Online form design for older adults: Introducing web-automated personalisation

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Access to e-Government services, such as welfare, housing and financial assistance is typically achieved through accessing, completing and submitting paper-based forms. More recently, UK e-Government service access forms have been made available online. With the aging population considered as a primary user of these services this paper promotes the need to establish older adults' online form design requirements. This paper briefly reports the validation and extension of earlier work and describes how the results from a recent study might be best employed to drive a forthcoming project that will investigate how web-automated personalization of online forms might be achieved to meet the interaction needs of older adults'.

Keywords: Older adults, e-Government, online forms, personalisation

1. INTRODUCTION

The UK government frequently reports concerns over the provision of housing and welfare services due to the anticipated increases in the aging population [see for example 2]. Although service provision is regularly considered, little is noted regarding the likely difficulties that this growing aging population might experience when attempting to access housing and welfare services, particularly using online forms. As such services are often critical to the well-being and continuing independence within this age group, it would appear sensible to offer support throughout the service access process. In the past, paper based forms have been the common mechanism used to access such services. However, with the advent of e-Government and uptake of internet technologies, greater emphasis is likely to be placed on accessing these services via online forms. This in itself is desirable, as a number of benefits for the older adult can be identified in relation to online form access, completion and submission. However, although highlighted briefly by form designers' in the past [see 1] little research exists that explicitly considers how age-related cognitive, sensory and physical declines might be best supported during older adults' interactions with online forms.

This position paper supports the introduction of online forms for service access and their use by older adults and briefly summarises our preliminary work in this area. Promoting the design and development of a web-based application to support older adults when accessing, completing and submitting online forms, this paper describes a forthcoming project that will adopt personalisation principles in an attempt to automatically tailor online forms to the older adults' interaction needs.

2. ONLINE FORMS: SUPPORTING HOUSING AND WELFARE SERVICE ACCESS

Benefits of using online forms, as opposed to paper-based forms, can be roughly mapped onto form access, form completion and form submission processes.

- Online form access can be conducted 'anytime, anywhere' as long as an internet connection is available, thus age-related mobility impairments are not exacerbated by visiting local government offices nor are delays incurred, due to postal delivery services, having made a telephone request for the appropriate form.
- Online form completion can eliminate the need to seek human assistance by accommodating poor manual dexterity through appropriate input devices, supporting visual declines via text manipulations and complex questions can be clarified through online help functions.
- As with online form access, online form submissions will reduce the amount of time typically incurred when returning forms to government offices. This too will ease the returns process for older adults with mobility declines as they will not have to physically return the form. Furthermore, common data errors/omissions can be eliminated through system validation techniques at the point of submission. Where errors/omissions are observed by government administrators, the online form can be returned for resubmission quickly, supporting the timely provision of the services requested.

With these benefits in mind, two preliminary studies are summarised in the following section that highlight design features that can support older adults' interaction needs when accessing, completing and submitting online forms.

2.1. Supporting older adults' interactions with online forms

Based on interviews with older adults and an evaluation of a prototype Housing and Council Tax Benefit form, Lines, Patel & Hone [4] reported six key design features that could be used to support older adults when interacting with online forms. These included: i) simplified form layouts and question structures, ii) help functions, such as pop-ups, to assist with the completion of complex questions, iii) a data entry validation process at the point of data entry or form submission, iv) a consistent approach to submitting forms online as electronic submission is not supported by all local government agency technological infrastructures, and v) the use of personalisation techniques to eliminate the completion of redundant questions and support their personal interaction needs such as larger text, or more simple question structures for those with cognitive impairments.

Having established that these design features were desirable and usable by the older adults', we sought to establish whether these design features would be necessary for alternative welfare and service forms. Using an identical methodology to that used in the Lines et al. [4] study, the current investigation [3] considered the Housing and Council Tax Benefit form, a Warm Front Grant form and a Housing Register New Starters Application form. Interestingly, not only were the findings of the earlier study validated, five further design features were also elicited and positively evaluated by the interviewees. These included bullet pointed instructions, logical information groupings, justification for personal/sensitive information, information regarding security of the information that they provided and a save and return function, particularly for forms that were very lengthy and time consuming (for example, the Warm Front Grant form).

Having reviewed the findings from these studies and considered the diversity and variability of cognitive, sensory and physical declines in the aging population, we felt that it would be sensible to pursue a long term research project into the design and development of a web-based application that could support personalisation. Although the use of personalisation was only one of the design features elicited from the older adults during our investigations, we felt that this would be the most sensible route to offer the additional and desired design features by this aging user group, but in a manner permitting only the necessary assistive features to support the individual older adult's interaction needs. The following section briefly introduces the DIADEM project, the project aims and anticipated output.

3. DIADEM: Delivering Inclusive Access for Disabled and Elderly Members of the community[*]

The DIADEM project is an EU funded research programme comprising consortium partners and guidance committees based in the UK, Norway, Italy and Latvia. The aim of this three year project is to produce an assistive, web-based application that will handle complex online forms, such as e-Government welfare forms, to enable individuals who suffer a reduction in cognitive ability to remain active and independent within society. DIADEM will design and develop a plug-in to a web browser that monitors the ability of the user to interact with the system and dynamically offer personalisation of the interface to optimise assistance to the specific end-user.

Enabling this web plug-in will require the service provider to comply with the Web Services Standard and provide some fixed meta–level data about the dialogue structures required for online form completion and submission. Led by the research team at Brunel University, the project will begin by conducting a scoping exercise to determine the specific characteristics of the end user and a comprehensive user requirement capture with the target user group. By offering personalisation and meeting end-user needs within this interaction context, it is anticipated that older adults' will be better supported in managing and maintaining their welfare and independence.

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