT despite a person's desire not to do so, was found to be a common adoption factor. Although no participant reported being forced to use HIT with their clients as part of their treatment, forced adoption tasks did include computerized recordkeeping and billing, online teaching among art therapy educators, and online proposal submission processes for professional conference presentations. Participants who worked in medical, educational, and correctional settings reported having to use technology more often than those who worked in studio art settings and in private practice. For some, technology adoption began as a mandate of their employers.

Art therapists based much of their decision to adopt or reject DIT on their clients' responses to those media. For most, there was indifference in how they determined whether to adopt a traditional material such as clay or a digital camera as an artistic medium. The medium's inherent qualities were the key component of the decision-making process (Orr, 2005; Thong, 2007). Whether DIT is an effective art medium had less to do with the fact that a device was digital than it did with whether a given medium's inherent properties could be implemented therapeutically with their clients. Thus, the model for the adoption of DIT and traditional media should be identical because adoption was based primarily on media properties.

Discussion: Media Adoption Stage Model

A media adoption stage model (MASM) was created from the survey results to address the question of whether art therapists progress through an identifiable decision-making process when presented with new media that may have professional, artistic, and/or therapeutic applications (Figure 1). The results indicate that art therapists progress through a two-stage diffusion of Rogers's (2003) innovation model for new media in art therapy treatment. Art therapists first proceed through Stage I Adoption, which is comprised of the five stages in Rogers's innovation–decision process: knowledge ➛ persuasion ➛ decision ➛ implementation ➛ confirmation. During the knowledge stage participants became aware that an innovation existed, either by chance or because they were looking to solve a need. In the persuasion stage art therapists weighed the relative advantages of the device, along with its work-related compatibility, complexity, and novelty. Those with favorable attitudes toward previously adopted forms of DIT and HIT were more likely to proceed quickly through the persuasion stage with higher adoption rates than those without this experience. Media adoption then progressed to the decision stage, where a decision was made to reject an item outright or to actively engage in activities that assisted in deciding whether to adopt or reject an innovation. This stage of the decision-making process was very important because ownership, access, and use of a device were not required for its rejection and were factors that helped to negate its adoption. In the implementation stage adoption transferred from a mental concept to physical activity, and uses for the device were determined and then implemented. Finally, during the confirmation stage, art therapists confirmed their adoption of the medium and then chose to continue adoption or to reject the medium. Once rejected, an art therapist might revisit the medium for future adoption, for example, by considering a newer version of a device that might have more desirable features. Once the art therapist personally adopted a medium, it could then be incorporated into practice as an expressive art-making tool.

The MASM demonstrates that the adoption process of media for clients is an extension of the art therapist respondents' personal adoption processes (Figure 1). The study found that respondents bridge personal media adoption (Stage I Adoption) with a client-focused secondary adoption process (Stage II Adoption). This "media properties bridge" between the personal and therapeutic adoption of media represents the process whereby the therapist determined that a medium possessed inherent qualities that could lead to therapeutic applications. This determination

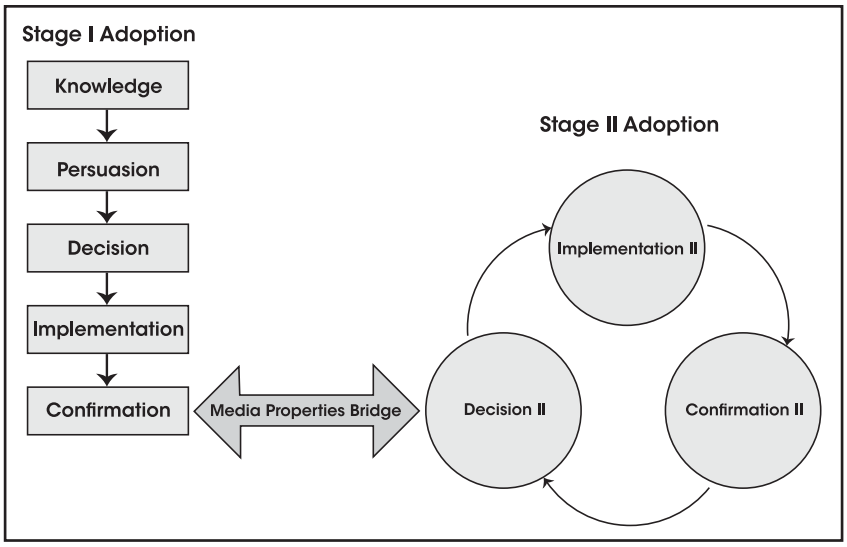

Figure 1 Media Adoption Stage Model

was based on the art therapist's experiences with a medium as well as knowledge gained from outside sources such as books, journals, or presentations. The bridge analogy is appropriate for two reasons. First, a bridge denotes that information can go back and forth across it, or in the case of media adoption, experience and feedback loops alter whether the therapist will continue to view the medium as an expressive tool. Second, the bridge connects the two stages of adoption; they are not independent of one another. Once an art therapist's experience with a medium crosses the media properties bridge, Stage II Adoption begins.

Stage II Adoption of the MASM consists of three iterative stages: decision II, implementation II, and confirmation II. The media properties bridge serves a function in Stage II Adoption that is similar to the persuasion stage of Stage I Adoption because the therapist must be persuaded by a medium's inherent properties to introduce it to clients as a therapeutic tool. The decision II stage, which is when a therapist determines that a medium's inherent properties may have therapeutic applications, leads to the development of treatment tasks using that medium. Some art therapists, for example, reported that they may compare a new medium's properties with another, similar medium, such as comparing a digital camera with a film camera. If it was determined that the medium was not suitable for treatment, it was rejected and returned across the media properties bridge to the confirmation stage of Stage I Adoption, where it remained available for reevaluation. Once the art therapist approved a medium, he or she proceeded to implementation II in the next stage of decision making. The therapist carries out treatment with clients and then decides on continued use. The final stage, or confirmation II, was dependent upon the clients' responses, the therapist's comfort level with specific media, and the medium's relative advantage over already implemented media.

At the end of Stage II, the art therapist returns to the beginning of the decision-making process for a subsequent evaluation of the medium's properties. If the medium has a favorable response with clients, the therapist implements it further. If clients have a less than favorable response, the therapist rejects the medium as a therapeutic tool and returns it across the media properties bridge to the confirmation stage of Stage I Adoption. Stage II Adoption is tailored to individual clients and is not necessarily universal, in that a therapist can reject the use of media with one client and accept it with another. Therapists can also accept or reject a medium for use with all clients.

Conclusion

The Media Adoption Stage Model was formulated by integrating Rogers's (2003) diffusion model, research from the fields of mental health and art education, and the survey and interview data from this study. The MASM coincides with the therapist's responsibility to protect his or her clients. Stage I Adoption presents the opportunity to personally experiment with a medium to determine its properties and personal uses. Only after therapists feel confident in their personal use of a medium—despite the possibility that a client may have greater proficiency with it—does it become implemented with clients. Therapists then proceed to ascertain the medium's therapeutic potential and reevaluate its applications, which allow the therapists to continue to adopt or reject the medium. Factors such as cost, new capabilities, occupation, and forced adoption each were found to play distinctive roles in overall technology adoption.

Digital media have the potential to become a staple of art therapy treatment. Clinicians and their clients continue to own these types of tools in greater numbers, which leads to greater usage as well as applications that are different from the way they use traditional media such as clay and paints. Having access to these tools at home and in the clinic can create a therapeutic continuum that extends from the office to the home and back again. At the same time, a greater use of technology can result in the loss of some of the therapeutic advantages that come with messier

art materials. However, clean materials are more inviting to clients who do not desire a tactical somatic experience.

These findings have implications for both art therapy education and clinical practice. Educational programs may need to adjust instruction on the ethical use of art media for students who may have greater familiarity with DIT than their instructors and less bias towards their application. Such bias appears to be related more to art therapists' personal and professional experiences with technology than its inherent properties. Although some art therapists do not yet consider DIT in the same light as traditional media, it is already becoming a standard tool in art therapy education, public relations, information dissemination, and treatment. The future of technology in art therapy will be complex but unmistakable. Digital information technology has made its mark on the field of art therapy, its only limits bound by ethics and the imagination.

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