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TECHNOLOGY ASSISTED LIFE STORIES

BY

GARY R. HARLOW

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE OF

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IN

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Abstract

A pilot project was undertaken to test an emerging technology with a view to examine the feasibility of assisting older participants in the telling of their life stories. With the use of a digital recorder and voice-to-text software, ten older persons were freed from the labor of creating a formal record of their life stories, either through typing, writing or manual transcription of audio tape. Extemporaneously, on a hand-held recorder, and in a one-on-one interview format, each participant's voice was converted to digital form as the narration proceeded. This digital recording was then transcribed electronically into a computer, which subsequently converted the digital voice record into text. The resultant text was corrected to mirror the audible story, and a printed copy was given to each participant.

Adapting this emerging technology to a one-on-one interview process presented many challenges, the most significant of which was correcting the machine generated text to mirror the audio recording. The technique of assisted life stories has potential for more widespread usage when software programs are developed that more adequately address the unique requirements of an interview format and require a shorter training period.

Acknowledgements

I would like to profusely thank all ten participants, who so graciously consented to help in this study. Without their cooperation and shared wisdom, there would be nothing of significance to report. I especially want to thank my committee chairperson, Professor John Boulmetis for his patient and insightful mentoring, Professors Phillip Clark, George Willis and Patricia Burbank for their inspiration; and most especially Lisa and Rebecca for their love and patience with me through this process.

Preface

This thesis is presented in the manuscript format with chapter headings that roughly correspond to the format of the American Psychological Association Publication Manual Fourth Edition (Introduction, Results, Method, and Discussion). The appendices include instruments used in the study (Consent forms and Protocols).

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Technology Assisted Life Stories

1 Introduction

"Autobiography is at once individual story and cultural narrative, and its study offers privileged access to lives that are both distinctive and representative" (Levin & Cole, 1996, p. 452).

Statement of the Problem

The life historical process as so eloquently stated above allows access to a meaningful segment of life, but how will older persons transmit these life stories to the next generation? To investigate one possible answer to this question, a study was undertaken that explored the significant attributes of an erstwhile educational activity that melded storytelling with modern technology. Erstwhile in the sense that no lectures were given and no tests were taken, but nonetheless educational in that some learning occurred. Older persons were assisted in extemporaneously creating a textual record of their life stories within the context of a one-on-one interview with this researcher.

Justification and Significance of the Study

Historical Methodological Contexts

The transmission of life stories, whether written or spoken has suffered from restraints inherent in both methods.

Historically, a unique form of talking evolved as storytelling; one mode of storytelling eventually developed as life history, and when these life stories were written down they were called life writings or biographies (Paul, 1997; Conway, 1998). A dilemma emerges in transition to the written word, in that most people talk faster than they write. Some information is lost in the process of writing.

As a parallel development, oral history has maintained the spoken form of life storytelling. So today, even after thousands of years of writing, oral histories of individual lives are maintained and passed down from generation to generation as narratives (Polkinghorne, 1988). In a different manner, and yet to the same effect, some information is lost over time through blurred memories or damaged recording media.

Finally, through recent technological advances, a method has been developed that may solve the deficiencies in both modes of written and oral life story transmission.

Known variously as speech recognition, voice recognition, or voice-to-text, this method promises to revolutionize biography by incorporating the archival benefits of the written word with the comprehensiveness of oral traditions.

For the last several years this technology has been available to professionals for medical and legal dictation. More recently, voice-to-text has taken a quantum leap forward by recognizing continuous speech up to about 170 words per minute (Poor, 1998). Additionally, a refinement in digital audio recording has made voice-to-text available without being at a computer terminal (Dragon Systems, 1998).

Professionals and business people use this method for letter dictation and other communication functions. It was only a small step to use this procedure in the context of recording life stories in the present study through voice-to-text technology. The following three sections explicate theoretical knowledge upon which the study was constructed.

Reflective Learning Research

Researching lived experience is grounded in the "lifeworld". Therein, the interwoven existentials of spatiality, corporeality, temporality and communality act

as guides for reflection (Van Manen, 1990).

Within the context of these commonsense descriptors of lived experience, action research utilizes communicative action and self-knowledge in critical discourse (MacIsaac, 1996). In this critical discourse with others or oneself transformative learning occurs (Mezirow, 1991), " ... in which engagement with life experience results in the restructuring of personal meaning systems" (Merriam & Clark, 1991, p. 199). Creating through reflection a map of past events, the life historian makes an interpretation, which engenders learning when that interpretation becomes the basis for action (Mezirow, 1990).

Upon reflection and evaluation of lived experience, a life story can be told that reflects insights gained during the process of subsequent living. As actresses and actors in their own life dramas, who better to make sense of and learn from their lived experiences than the older persons themselves?

Biography and Aging

As pointed out by Birren and Hedlund (1987), counseling psychology has made significant use of autobiographical data in several research studies with older persons. In addition to the obvious value that

personal storytelling can provide older persons in a psychotherapeutic realm (Gergen, 1996), a more basic value is attributable to the technique as an adjunct to medical treatment. Doctors who listen to the stories of their patients can gain valuable insights. "In sum, storytelling is the creation of personal meaning, identity, and relationship" (Rybarczyk & Bellg, 1997, p. 6).

Perhaps as important is the use of life history in other unintentionally therapeutic settings. Here, through the powerful force of reconstruction it can enhance life meaning-value (Kenyon, 1996). Guided autobiography is one such setting. In their recent book, Birren and Birren (1996) show positive outcomes when using guided autobiography, "The coming alive of old memories and emotions, and the revitalization of power and meaning in life, can be extremely satisfying for all participants in the guided autobiography group process" (p. 289). The present study was not as formally structured as these group activities, but instead investigated a middle ground between autobiography and guided autobiography. On a continuum from solitary writing with no prompts to a formally structured group activity with specific assignments, this study was located somewhere in the middle.

Successful Aging

"The task of successful aging is to discover and rediscover relationships and activities that provide closeness and meaningfulness" (Rowe & Kahn, 1998, p. 46).

Reflecting the culmination of over one hundred multidisciplinary research projects funded by the MacArthur successful aging studies, Rowe and Kahn (1998) have written a valuable summary of this research. Incorporated in their model are three interwoven themes that they state are essential in describing successful aging: "...low risk of disease and disease-related disability; high mental and physical function; and active engagement with life" (p. 38).

To examine the ramifications of the "flip side" of successful aging -- depression and alienation -- one need only peruse the medical literature. In a recent article, general health care costs were found to be about 50% greater for older patients with depressive symptoms (Unutzer, et al, 1997).

Significance of This Research

As stated previously, the assisted life stories in this study were defined as a middle ground between autobiography and guided autobiography. They were guided to the extent that older people were helped to use

technology in the generation of her or his life story. If this technology were to be proven effective, life historians will have been freed from the labor of creating a formal record of their life stories, either through typing, writing or manual transcription of audio tape.

A semi-structured interview format focused the participants on the active engagement aspect of successful aging that Rowe and Kahn (1998) outlined above, by assisting them to actively pursue this life-historical process. It is this active engagement philosophy in concert with the reflective, transformative learning previously mentioned that combine to give the present study further meaning.

In the process of life reflection a textual record of their story could be created for personal edification, sharing with others, and possible self-publication.

Hypothesis

It was hypothesized that: A verbatim life story (requiring some further editing by the participant) could be generated through the method of assisted life stories.

2 Methodology

Population/Sample

After IRB approval, this study was undertaken to explore acceptance within the older adult community. From a cohort of thirty to forty acquaintances in the designed age range, ten older persons were conveniently selected for the study. Five of these participants were male and five were female. Nine were Euro-American; one was African-American. They were all over 60 years of age and resided in Rhode Island. I would estimate their ages to have ranged from just over 60 to somewhere in the upper 80s. Although this study made a concerted effort to obtain a diverse gender and ethnicity mix, the population from which the participants were sampled, and the participants themselves were not necessarily representative of the older adult population. I therefore hesitate to make any generalizations or statements about whether this study could be replicated with a different sample. The cohort from whom I conveniently sampled eight of the participants was a group of approximately 30 people whom I knew as acquaintances over a period of two years. For the most part, I had alerted these people to my study when I first came to know them, but it was not until much later into my

relationship with them that I established enough rapport that the majority of the sample would participate in my study. All of the participants had education beyond the Bachelor's level, even though the only requirement was reading a protocol that was rated at the eighth grade level.

Setting

The first four interviews occurred between August 1999 and February 2000; The last six interviews occurred between August 2000 and December 2000. All of the interviews were between 9 AM and 3 PM. Six of the interview sessions took place in a meeting room where I was sitting across from the participant at a small conference table with 7 or 8 chairs. For the most part, the room was isolated from any intrusion so that privacy could be maintained. Two of the interviews took place in a small office, seated in comfortable chairs with good lighting. One of the interviews took place in a living room type setting, and one of the interviews took place in the participant's study. The interviews were in varied places, so the portability of the digital recorder helped to make the study much more efficient.

Instrumentation

Speech Recognition Software

A small hand-held digital audio recorder with software and cabling to interface with a personal computer was used to input training sessions and life stories. The recorder had receptacles for a plug-in dictation style microphone with headset. The computer operated the Dragon NaturallySpeaking Mobile Preferred Edition 3.0 speech recognition software program (Dragon Systems, 1998) (hereafter referred to as program or software), at 350 Megahertz with 128 Megabytes of Random Access Memory and 6.4 Gigabytes of Hard Disk space.

The digital recorder supplied with the software was fairly intuitive to use. It did not take much learning, with buttons on it that are similar to any small tape recorder. The digital recorder had 4 MB of internal memory and I purchased an 8 MB flash memory card to go in it. This gave a total of 12 MB of memory, which given the way the recorder compressed information, translated into 40 minutes for the internal memory and 80 minutes for the card memory. In all cases I recorded the protocol voice recognition reading into the internal memory and the life story itself onto the card memory.

Interview

A semi-structured interview protocol that asked the investigative interview questions: who, what, when, where,

why and how was developed and subsequently used to give a consistent format to each interview. (Appendix A).

Procedure

Signed informed consent forms that conformed to IRB standards (Appendix B) were completed before any research was initiated. As a protection to the confidentiality of the participants, only abbreviated excerpts were used as exemplars in this paper, and then only with a participant's expressed written consent. There was a concerted effort to maintain privacy and confidentiality during the training and interview process.

The microphone used was the headset-type with one ear piece. The only time I played back anything into the ear piece was during an initial test, which I asked each participant to do. This was to insure that the recorder was working. I asked them to record a simple test, which I played back to them, but from that point forward, for the rest of the interview, I did not use the ear piece function of the headset.

At the outset, I was concerned about the dynamics of microphone hook-up and ease of adaptation to this potentially foreign accouterment. As it turned out, none of the participants seemed overly bothered by the process; no one resisted putting on the headset microphone. Half of

the participants needed assistance getting the microphone positioned correctly, while the other half seemed perfectly comfortable making their own adjustments.

The digital recording can be played back as many times as necessary in order to verify accuracy of transcription without any deterioration of sound quality. This contrasts with traditional tape technology, where repeated stopping and starting of an audio tape could lead to stretching of the tape and permanent loss of data.

After adjusting the microphone and answering questions when needed, twenty-five minutes of uninterrupted time were needed for completion of the initial speech training on the mobile recorder. In order to train the NaturallySpeaking program to recognize each voice, excerpts were read from a magazine-like booklet that I prepared. I copied the training protocol from the computer and printed it in twelve point double spaced bold font for ease of reading by the participants (Appendix C). To complete the training, they read sixteen single sided pages into the digital recorder. As they read the protocol, their voice was converted to digital format. I intervened only when they skipped a page during the training session.

After the required training protocol had been read

into the recorder, each participant was given an instruction sheet to prepare for his or her first life story session (Appendix A). They were encouraged to give some thought to the questions on the instruction sheet as those questions constituted the initial prompts.

During the interviews, the following probes were also used to encourage them to think of specific situations, persons, or events in their life (Van Manen, 1990):

- Tell me where you grew up.
- What was it like to grow up there?
- Tell me what it was like in your family.
- How did your life change when...? (any important turning point)
- Tell me what your life was like when you were a young adult.
- Can you give me an example of...?
- What was it like to...?
- What was your biggest challenge?
- What is your earliest memory?
- Given the chance, what would you do differently?

Two final questions were asked of all participants at the end of the interview process: Do you feel you have benefited from telling your story? (Yes or no) In what

way has telling it affected you?

With the equipment used as just described in the context of this study, the ten older persons completed their interviews. Extemporaneously, on the small hand-held recorder, their voice was converted to digital format as the narration proceeded. The digital recording was then transcribed electronically onto the computer, which subsequently converted the digital voice record into text.

After each story was transcribed and verified against the digital recording by the researcher, a printed copy of his or her resultant text was given to every participant. I also supplied them with their story on floppy diskette. As prescribed by university protocol to protect the confidentiality of the participants, only digitally archived copies of these texts as well as the 812 MB of audio files on media storage devices were retained in a secure location.

Data Analysis

To test the technology and explore its applicability in assisted life stories, the resultant products and the research process became an object of qualitative evaluation (Guba & Lincoln, 1981). Using the four phases of criticism (observation, description, interpretation and appraisal) specified by Willis (1994), inductive analyses

of the interview process and the editing process were undertaken.

I made observations of length of interviews and details of the editing process. Observations were also made of interviewer and participant interactions as well as the contextual factors already noted such as setting and time of day. Descriptions of these observations follow.

3 Results

Hypothesis: A verbatim life story (requiring some further editing by the participant) can be generated through the method of assisted life stories.

Product

In conjunction with the instrumentation and in the manner described below, I was able to produce a story for every participant from the text generated. Descriptive information was gathered on the ten assisted life stories. Table 1 reports the length of each interview, the size of each story generated, the reading level, and the reading ease score for each. Also included in Table 1 are readability statistics for four conveniently selected documents to give a comparison base to these assisted life stories.

Table 1. Story Parameters

Participant & Gender	Interview Length (Min):(sec)	Story Size Words	Grade Level *	Reading Ease **
1. M	36:19	3,664	10.5	66.3
2. F	72:12	8,268	7.9	75.6
3. F	62:28	9,164	8.9	72.0
4. M	76:58	12,988	7.8	75.5
5. M	54:21	5,821	5.7	81.6

6. F	24:59	2,224	5.2	80.0
7. M	76:40	6,813	4.5	85.5
8. F	69:27	8,336	6.3	79.8
9. M	73:03	8,914	5.7	78.9
10. F	52:51	5,369	4.8	85.7

Comparison Documents

A Charter School Application	3,486	12.0	27.9
A Novelette	17,379	8.7	64.7
This Document	5,652	10.6	47.8
Appendix C (Training Protocol)	3,574	7.5	64.8

* "Flesch-Kincaid Grade Level score - Rates text on a U.S. grade-school level. For example, a score of 8.0 means that an eighth grader can understand the document. For most standard documents, aim for a score of approximately 7.0 to 8.0." (MSWord, 1997)

** "Flesch Reading Ease score - Rates text on a 100-point scale; the higher the score, the easier it is to understand the document. For most standard documents, aim for a score of approximately 60 to 70." (MSWord, 1997)

Process

The audio record in digital form was transferred to the computer through a Universal Serial Buss. Other

activities could be carried on while the computer was doing its various steps of recognition and transcription, but each of these evolutions could take up to thirty minutes. While I could do other things during this process, I had to be there to pick up the next step when it occurred, or go back to it later. The computer waited for saving instructions until I returned.

Interpretation

When I examined the efficacy of assisted life stories, I found that the most time-consuming part of the whole study was changing the rough voice-to-text translation that the software performed, and turning that translation into an accurate representation of what was on the audio record. Occasionally I would retype words or sometimes even whole phrases that the software program had misinterpreted. As the following excerpt shows, the machine transcription of the text did not exactly follow what was being said. I found this to be the case for all participants.

Excerpt as generated by the computer program:

high think again being the only Coral I got some special treatment so I was felt I was okay never think of potential for brothers about a would not see my parents in the same light aside to

Excerpt as corrected after comparing to the voice record:

I think again being the only girl, I got sort of special treatment, so I always felt I was okay. Never, I think if I talked to my older brothers about it, they would not see my parents in the same light as I do.

As this example shows, some of the words that confused the software were natural phonetic mistakes. They have similar sounding word structures "girl" and "Coral" for one example, and the confusion around "aside to" as opposed to "as I do" are two items which the machine could be expected to be confused about. However, the other confusion surrounding, "of potential for" instead of, "if I talked to my older" is unexplained. Almost always the software program would get confused if people talked in asides. They would start a sentence and then diverge and start talking in an aside.

I had proposed to further test the hypothesis with a value determination for each story generated by the voice-to-text process. This product evaluation was to be attempted based on a quantifiable criterion: the amount of time required in editing one hour of each story into 100% accurate text. Instead, due to the learning curve of the researcher, this was found to be a spurious finding in

that I significantly improved my speed in correcting the text by the time I reached the tenth interview.

To give an idea of how long the editing process took, I recorded every step in the process for participant number ten in Table 2. Item 12 in the chronology demonstrates the length of time necessary to correct the text: 7 minutes for every minute of audio.

Table 2. Editing Process for Participant 10

Item	Activity	Time (minutes)
1.	Boot computer and attach mobile recorder	1
2.	Open Program and transfer training data	4
3.	Transfer story data	9
4.	Prepare program for new user	5
5.	Computer adapts to user	30
6.	Disconnect recorder	1
7.	Divide story data into two files	11
8.	Transcribe first text file	18
9.	Save first text file, prepare second file	3
10.	Transcribe second file	14
11.	Save second file	1
12.	Correct 53 minutes of story X 7 =	371
13.	Compile and print story for participant	8
Total		7 hours 56 minutes

The eleven minutes required to divide the story data into two segments as shown in item seven of Table 2 was necessitated by my experience with correcting long texts. I found that for longer generated texts, towards the end of the transcription process the program would capitalize all of the words. This significantly exacerbated the already lengthy correction process.

I also received self-reported observations from the ten participants. Seven responded "yes" to the question; Do you think you benefited from participating in this study? Two of the participants said "yes and no". One "no" came from someone who felt that it was not unique, and that it didn't benefit her/him. When asked how participating in the study had affected them, most said that it brought up things that they had not thought about for quite some time.

4 Discussion

As the participants were telling their stories, they would revise them, trying to get them correct because they apparently wanted to have their story told correctly. This adaptation occurred rather quickly, since most of the interviews were under an hour. This same desire for correctness may have contributed to the difficulty that I experienced in correcting the text of their stories. Even though I asked them not to repeat words that they might stumble over while reading the training protocol, all of them occasionally repeated an unfamiliar word or phrase.

When voice training is done on the computer, it will not allow you to do this; you have to follow the prompts, and if you stumble over any words, the program will prompt you to re-read a section. That this was a factor in correcting time is evidenced by the fact that the program did a better job translating my own voice, which I trained directly to the computer.

The program's performance also improved when dictation commands (period, comma, new paragraph) were inserted into the narration. I have provided the following exemplar that was created while preparing this paper. Errors are underlined; corrections are in parentheses:

The most time-consuming part of little (the whole) study woes (was) changing the rough voice detects (voice-to-text) translation of (that) the software performed, and turning that translation into an accurate representation of what was only audit (on the audio) record.

Thus even with dictation commands included, the program misinterpreted several of my words. The preceding exemplar was created from a narrative without having done any of the vocabulary building options available.

After running the vocabulary builder with this thesis document as a reference, I re-ran the same narration through the transcription program:

The most time-consuming part of whole study woes changing the rough voice detects translation that the software performed, and turning that translation into an accurate representation of what was only audit record.

So after vocabulary building, "whole" and "that" were added to the list of correctly interpreted words. This process can be repeated with different texts, and the program can even be trained on specific words. The above examples show that with further training on the computer, the software can be made

more reliable in converting voice-to-text.

Although it might have been better to do the participants' training directly into the computer, the convenience of having the digital recorder was an ideal set up for this study. I did not have to bring the participants to a specific location to interact with a computer, and I did not have to purchase an expensive laptop, which would still have been an intrusion into the interview space. With some in this age group, (over 60) it still seems to be intimidating for them to sit in front of a computer and interact with it. I believe this would have significantly changed the nature as well as the results of this study.

In addition to errors created during protocol reading, another factor that may have contributed to the lengthy text correction time was the occasional aside, which participants inserted into the story. Typical asides were: "You know what I mean." "As I was saying." "Something like that." Depending on how fast or slurred these asides sounded, the program totally misinterpreted what came after the aside, and turned the aside into basically nonsensical text. The program missed a lot of these asides possibly because the aside is usually spoken in a much more rapid manner than normal speech.

By engaging in this activity, these ten older persons may have learned new skills that they value in later life. By reflecting on and recounting significant life themes and events, their wisdom could have been honed. As they now have the opportunity to read and reflect further on what they said, they may add or edit some of the content as they reconstruct their story.

In all ten cases I used the same questions as prompts, but in some cases these questions did not generate the same depth of response. So there still is the element of rapport development, which took many hours over a long period of time. I needed to have some rapport established or they needed some familiarity or trust with me before they would tell me important details of their life, or reveal details of their life into a recorder in my presence.

That the rapport development took so long is an important factor that frustrated my original plan, which was to interview people in nursing homes, or in just casual environs and assist them with their life story development. Another inhibiting factor was the length of time needed for reading the training protocol.

I asked the two interview exit questions in order to interpret the efficacy of the interview process as a

learning event. As reported, only seven out of ten said that they had benefited from participating. While this was not an overwhelming indication that any transformative learning had occurred, all of the participants had engaged in this communicative action research, and some of the participants seem to have captured the essence of reflective perspective transformation in the process.

The following four exemplars give a flavor of what some of the participants told me in the process of the interview. There was a rich and deep context in some of the stories. Some of the material not presented here was of a very personal nature; therefore in retrospect some of the participants said that they might further edit the material before giving it to their children.

Excerpt about early life:

That was a happy time living on that farm from four to seven, but I liked my next house pretty well. It was kind of scary moving there because we moved when I was in the hospital; I went to get my tonsils out. So I left from one house and came back to another house a couple days later. That was a nice place to live.

Significant memories:

There's something that happened to me a long

time ago when I was in the Navy. I found this poem; it was called the ship. It was in the New Yorker magazine, sort of a satirical poem. I can't remember all of it. The ship in the poem was really a pub and these two guys are sitting in the pub. They hear this screaming and one asks the other one, What's all that? The other one says that's so and so, she's killed herself and her newborn child, Give me another glass of old and mild. And I was sort of like you can't handle all of this you might as well have another beer. And then I got a telephone; I got a call that said my father had died. And that poem was like other people's troubles are not my business sort of in a way there's nothing I can do about it. It had a big meaning in my life. To have that happen to me, of course I couldn't control his dying, I had no idea that he was going to die. He had a heart attack. He was old. He was 74, I guess. But it sort of made me think more about where I was in the world, and how I was connected to it. I think it changed my life in a way.

Meaning in life:

I think your life has its most meaning when you are involved with other people. Hopefully you do something that makes the world a better place, and the way to do that is to help somebody else and to be involved with them and to make them feel affirmed and worth something. So many people have done it for me so that's what you do. I could never be a hermit or a monk or something like that. It wouldn't work.

Life Attitudes:

When I had children it was quite a thrilling event. I was very happy, and those experiences I just spoke about were happy experiences. I feel happy a lot of the time. I sometimes suddenly say to myself, "Ooh, I'm happy." It's usually when I'm very busy and involved, and not thinking about myself. Involved in something else, when I'm with people, absolutely, if I have to be at home for more than a day, I think I get kind of lazy and just kind of lose my drive. I don't think I'm a very driven person anyway, but when I'm with people, I get excited and interested and move, to move, that's just the way it is.

This deep rich context was the characteristic of the study that had the most meaning for me as the interviewer. I felt deeply honored that they would trust me to share intimate details of their lives. In six of the cases, this type of rapport occurred. In the other four cases, there was material touched upon, but not in quite as much depth as with those in which a more intimate rapport was established. What I found from my experience with this study was that people seemed to have a reluctance to participate, most likely because of the confidential nature of a life story.

Some insights into the interview process were gleaned from their responses to the second question, "How has telling it affected you?" When asked how participating in the study had affected them, most said that it brought up things that they had not thought about for quite some time. Some thought that it would benefit them to have a written record of the stories to pass on to their children:

It would be fun; I would give it to my kids because there might be something in there that I haven't put in the stuff that I've written for them. What I've written for them has been sporadic, it's mostly when I've been - sort of

had problems or they've had problems. I mean it's not been a regular journal, which I'm sorry. So it might sort of flesh out some of that.

Future Directions

As an autobiographical technique, voice-to-text holds promise in that it could be taught to people so they could do it on their own. Indeed, at least two of my participants owned voice-to-text software from various manufacturers at the time of our interviews, but both of them reported dissatisfaction with it. Based on my own experience with the program used in this study, I believe this attitude will improve as people become more familiar with the software, and as it becomes more user-friendly, accurate and less expensive.

I would not recommend to anyone the activity of performing assisted life stories in the manner herein described as an occupation. If the many long hours of transcribing or perfecting the transcription are not enough to deter someone, then the long-term rapport buildings makes this activity economically unthinkable. The new technology was an option for me since I have limited typing skills and this method of transcription accommodated that deficiency. Although it took an

exorbitant amount of time to correct the text with the current state of the technology, for me it was a much preferable alternative to having typed the interviews. Someone with good typing skills could actually have transcribed the stories in less time than it took me to correct them. Furthermore, someone with shorthand skills could perform the interviews and then use a less expensive version of the software to read the stories directly into the word processor.

The software with the recorder cost \$300; a computer able to handle this software is now about \$1000. So for about a \$1300 investment someone could attempt a project such as the one reported in this paper. However, I feel, to be perfectly honest that you will not see people walking around with attaché cases saying, "Let me help you to tell your life story and put it into text for you".

The headset type microphone sends a more stable sound to the recorder, perhaps improving its accuracy, but I feel that another type of microphone able to record conversations in a room would be more effective. With a room microphone the interviewee would not be encumbered with the headset and cord. If dialog-to-text software was ever developed, it would be able to differentiate the sound of two different voices, and translate them so that

more than one voice could be transcribed simultaneously. Adapting emerging technologies presents many challenges as the current study reveals.

The activity described in this paper was undertaken with a view to assist the participants in telling their life stories by use of a digital recorder and voice-to-text software. Perhaps the small steps toward that end that I was able to help them make through this activity will encourage them to complete their autobiographies. This autobiographical process could be made available to older people who are simply unable or unwilling to pursue existing autobiographical methodologies as a means to actively engage their lives.

Epilog

As with most technology today, advances happen faster than they can be reported through traditional means such as research papers. One constraint on assisted life stories has recently been lifted by the latest version of the software that I used in this study. I used version 3.0, but the manufacturer claims that with version 5.0, "All L&H Dragon NaturallySpeaking version 5 products should require as little as five minutes of voice training..." (Lernout & Hauspie, 2000).

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Appendix A

After sending this recording to a computer with voice-to-text software, there will be information about your unique speech patterns. This computer program will change into text what you say at our next meeting or later today when we resume this meeting.

To prepare for these meetings, it would be helpful for you to think about how you would answer the questions on this page. Feel free to jot down notes in the spaces provided:

.....

Who was the most important person in your life?

What was the most important event in your life?

When did you feel most happy?

Where did you feel most at home?

Why did you feel most at home there?

How do you feel your life has meaning?

Appendix B

The University of Rhode Island
Department of Education
7th Floor, Chafee Building

Assisted Life Stories

CONSENT FORM FOR RESEARCH

You have been asked to take part in a research project described below. The researcher will explain the project to you in detail. You should feel free to ask questions. If you have more questions later, Gary Harlow or John Boulmetis, the people mainly responsible for this study, (401) 874-4159 will discuss them with you. You must be at least 60 years old to be in this research project.

The purpose of this study is to look at the process when you tell your life story into a digital recorder, and then later that digital information is changed by a computer into written text: Can a life story be told in this way? Does the process of storytelling positively effect the storyteller?

If you decide to take part in this study, here is what will happen: First, you will be asked to read a book passage into a headset type microphone attached to a small digital recorder. This takes about 30 minutes. This information will later be transferred to a computer so the digital record of your voice is familiar to the computer. Second, you will be telling your life story to Gary Harlow while the same digital recorder converts your story into digital information. Two sessions may be necessary, but in no instance will your participation exceed four hours total.

The possible risks or discomforts of the study are minimal, if any. You may feel some hesitancy answering interview questions about your life. You may also feel some awkwardness in wearing a headset type microphone.

Although there are no known direct benefits of the study, your participation may increase your own sense of well being, and your answers will help increase the knowledge regarding computer-assisted life story telling.

Your story will be confidential, nameless and used only for research purposes. The computer record of your life story will be kept confidential, and you will be provided with a printed copy. The researchers will make no other printed record of your story, except that: Anonymous excerpts may be used in scientific reports, but only with your expressed written

consent. When the study is completed, all computer files with your story will be archived in a manner consistent with URI policy.

Participation in this study is not expected to be harmful or injurious to you. However, if this study causes you any injury, you should write or call the office of the Vice Provost for Graduate Studies, Research and Outreach, 70 Lower College Road, University of Rhode Island, Kingston, RI, 02881; or telephone (401) 874 - 4576.

The decision to take part in this study is up to you. You do not have to participate. If you decide to take part in the study, you may quit at any time. If you wish to quit you simply inform Gary Harlow, the researcher present with you now, or John Boulmetis at (401) 874-4159 of your decision.

If you are not satisfied with the way this study is performed, you may discuss your complaints with John Boulmetis (401) 874-4159 or with Rev. Lynne Phipps at (401) 783-5330, anonymously, if you choose. In addition, you may contact the office of the Vice Provost for Graduate Studies, Research and Outreach, 70 Lower College Road, Suite 2, University of Rhode Island, Kingston, Rhode Island, 02881; telephone: (401) 874-2635.

You have read the Consent Form. Your questions have been answered. Your signature on this form means that you understand the information and you agree to participate in this study.

Signature of Participant

Signature of Researcher

Typed/printed Name

Typed/printed Name

Date

Date

Appendix C

Dragon Systems is pleased to acknowledge Scott Adams and HarperBusiness, a division of HarperCollins Publishers, for their permission to use excerpts in this training program from Scott Adams' book, DOGBERT'S TOP SECRET MANAGEMENT HANDBOOK, as told to Scott Adams, author of The Dilbert Principle. DOGBERT'S TOP SECRET MANAGEMENT HANDBOOK. Copyright (c) 1996 by United Feature Syndicate, Inc. (Dragon Systems, 1998) (ISBN number - 088737884 and the rightsholder, United Media).

Several attempts were made to obtain permission to republish the remaining contents of the training protocol. Failing that, and with the publication deadline for this thesis fast approaching, content from the handbook was not included. For those interested in reading the handbook, I can give no better advice than that given by the software manufacturer:

This concludes the excerpts from DOGBERT'S TOP SECRET MANAGEMENT HANDBOOK by Scott Adams. If you want to read the complete version of the book (with the cartoons that could not be included in the training text), you can purchase it at your local bookstore. The book is published by HarperBusiness, a division of HarperCollins Publishers (Dragon Systems, 1998).

Appendix D

UNIVERSITY OF RHODE ISLAND
College of Human Services EDUCATION DEPARTMENT
Adult Education Program

Consent Form for Release of Specific Interview Content

Assisted Life Stories

by

Gary Harlow

I _____ agree to release the following excerpts from my interview with Gary Harlow, and I understand that my name will not appear in any reports of the work:

Excerpt as generated by the computer program:

high think again being the only Coral I got some special treatment so I was felt I was okay never think of potential for brothers about a would not see my parents in the same light aside to

Excerpt as corrected after comparing to the voice record:

I think again being the only girl, I got sort of special treatment, so I always felt I was okay. Never, I think if I talked to my older brothers about it, they would not see my parents in the same light as I do.

Excerpt when asked about whether interview content would be shared with children:

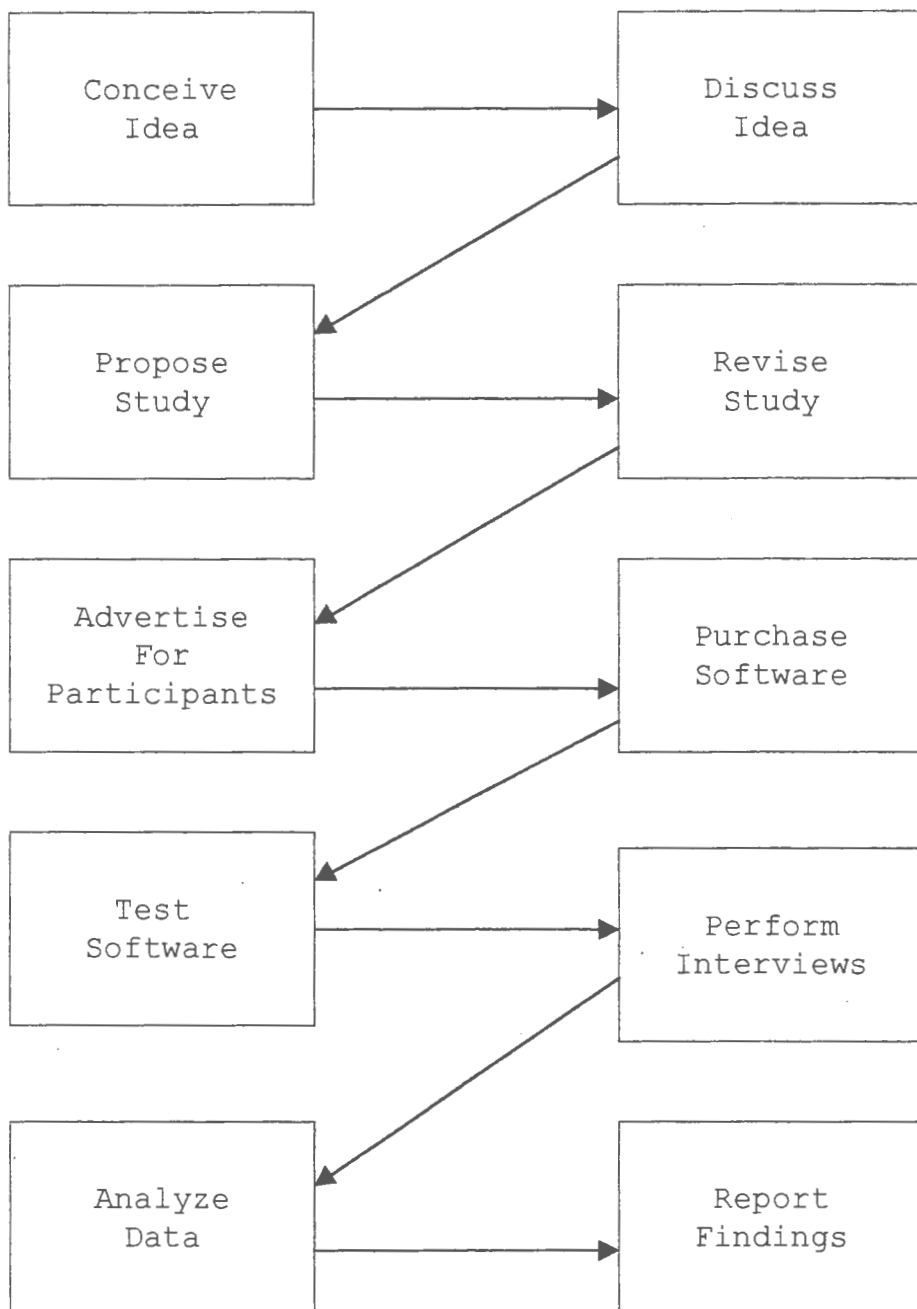
It would be fun, I would give it to my kids because there might be something in there that I haven't put in the stuff that I've written for them. What I've written for them has been sporadic, it's mostly when I've been - sort of had problems or they've had problems. I mean it's not been a regular journal, which I'm sorry. So it might sort of flesh out some of that.

I agree to release only the above information.

Signature

Date

Figure 1
Process of Assisted Life Stories



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