

**Can Rich Media Be Tied to Patient Records to Help
Elderly Adults Who Suffer From Cognitive Impairment?**

Kristen Cook

San Jose State University

RICH MEDIA AND AGING

In developed countries, media and information surrounds us pretty much every moment of our waking life. We enjoy the ease and availability with which every question can be answered and every favorite image, song or TV show can be experienced. Even those of us who are old enough to remember a time before media was portable, and transactions occurred either in person or through the mail, can barely remember what it actually felt like to have delayed responses to questions, and media was not on demand, but on a schedule.

Since then of course, the digital revolution has touched and changed everything. The Internet and portable media has allowed us to extend our reach for information, control the convoluted details of our lives, influence and communicate with others, and solve pretty much any problem, especially problems of boredom. Unless you are a scientist, engineer, or computer programmer, for the vast majority of people the face of technology is entertainment on one or more screens simultaneously.

Despite all the joys of technology, there is a darker side. Growing evidence suggests that our modern life, characterized as it is by high media consumption, is not making us any smarter and may in fact be harming our brains and our bodies. Technology makes us sedentary which contributes to the obesity and diabetes epidemics. Also, our faster pace of life often causes personal stress that raises cortisol levels in the brain and over time can contribute to cognitive problems (Stannard, 2009). Ironically, technology may be aging our brains prematurely even while helping us to live longer physically through advances in modern medicine.

This leads us to another challenge, and that is the fact that the U.S. population is aging. It's been a low buzz in the media for at least a decade, but here's the recap: The number of people age 65 and older reached upwards of 40 million in 2010, and comprised the largest share

of the population overall, 13%, compared to 4.1% in 1900 (U.S. Census Bureau, November, 2011). This is the result of a combination of factors, including a longer average life expectancy. The average life expectancy in the early 1900s was 48 years old for men, 46 for women (Noymer, 2005). Today, the average life expectancy is nearly double that of 1900: 84 years old for men, 86 for women in the U.S. (SSA, 2013).

Our aging population is also due to a spike in births from 1946 to 1964, enter the Baby Boomer generation, in which the birthrate went from 2.8 million in 1945, to a peak of 4.3 million in 1957, averaging just below 4 million births per year over the entire 19 year period (BBHQ.com, 2013).

Today, that spike can be seen in the aging statistics: between 2000 and 2010 the fastest growing segment of the population was persons 45 to 64 years old, whose numbers increased by 31%, (U.S. Census Bureau, May, 2011). The next fastest growing segment was persons 65 years or older, whose numbers grew 15% in that same decade. The lowest growth segment in the U.S. population in that time period was persons 18-44 years of age (0.6%), and number of persons under 18 years of age increased just 2.6% between 2000 and 2010. This age group will be the caregivers for the older generations. In 2015 the number of people between 18 and 44 years of age will be approximately equal to the number of people 45 and above. The reality of this fact puts tremendous stress on the families and individuals in that 18 to 44 age group who provide care—to both the older and the younger generations. Today almost 1 out of 3 adults in the U.S. is currently in a caregiving role for someone who is ill, disabled, or elderly, (The National Alliance for Caregiving and AARP, 2009).

This situation entails many emotionally and financially difficult decisions. The cost of putting an elder family member into dependent care (a nursing home) can be cost-prohibitive at

\$229 per day or \$6965 per month for a private room. Even a one-bedroom unit in an assisted living facility (with fewer services) on average costs \$3293 per month (U.S. Dept. of Health and Human Services). Neither Medicare Part A nor Part B covers ongoing long-term care. Private rooms are never covered, and coverage is limited for specific services such as skilled nursing and rehab (ALFA.org, 2013). In many states Medicaid does cover room and board and other services for the low-income elderly, but eligibility requirements vary widely. The bottom line of all this is that many more people are choosing to “age in place” and do whatever they can to meet their ever-growing health and basic needs. While remaining in the home initially has some economic advantages, the resulting isolation tends to trigger or exacerbate cognitive impairment, memory loss and behavioral problems that are typically assumed to be a normal and inevitable part of aging. Thus, when symptoms become serious enough that the individual cannot be safely cared for in the home, long-term care is sought. People are more ill when they enter the dependent-care system, which further drives up prices for these services.

Now let’s return to the subject of rich media—art, photos, audio, video, computer games, etc. These media, in all their various analog and digital forms, are woven into the fabric of our lives. They represent our cultures, and connect us to our deepest selves, our families and our communities, our history and origins. In as much as rich media helps us escape our reality when we want it to, rich media also helps us stay anchored in our reality. And for most people its presence and availability is pretty much taken as a given. And yet there is a tragic void of personally meaningful rich media in the environments of elderly adults residing in assisted living and dependent care facilities. Except for television for “companionship”, there is often nothing sensory to connect the individual with their personal history and identity. At first this might seem like a simple quality of life issue, but in fact it has deep implications for brain health.

In July of 2013, *The American Journal of Geriatric Psychiatry* reported on the latest of several studies that establishes the positive impact of brain exercise through computer-assisted games. A specialized computer game called Dakim® was found to improve cognitive performance in older adults suffering from cognitive impairment. These improvements were achieved across three domains: immediate memory, delayed memory and language (Miller, Dye, Kim, Jennings, O'Toole, Wong, & Siddarth, 2013) and the cognitive performance improvements were sustained over time. It is simply a myth that cognitive decline is inevitable and irreversible.

I spoke with Stephen Shinnick, a founder and business developer of Dakim®, about these breakthrough results and their potential to help millions of people who suffer currently from memory loss and cognitive impairment (personal communication, September 13, 2013).

Computer games are hugely successful when offered a relatively healthy population. However, cognitive behavioral therapy cannot be done with a person who is agitated, a common symptom of early dementia. Heightened emotional states override the areas of the brain responsible for cognitive function. The best way to return a person to reality and stabilize them emotionally is through rich media. Music and imagery, even the sound of a trusted family member's voice, can reconnect the lost person, just as it can comfort and center a healthy person. Mr. Shinnick gave several vivid and moving illustrations of a typical use of media to help an elderly patient. In a facility where they used rich media to work with patients individually and in groups, he described one woman who would be stricken with terror whenever a thunderstorm approached. The staff learned that she tremendously enjoyed looking at pictures of babies, and so whenever thunderstorms were forecasted, they gave her a series of images of babies that would engage her and prevent her panic attacks. Numerous other stories I've heard anecdotally confirm the value

of this approach. Rich media can be used to bring us back to our humanity, not just help us check out.

Unfortunately, the most common practice for managing patients who suffer from bouts of disorientation and violent or emotional outbursts is through the use of pharmaceuticals. State and federal regulations have attempted to curb the abuse of antipsychotic drugs in nursing homes because of the risks associated with them, but the overuse of chemical restraints persists (Bowblis, Crystal, Intrator & Lucas, 2011). Medications such as Risperdal, Seroquel and Zyprexa play a large part in the mortality statistics especially in their “off label” use. The outlook for residents in elder care institutions today is bleak: 65% of residents of nursing homes die within 1 year of admission (GeriPal.org, 2010).

Insurance does not cover any kind of cognitive therapy for age-related cognitive impairment and usually the nursing staff is not trained to deal effectively with mental health issues. And even if they do have experience helping patients who are confused or agitated, they seldom have time to provide the necessary level of individual attention. Nurses in most of these facilities spend most of their time dealing with the biological needs of patients who are incapacitated by medication.

The technology exists today that can easily provide rich media-based support for patients with behavioral and mental illness, to bring them back out of the fog in which they have been living and have meaningful human interaction. This in turn, paves the way for doing computer-assisted cognitive behavioral therapy that can allow patients to perform more self-care activities and reduce their dependence on nursing staff, thus giving them an overall better quality of life. The technology capable of delivering rich media is fairly mature and is used in many industries. A digital asset management system (or DAM) can feed content (sound and picture) to flat

screens over a network, similar to closed circuit media systems found in motels, airports and company intranets.

Rich media, along with computer-assisted cognitive behavioral therapy, should become the standard of care for the elderly in dependent care and assisted living facilities. Mr. Shinnick believes there is a twenty-year horizon on this use of technology, as younger tech savvy Baby Boomers age into retirement and move into assisted living arrangements. They will expect Wi-Fi access to their media libraries, and will likely embrace brain games to keep them mentally fit. But this will be too late for the people living in facilities now who, in addition to whatever physical and mental ills they endure, experience conditions that all too often can only be described as a degradation of humanity.

GOALS AND OBJECTIVES

This study will explore holistically the core current patient record-keeping practices of cognitive behavioral therapists, examining their patient case files as well as other resources and media that are used in working with older adults with cognitive impairment. I will examine the structure of case files and the information needs of today's leading practitioners. These practices will be examined against the backdrop of the long-established field of modern cognitive behavioral science, which originated in the late 1930s, and in which many of the computer-assisted brain games of today have their roots.

The goal of the research is to take one step closer to the adoption of DAM technology that can be used in conjunction with patient records, to enable elderly patients to be as mentally healthy as possible and enjoy the best possible quality of life until the very end. As an information professional, my contribution to this goal is to take a broad view of records and

information needs of this emerging application of DAM, and to identify opportunities to tie DAM with traditional patient records in adult assisted living or dependent care settings.

LITERATURE REVIEW

A survey of the literature relating to this research includes three primary subject areas:

- Computer-Assisted Cognitive Behavioral Therapy & the Elderly
- Consumer Health Technologies & Personal Health Records
- HITECH and Electronic Health Records

Computer-Assisted Cognitive Behavioral Therapy & the Elderly

Several studies have been done in the U.S. and abroad proving the benefits of computer-assisted cognitive behavioral therapy with older adults. In 2003 in Austria, men and women between 75 and 91 years of age with self-reported memory impairment improved their performance in five areas of fluid intelligence: information processing speed, short-term memory, long-term memory, interference tendency (one set of information interferes with the recall of another set of information), and learning ability (Günther, Schäfer, Holzner & Kemmler). These gains were achieved over a 14-week period that consisted of one 45-minute session per week.

The results comparing pre-training and post-training performance concluded that all measures of fluid intelligence improved significantly with computer-assisted cognitive training. The gains in functionality persisted over 5 months and would possibly last longer. There was no change on self-rated scales of mood or the subjects' experience of aging, however individuals did express that training took their mind off of pain, and they experienced pride over their accomplishments.

The study was limited by the fact that there was no control group. However, the results were very promising. The authors suggested that computer-assisted cognitive training has advantages over traditional cognitive training because it offers instantaneous, value-free feedback on performance. They also noted that computerized cognitive training is widely used with younger patients and psychiatric patients, but at the time of this study there had been very little research about computer-assisted training and gerontology.

Mentioned earlier in this paper, a more recent study of computer-assisted cognitive behavioral therapy and older adults by Miller et al. (2013) confirms the results of the earlier Austrian study and goes on to suggest that, taken along with results from other highly respected studies of aging populations, a cognitive training program combined with an overall healthy lifestyle, provides the greatest benefit to the ability to perform everyday activities and improve cognitive functioning.

Consumer Health Technologies & Personal Health Records

The articles collectively suggest that the eventual integration of rich media and medical health record technologies will be driven by consumers who are already heavy users of the Internet and mobile platforms (Fox & Duggan, 2012). Smartphone users access health information for themselves and others if they have recently undergone a recent health event, or are a caregiver. These consumers will demand access to technology and information for themselves as they get older, and to whatever extent possible currently they will continue to exploit technology for the benefit of their older family members.

Rich media is already coming together with health in the form of mobile health apps that capture and organize personally generated health-related content. The most direct way to

incorporate personal rich media (music and imagery) into one's overall health maintenance package (along with test results and scans), would be through the use of these types of personal systems. MobiHealthNews.com (Pai, 2013) reviews 21 popular mobile health apps in various categories and explains a recent revision to FDA guidelines that could affect their use by consumers. These apps could be considered medical devices because they do meet certain criteria such as having the ability to monitor health, and they record and integrate with official medical records. However, because the apps are considered 'low-risk' the FDA is choosing not to regulate them. This suggests rich media library systems could be deployed within dependent care facilities and could be tied to a patient's health record but would not be subject to FDA regulation. This may generally facilitate the adoption of DAM tied to patient records, by allowing organizations to freely use innovative personalized therapies that integrate rich media.

There are at many major obstacles to the integration between DAM and health records. First, mobile health apps and personal health records (PHR) while offering various conveniences and the ability to generally support health, are two completely different things and both mobile health apps and PHR are completely separate and different from traditional health records maintained in analog systems scattered throughout the healthcare system. Interoperability and personalization is feasible, and some of these advantages exist today in online portals offered by healthcare providers, or "tethered PHR", but it is difficult to see where and how information and media integrations would occur outside of these siloed systems. Regional health information exchanges (HIEs) are the beginnings of shared systems, providing secure cross platform Web access to patient data. Participating providers define a core data set that makes up a shared record. However, these are not accessible by patients.

Robert Steele, Kyongho Min and Amanda Lo, (2012) published a paper in the *Journal of the American Society for Information Science and Technology*, that extends the literature on PHR by examining the infrastructure issues that will largely determine PHR design and deployment. These issues include the need for a baseline PHR architecture model, and also the importance of understanding the connectivity and hardware issues among the public. PHR functionality is directly tied to the architectural choice and the article also explains the different architectural classifications and their interdependence with infrastructure. This article clarifies the intersection of electronic health records, personal health records, and access issues, providing critical context for the possibility of including rich media in personal health records.

Another obstacle for tying DAM to patient records in terms of patient-controlled technology, is that older patients are not only less technology literate than younger populations, they are also less health literate. For example, they may not go for annual exams or receive regular medical screenings that are available to them. Even when access to a personal health records system is provided along with coaching sessions by trained professionals, older adults tend not to see the value of such things at first and require a great deal of encouragement.

A study was conducted among a group of residents living in a federally funded housing facility in Everett, WA. A Web-based personal health information system was provided free of charge and a social worker and two graduate nurses provided individual assistance to seventy residents over a 33-month period (Kim, Stolyar, Lober, Herbaugh, Shinstrom, Zierler, Soh & Kim, 2009). Poor computer skills, technophobia, low health literacy and limited physical and cognitive abilities inhibited the residents' use of the system.

Most residents were satisfied with the experience overall, and all of the participants shared their printed PHRs with care providers, family members and or friends. However the

study did reveal the difficulties in deploying PHR systems in socioeconomically disadvantaged populations, where the digital divide is most apparent. The PHR system used in this study contained only self-reported information. A tethered PHR on the other hand, would also contain information entered by the doctor, so the adoption of a shared system might be more successful and alleviate some of the basic digital divide challenges. Elderly and low-income persons stand the most to gain from PHRs but may not be able to realize the benefit that this evolving technology offers. The authors suggest that the next generation of elderly will be more computer literate and will use PHR more widely.

The HITECH Act and Electronic Health Records

The recent trend in medical information has been toward a patient-centered model, where individuals track their own medical history either through a standalone Web-based personal health record system, or through a tethered PHR. The promise of EHR and PHR is improved efficiency and coordination of health care, and greater patient engagement in their health, which results in better medical outcomes. In 2009, as part of the American Recovery and Reinvestment Act of 2009, Congress passed the Health Information Technology for Economic and Clinical Health Act, commonly called the HITECH Act, which seeks to

improve American health care delivery and patient care through an unprecedented investment in Health IT (HIT). The provisions of the HITECH Act are specifically designed to work together to provide the necessary assistance and technical support to providers, enable coordination and alignment within and among states, establish connectivity to the public health community in case of emergencies, and assure the workforce is properly trained and equipped to be meaningful users of certified Electronic Health Records (EHRs)...(HealthIT.gov)

Under Title IV, Division B of the HITECH Act, eligible Medicare and Medicaid providers may receive Federal incentives for the development of Certified EHR Technology

(CEHRT). The concept of “meaningful use” is a key aspect required of any system for which a medical provider seeks funding under HITECH. Meaningful use is demonstrated by system functionality that directly benefits the patient, for example, electronic prescribing and checking for drug interactions and drug allergies, and functionality must also improve the coordination and quality of care in ways that are measurable and reportable (Centers for Medicare & Medicaid Services).

In order for the use of rich media and information systems to constitute “meaningful use” under the HITECH Act, cognitive behavioral therapy would first need to be recognized by the medical industry as standard of care for patients with cognitive impairment. There is little evidence that is happening yet, especially if the drug companies have anything to say about it. And the use of rich media to address mood issues as a treatment modality is even farther off in the distance. Still, it is worth striving to establish technology-based treatment alternatives that are demonstrated to be effective, have a zero morbidity rate, and reduce the financial burden on in-patient health care providers by moving patients backward (toward health) on the spectrum of health and disease.

Among the literature dealing with EHR adoption, one article spelled out another possible challenge in introducing computer-based rich media as part of a patient-centered EHR: The rates of uptake of EHR and PHR information technology is generally lower in the mental health sector than in general health settings (Druss & Dimitropoulos, 2013). This article summarized a content analysis of published research and “grey” literature to examine what factors influence the rate of adoption of EHR and PHR technology at the user level, at the provider level, and at the system level. Their focus was primarily on usage rates among mental health settings, but the survey drew comparisons between mental health settings & patients and general medical health care

settings & patients. While use of electronic health information technology has risen steadily, especially after the HITECH initiative, there are many obstacles yet to be faced. Mental health care providers in general spend about half as much of their total operating budget on EHR and PHR as other medical providers. They were also less likely to participate in Regional Health Information Organizations that allow the electronic exchange of key health information across sites.

The landscape surrounding ERHs and PHRs that is described in the literature, and the palliative approach to cognitive disorders among the elderly, is extremely disheartening. For this research to proceed it will be important to focus on the positive and hopeful story of brain plasticity that has reached the popular media in recent years. Thoughtful business entrepreneurs are creating platforms that challenge the depressing reality that is today's nursing home setting. [GeriJoy®](#) is a Web based service that uses a tablet and an animated dog avatar to render round the clock personalized companionship in the home or in a residential facility. [Sharpbrains®](#) is a clearinghouse of information related to neuroscience and brain health, with a special focus on aging. And health-conscious individuals of all ages are catching on to online brain fitness programs, such as [Dakim®](#), [Lumosity®](#) and the brain games offered on the [AARP web site](#).

METHODOLOGY & ANALYTIC TECHNIQUES

This study will seek to define the core informational needs and record-keeping best practices of cognitive behavioral experts who primarily work with geriatric patients in various types of settings such as assisted living communities and dependent care facilities, with the goal of understanding how rich media may be included in these systems to facilitate cognitive therapies for those suffering from cognitive impairment or dementia.

I will assume that rich media is not commonly used today in CBT, and that the record systems in place do not allow for the inclusion of rich media in any capacity, for access and use by either the therapist or by the patient directly. This assumption may prove to be incorrect as I gain knowledge of professional methodologies of CBT, however it is generally true that, with few exceptions, patient records or case files that integrate rich media are far from the norm. Therefore, it will only be possible to build a model of what a system might look like, stemming off of current record practices and media resources used in cognitive behavioral therapy.

The unit of analysis will be the record systems and media resources that collectively support CBT treatment within a particular CBT practice. The object of study, record systems and media resources, will be observed through the eyes of the professionals who use those resources and have input into their overall design and development. The variables being observed include the record structure, metadata and the record system functionality. The basic structure and components of a typical record created in the course of cognitive behavioral therapy will be the starting point, noting all variations and components and how they relate to treatment. Features of records or record systems that suggest logical points of integration with rich media libraries will be of particular interest.

The methodology will begin with a discovery process in the form of a qualitative survey interview to be conducted with cognitive behavioral therapists and neuroscientists specializing in brain plasticity. These experts will be selected from among organizations and institutions in the United States or in other countries that generally follow a Western medical tradition in the treatment of cognitive impairment, and have incorporated computer-assisted technologies and/or rich media into their treatment programs. I will not limit the study to CBT experts or who work exclusively with geriatric populations, because to do so might exclude valuable insights that

come from working with other populations such as children or adults who have cognitive impairment due to injury or disease. As this is a new use of DAM technology, it is important to cast a wide net. Differences in working with different populations will be noted in the discovery process and taken into account during data analysis.

The identification of the interview subjects will initially be through Internet research, building a list using Web sites such as Sharpbrains.com and web sites of academic medical institutions that specialize in gerontology. I will select key leaders of innovative research and treatment centers.

I will also interview cognitive behavioral therapists associated with commercial brain fitness products such as Lumosity® and Dakim®. These individuals will have insight into the opportunities offered by technology in a therapeutic setting as well as an understanding of the brain training marketplace. The companies these experts represent have already collected data on patient needs and understand the business models of dependent care facilities. They may be willing to share non-proprietary information and perspectives of the growth and development of information systems in these settings and offer valuable insights regarding the future of rich media and other computer-assisted technologies in caring for the elderly. In interviewing the creators of commercial products, I will ensure that my research perspective remains neutral and in no way endorses or advocates any particular software or platform.

The goal is to interview at least 12 experts in CBT and build the list of interview subjects organically from online research and from referral, using cluster sampling.

In general, the behavioral scientists and cognitive therapists selected for interview may have many different qualifications and professional specialties. The record keeping practices that they employ will probably also vary a great deal as will their level of awareness of the

possibilities offered by the integration of standard patient records with digital asset management. I will not assume that the interview subjects have reflected very much on the records that they use every day, or have imagined how the definition of a record might be expanded to support innovative therapies. For this reason, the survey pre-interview screening process will be prefaced by a basic introduction to the concept of digital asset management (DAM) as an extension of patient records, and an explanation of the objectives of the study.

For each interview, I will first ask the interview subject to walk me through a topline records survey of existing records systems in use at an interview subject's location, both paper and electronic, including a survey of processes, policy, custody and access. This survey would cover the core medical records that comprise a typical patient case file, plus any additional records that are part of the cognitive therapy documentation. If necessary, a separate appointment will be made with a person in charge of the formal records of the organization. The survey will allow me to discover the first set of study variables, namely the types and structure of records used currently in cognitive behavioral therapy case files.

The next set of variables will arise out of an exploration of the various treatment modalities that comprise CBT, including the use of information tools, resources, media or processes that may not be considered records per se, but may include media artifacts in standalone systems or libraries. These other resources may or may not be linked directly to patient records but could possibly suggest opportunities for the integration of rich media technologies and patient case files. I will ask the interview subject to explain these resources and how they relate to treatment. It is difficult to identify in advance what these items might be. It will certainly not be possible to develop an exhaustive list of all the types of materials and

processes used in CBT based purely on the individuals selected for interview, however the hope is that it will be possible to get a sense of the variety of materials and approaches.

The last variable under study is the interview subject's general assessment of the use of rich media and computer-assisted technology in care for the elderly with cognitive impairment, as it exists today (or does not exist as the case may be). I will also pose questions regarding the subject's ideas about the prospects for increased use of such technologies in the future, and what he or she sees as obstacles for adoption in dependent care facilities, and what that means for individuals entering the healthcare system. In the survey instrument this would be a series of questions that prompt the interview subject to share his or her own personal views and experience, and make associations with some of the issues mentioned earlier about technology, healthcare and insurance, and their views on pharmaceutical use.

Regarding the ethics of this research, the goal is to generate a better understanding of how DAM can support CBT and potentially integrate with existing patient record systems. To the extent that actual patient records may be examined in the process of performing a functional analysis or other inspection of a records system, the content of those records will be redacted to eliminate all personally identifiable information, especially if sample records are taken off the premises. Ideally any records sampled in the course of the investigation would be of hypothetical patients and not actual patients. There would never be a reason to refer to actual records when a record containing fake data for illustration purposes would suffice. Therefore, the final analysis and information models created out of the data would not pose a risk to any of the patients in any of the facilities that participated in the interviews. With these concerns mitigated or eliminated altogether, there is no reason to seek NRB approval for the research. The subject of study is records systems, not patients.

Data analysis of the records survey and the survey of CBT tools and resources will consist of grouping of the content into general categories such as basic patient info (history, tests and medications, etc.) and records that relate specifically to CBT. Resources and media libraries will be a separate category or categories depending on what emerges during the discovery interviews.

Analysis will be applied at the following levels:

- 1) I will look at the document metadata and seek to identify common document structures and note atypical structures.
- 2) I will describe the document types and media types and identify what formats are being used and what are the implications for preservation and sharing.

In order to analyze the respondents' answers about the future of rich media as part of patient records and computer-assisted cognitive behavioral therapy, I will create code categories for the different directions that respondents go in answering the questions. The coding will essentially identify common themes within the content. I will build the code categories and the codebook as the interviews progress and reveal new material. In order to measure the relative degrees of optimism about the adoption of these technologies, or to track the respondents' predicted timeframe in which that adoption might occur, I will establish ordinal scales to track those values, and use quantitative analysis to summarize the data.

These results will suggest areas of future study, and may reveal trends in the marketplace that will shape adoption and use. I also hope to gain a greater understanding of steps that medical providers and assisted living organizations can take toward the adoption of new technologies in computer-assisted behavioral therapy, and the use of rich media. It may be necessary to engage

in participatory action research to bring computer-assisted CBT and rich media into an organization, as was done in the by Miller et al. “You have to make the assisted living facility successful” in Shinnick’s words. But this time around, I would focus more holistically on the organization’s back end records management and technology architecture. This would be labor intensive and resource intensive work, but would be highly rewarding.

Lastly, interview data might also suggest specific actions that caregivers could take to help a family member suffering from a cognitive disorder and even prepare for their own future needs.

PROJECT SCHEDULE

This research project will be conducted over a period of one year, in a timeline divided into three sections. The first section will be devoted to building a list of interview subjects, formulation of interview questions, and making initial contact to invite participation and assess the appropriateness of their participation. For example, if they do not directly use or maintain records of patient CBT case files, then their input might be interesting as background but would not contribute to the research objectives of building a conceptual framework for DAM in conjunction with patient CBT records. The building of the interview list and formulation of interview questions should take approximately 4 weeks initially, and would be revised ongoing during the interview stage.

Interviews will be conducted over a six-month period, at the rate of approximately one interview every two weeks. Additional time may be devoted to interviewing if needed, depending on the regularity of the information gathered. If all of the interviews provided pretty much the same picture of records and resources used in CBT, then 12 interviews would be

sufficient. If new and relevant concepts emerge with each interview it may be smart to do more interviews. The iterative interview process is intended to focus and clarify the issues and provide an accurate and optimal view of the subject.

The third stage of the study will consist of collating and aggregating the data. This analysis stage will be completed in the final four months of the study.

QUALIFICATIONS

My qualifications to conduct this research are that I have over fifteen years of experience with rich media collections and digital asset management in the corporate sector where I managed graphics and audiovisual libraries for marketing purposes. There are many aspects to this research that will require an understanding of the market forces driving technology and that affect the business of care for the elderly in this country. Prior to my work in the corporate sector, I worked in not for profit media production, where I saw the power of media in dealing with the AIDS epidemic through education and also for empowering marginalized communities.

I do not have a medical background, but I believe that my outsider status will allow me to view medical records systems free from assumptions that may be prevalent within the medical establishment about the definitions and uses of records. Through my graduate studies at SJSU in the MARA Program, I have learned how to apply scientific methodology to my research topic, and to understand the fundamentals of recordkeeping without bias toward a particular system. In order to gain as wide a perspective as possible on medical records in general, and in cognitive behavioral therapy in particular, I plan to engage research advisors with expansive knowledge of medical records issues and norms.

SUMMARY

Records and information management principles touch every industry and every individual in some way, directly or indirectly. In the medical industry, the rush toward modernization is mainly focused on the centralization of health records, patient engagement, access and security. That is perhaps as it should be for now.

This research focuses on the record-keeping and information practices of cognitive behavioral therapists and neuroscientists, and seeks to expand the definition of a record to include personally relevant rich media (audio, still imagery and moving imagery). A typical collection of a single person's medical records already contains myriad record types and formats. Including rich media is simply taking this definition a step further.

Record systems that house rich media that are capable of helping geriatric patients with cognitive and behavioral disorders, need to be envisioned and planned for now, even while the practice of records and information management in the medical industry is fundamentally changing.

The research described here is speculative because it seeks to find the broad outlines of information processes and integrations that have yet to be established anywhere except in trial settings. The status quo of the medical industry and the dominance of the pharmaceutical industry create a hostile environment for innovators and startups. Nevertheless, there is progress in moving toward new models for the use of technology in patient care, and where there is progress there is often profit as well. According to Dakim®'s Stephen Shinnick, there was another positive result of the study of computer-assisted cognitive therapy with older adults. Not only did the residents who participated recover pieces of their identity and develop stronger connections with their families, the dependent care facility that was the site of the study became

more successful as a result of their participation. The staff spent less time changing diapers and bed linens, and the facility attracted business away from local competitors and filled empty rooms. This is just one example that highlights the potential of technology to transform even the most deeply entrenched problems of society, in ways that might seem impossible to imagine today.

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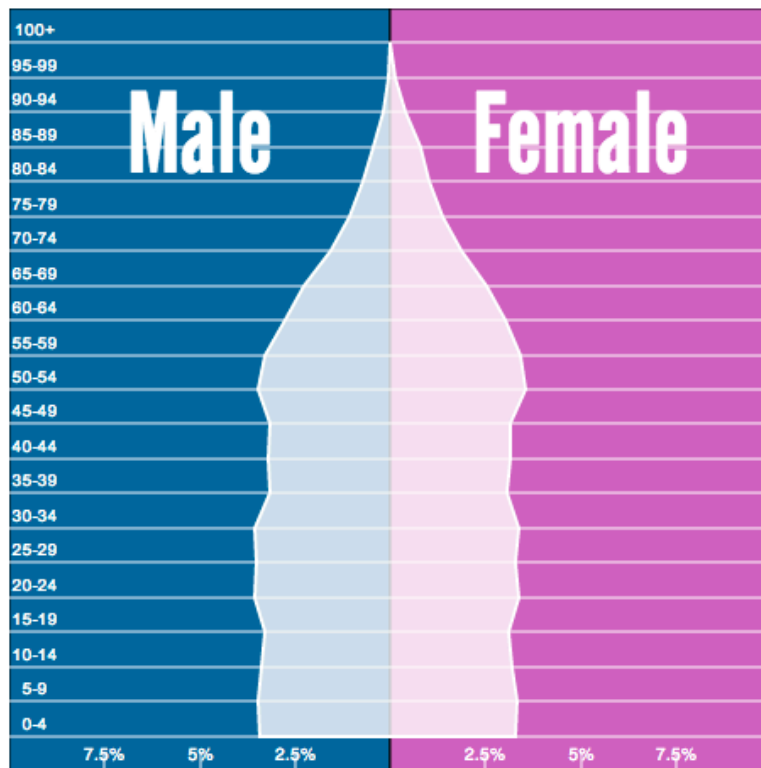
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Appendix

United States of America 2015

Population: **323.887.000**



<http://populationpyramid.net/United+States+of+America/2015/>