Strengthening Connections: Intuitive Interfaces for Life Story Work in Elder Care

Mahdi Chaker[1(✉)], Michael Cimerola[2], and Marietta Scanlon[3]

[1] Computer Engineering, Penn State University, State College, USA
mchaker@psu.edu
[2] LifeCare Senior Living, Allentown, PA, USA
mike.cimerola@gmail.com
[3] College of Engineering, Penn State University, State College, USA
mrs35@psu.edu

Abstract. This paper presents Renewed Voice, a software application designed to replace the collection methodology of using paper survey forms to conduct Life Story Work (LSW) in a resident care community. Renewed Voice integrates multiple design elements customized for older adults including an intuitive user interface, larger fonts and navigational buttons, specific color and contrast schemes, standardized page layouts, a dynamic progression and completion rate, and touch screen capability. A trial version is currently being tested at a local personal care home and memory care community.

Keywords: Software · Life story work · Survey · Resident care · Person-centered · Quality of life · Caregiver · Older adults · Intuitive · User interface · Touch screen · Personal care home · Memory care

1 Introduction

Life story work (LSW) is a term used to describe the biographical approaches utilized in health and social care settings that provide people the opportunity to discuss and record their past life events and experiences that "go beyond a routine health assessment" [1]. These recordings can be further defined as "biograph[ies], life histor[ies], [and] life stories" [1] and are compiled in a collaborative manner with residents, families, and staff. LSW collection methods can include recorded interviews, focus groups, and staff observations [1, Table 2] and usually produce a 'product' such as a "story-book, collage, notice board…biography summary, or tape recording" [1]. This 'product' has several uses, including acting as a resource to help older adults with disabilities maintain their identity rather than focus on their condition and aiding staff in learning about a new resident [1, Table 3].

LSW has the potential to improve individualized care, promote understanding of contextual behaviors of residents with dementia, reduce generational biases, facilitate transitions for residents between environments in which dependence on caregivers increases, and most importantly, foster connections between care staff, family, and residents [1].

The paper LSW survey covered topics which included family life, school careers and service, later years, religion, and hobbies. The goal was to design a life story

software application to meet and improve upon the challenges associated with the paper methodology.

Section 2 identifies specific challenges with pen and paper survey forms used to conduct LSW. Section 3 describes the Renewed Voice software application and its key physical and person-centered design elements that respond to the challenges of the paper survey methodology. Section 4 presents future directions and this paper concludes with Sect. 5.

2   Challenges with Current Methodology

Currently, the methodology used by a local resident care community is the completion of paper surveys to conduct LSW. Some barriers present in the pen and paper approach to LSW are accessibility, space and time constraints, and data management. The responses to these challenges will be discussed in the next section.

3   Overview of Renewed Voice

The Renewed Voice Program can be divided into two main aspects: the physical design elements of the software, and the human design elements of its motivation and impact.

3.1   Physical Design Elements

The Physical Design Elements address three main considerations: accessibility, space and time constraints, and data management.

Accessibility. Accessibility is a key factor in technology design decisions in elder care settings. The interface elements in Renewed Voice were selected to assist adults experiencing declines in cognition, vision, and motor skills associated with aging [2, pp. 137–146].
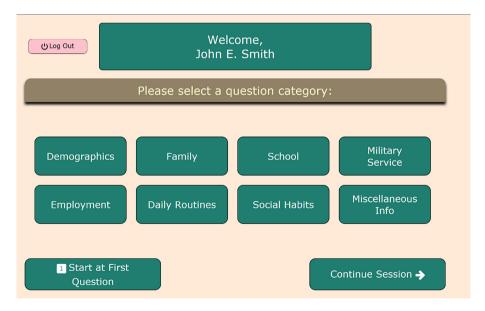
As can be seen in Figs. 1 and 2 below, the user interface consists of large buttons and fonts, specifically-chosen typefaces, and clear color contrasts between text and the background, which aid residents with tactile and sight deficiencies. Page layouts are predictable and flat, without dramatic effects, to keep information density low and the interface organized. Questions are presented to the user one at a time with clearly-defined answers to minimize the amount of text per page.
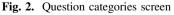
The pen and paper approach to LSW poses a challenge to users with reduced fine motor skills: if a user is unable to effectively write by hand or has illegible handwriting, the LSW process becomes difficult. Renewed Voice allows for text input through typing on a keyboard and interaction with the interface on a touch screen monitor.

A final consideration for accessibility is intuitability. Renewed Voice is designed to allow the resident to transfer their existing knowledge of paper forms to compile their life story. Clear labels and icons in navigation buttons are also included. Furthermore, the software program utilizes a design pattern of having a "next movement" as the rightmost navigation button option, and a "back movement" as the leftmost navigation button option.

Fig. 1. Resident sign-in screen

Fig. 2. Question categories screen

Space and Time Constraints. By utilizing a digital database, Renewed Voice enables the amount of questions and length of users' answer to be expanded beyond the physical limitations imposed by paper forms. Renewed Voice's digital format also increases efficiency in writing and recording answers, therefore enabling the user to complete a greater number of questions in a comparable time frame to the shorter paper surveys.

Another challenge is the limited amount of time available for care staff to perform LSW [1, p. 244]. Renewed Voice is designed to enable staff and residents to quickly and easily access the software program and start and stop on any question they choose.

Data Management. Data integrity and confidentiality are critical factors in performing LSW [1, p. 245]. Paper forms require larger spaces for storage and can be lost or damaged in handling. Digital storage has minimal space requirements and has established best practices for reliability and fault tolerance. Digital data collection methods also allow for stronger security features to be enabled, such as password protection, access restriction, and encryption. As a proof of concept, Renewed Voice implements basic password protection in order to secure and restrict access to resident records. The software is capable of generating a printable version of the resident's life story. Printed records can then be shared with staff and relatives to provide greater person-centered care.

3.2   Human Design Element

The Human Design Element addresses the person-centered approach used in developing Renewed Voice.

Person-Centered Care. Person-centered care is care that "aims to see the [resident] … as an individual" [3]. Conducting LSW allows staff to "see beyond the [resident's] diagnosis, medical or social label that has been ascribed to them" to provide better care [1, p. 242]. LSW also provides staff with a contextual understanding of a resident's background and may help to "explain [a resident's] behaviors…in the present" [1, p. 242]. The approaches used to conduct LSW are not just activities, but opportunities to strengthen relationships between staff and residents through companionship building [1, p. 243].

Renewed Voice is designed to cover a wide range of biographical topics and be easy to use by residents and staff with various levels of technological experience. Lighter color schemes also provide a welcoming feeling to the interface. By reducing barriers to use, Renewed Voice can be utilized as a LSW approach and aid in providing more personalized care.

4   Future Work

The following sections discuss possible future additions to Renewed Voice and the impact of using the software.

4.1 Future Directions

Future developments of the software may include adding voice recordings, videos, and photos. Speech-to-text capabilities can also be incorporated, increasing accessibility for users who have difficulty entering data using a keyboard. Questions can also be accompanied by images to prompt responses.

Renewed Voice can potentially be used in multiple healthcare settings. Home use could facilitate earlier life story work and help with an individual's transition into subsequent care settings. A long-term study on the impact of using Renewed Voice in elder care would contribute to the current body of knowledge regarding LSW and inform future design choices.

4.2 Strengthening Connections

Performing LSW stimulates communication in resident care settings [1, p. 244]. Through this increased communication, staff are able to gain a better understanding of residents on an individual level [1, p. 244]. This deeper insight aids in strengthening connections between residents, family, and staff. LSW can be expanded to include input from community and faith based organizations and historical societies in an effort to provide a more detailed contextual background.

Renewed Voice aids in strengthening these connections by enabling staff to discover commonalities between residents through applying analytics to the collected life story data. Staff awareness of these previously unnoticed commonalities can highlight the need for specific beneficial social activities within the resident community.

LSW is a collaborative approach that connects residents, families, and staff through communication. However, in-person interactions between generations are decreasing for older adults [4]. Renewed Voice's interface design enables residents and staff to bridge generational gaps by reducing barriers to perform LSW.

5 Conclusions

Renewed Voice is an improvement on the pen and paper methodology for performing LSW in resident care communities. By combining physical and human design elements into an intuitable user interface, Renewed Voice promotes insightful conversations and stronger relationships between residents, family and staff.

A trial version is currently being tested at a local personal care home and memory care community.

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