Usability and Accessibility as critical factors in the success of E-Government for Transformation: A Literature Survey

Abstract

E-Government has the potential to transform the way people behave and interact with government. This literature survey investigates the work done on the factors influencing the success of e-government and what needs to be done in order to achieve significant and sustainable transformation through e-government. The survey shows that there is great debate on some aspects of e-government while there is a consensus among researchers on major issues. It concludes with a realization that successful transformation through e-Government is not an easy task and should not be taken lightly. Despite this the benefits of success is well worth the trouble as it can have major positive impacts on society.

1. Introduction and Overview

Many researchers agree that one of the primary objectives of e-government is to transform the way people utilize and access government services [1]. This can be done by centralizing government services as in [2] or simply making a common government service available online [3].

More specifically, e-government endeavors to increase the efficiency of services by decreasing costs and waiting times for both citizens and government employees. While many proponents of e-government praise its potential to increase service delivery and quality of service [4], others, after assessing the response times of e-government services in New Zealand and Australia concludes that the response times are less than satisfactory [5].

Many government institutions seek to use e-government to create more transparency between citizens and government with a hope that this will lead to a greater sense of trust between the citizens and government. These types of projects usually involve collaboration between citizens and government in the decision making of various matters. One project that successfully achieved this is E-Tax in Japan [3] whereas others such as E-voting [6] were not as successful.

E-Tax in Japan has successfully created greater transparency and trust between citizens and government. The system showed enormous increase of participation within just five years [3].

In order for any e-government initiative to be successful, it needs to be initially accepted by the target users and continually utilized by them [7]. This is especially true when one of the objectives of the initiative is to transform the behavior of the users in any context [7]. There are many factors that influence the acceptance and continued utilization of e-
government initiatives such as usability, accessibility, demographic and non-demographic factors [8].

Usability in any website is crucial to its success [7]. This is especially true for e-government websites since the target audience is incredibly diverse. One needs to consider people with poor sight, the aging, disabled individuals, people living below the poverty line and those with very low literacy levels [9]. If these factors are not considered we run the risk of these services being inaccessible to those users who may need them the most [9].

Despite this, many government websites are hard to use and have poor navigational schemas [9] even to the average person with fair computer literacy. There are many proposals that seek to improve on this such as the NIA Guidelines and an array of extensions of usability heuristics [9]. Other websites are initially accepted, however as soon as the novelty wears off, they are discarded [7].

1.1 Objective:

In this literature survey we look at some of the research on e-government and the factors influencing its continued acceptance and utilization in society. We will also review work on the transforming effect that e-government has on the behavior of people as a result of their acceptance and usage of the services provided.

2. Accessibility and Usability

“It is important to understand that all e-Government endeavors are critically dependent on the accessibility of its integral services. If a website is not accessible to the intended target users, it will not be successful.” Abanumy [10], this is a statement that the majority of e-government researchers will agree with. Pilling and Boeltzig [11] suggest that problems with website accessibility and usability "prevent people from accessing and eventually adopting technology such as the Internet and e-government".

While the consensus among researchers is that usability is an important factor in designing e-government websites, there is some dispute as to the extent that usability has been implemented in the majority of e-government websites. While [9] states that “..Great strides have been made regarding e-government site usability..”, [12] argues that “In terms of user-friendliness many applications are far off from being satisfactory” One plausible reason for this dispute may be that [9] seeks to compare two distinct levels of usability in government websites in the USA whereas [12] looks at the general state of usability of government websites solely in the UK.

There is much development in the field of increasing usability of websites and heuristic evaluation. These heuristics are created for user interfaces in general and are not specific to e-government websites however they can be extended [13][14]. There is a wealth of usability guidelines available such as Jakob Nielsen’s heuristics and online articles and published guidelines [15] [16].
These heuristics and guidelines are indeed useful in ensuring that the general public with some sort of computer literacy are able to access government services available online but it does very little for individuals with specific needs. Making government services available in a manner that will ensure that people with disabilities have access to e-government services in a way that is similar to the access those without disabilities have is often required by law in some countries e.g. Section 508 of the Rehabilitation Act in the USA.

2.1 Universal Usability

“There still are barriers in terms of reading comprehension, language translation, and cultural sensitivity” [9]. The subfield of usability that deals with finding means of delivering services to all groups of people including those with disabilities and low literacy levels etc is known as universal usability [9]. There are a number of initiatives by organizations that help designers of government websites to ensure usability for specific groups. One example of this is the National Institute of the Aging Web accessibility Guidelines that include information on how to make websites more usable for older adults. These guidelines provide information on the effective use of font sizes, types, colors, and styles, background images and colors, vertical scrolling, and text formats[9][17].

The availability of these resources including heuristic evaluation techniques and guidelines for usability does not guarantee that they are utilized. Abanumy [10] notes that “there exists a wealth of accessibility resources and accessibility guidelines that are usable and coherent; yet lack of awareness impedes their use.”

Language is an important aspect of usability that is often overlooked during the design of e-government websites. In the pursuit of universal usability we also need to consider groups of people who are non English speaking or who do not have English as a first language. Aside from this we need to consider the literacy levels of the majority of people for whom the services are targeted. [10] In his 5 step procedure of evaluating website usability notes that these websites should “use the clearest and simplest language appropriate for site content”.[9] also notes that “Health literacy guidelines recommend writing content ranging from fifth to eighth grade reading grade levels in order to accommodate most adults. Yet, many e-government sites require a significantly higher reading grade level in order for the reader to comprehend information content.”

It is surprising to note that in some countries where the English speaking community comprises a very small percentage of the overall population, the majority of e-government websites are entirely in English [18]. This has major implications as far as usability is concerned and ultimately affects the success of many e-government endeavors in these countries. Janet Kaaya [18] in her study of e-government websites in east Africa notes that “For East African countries, English is an official language in government and commercial transactions. However, it is only spoken and read by about
3-9% of the population”. Despite this the results of her research show that “almost the whole content of the East African websites is in English.”

3. Demographic and Non-Demographic factors

Some research indicates that demographic traits such as gender have an effect on the adoption of e-government services. Akman [19] reports that there are huge differences in the adoption of these services between men and women in Turkey in terms of “perceived acceptance of e-government”. He mentions that these findings are in contrast to the study of Levy (2002) in the US that suggested "disparity in Internet usage between men and women has largely disappeared".

Cakir and Cagiltay (2002) [20], suggests that the reason for this difference could be a result of the diverse culture differences, the outcome of which is acceptance of different online communication approaches by men and women.

Other research [11] suggests that the non demographic factors play a more important role in the acceptance of e-government initiatives. These factors include internet access, accessibility and usability and affluence. Dimitrova and Chen [21] reports that "there is consensus in the e-government literature that those with higher education and higher income are more likely to use e-government information and services". Ciborra [22] mentions that privileged individuals in developing countries may have better access to e-government than the rest of the country.

4. Transformation through e-Government

As previously noted one of the primary reasons governments around the world are using ICTs to provide services to their citizens is because of their belief that e-government has the potential to address a number of issues. Some of these issues include building trust between government and citizens by creating more transparency, improving the access to government services and increasing the quality of these services by reducing waiting times and costs.

There is some debate on whether or not e-government, in practice, actually does make a difference in these contexts. Some researchers like [22] argue that “Good governance is not always the outcome of e-government. Bureaucratic or military administrations will not automatically become more transparent, efficient and market-like as a result of it” in [3] where the responsiveness of e-government services in Australia and New Zealand were assessed the results showed that the quality of service in this regard was less than satisfactory.

In support of the transformational effect of e-government [2] notes that “… advanced functionalities of e-government such as transaction, transparency, and interactivity directly impacted perceived public satisfaction with e-government service and indirectly impacted public trust” similarly Zimmerman and Finger [23] mention that “The ICTs
match the deeper process of societal and cultural transformation, a process that they (the citizens) tend to reinforce.”

An example of an e-government initiative that is enormously successful is Japan’s National Tax Agency’s (NTA) E-Tax initiative. Conducted a comprehensive study of this system. They comment that “Taxpayers can access the NTA home page (Figure 2) from the central Government web portal with one mouse click” this is evidence of how easy it is to access this service. They conclude that “The NTA through “e-Tax” reduced tax administration costs internally and reduced tax laws compliance costs by providing the new, convenient, faster, and improved public services”

5. Discussion and Conclusions

In this study we looked at research done in the field of usability and acceptance of e-government websites as important factors in determining the success of these websites. We also looked at research on demographic and non demographic factors that influence the acceptance of e-government websites. The reason for this is because it was established early in this survey that in order for e-government to have a transformational effect on government services and citizen behavior the services that intend to have this effect must be initially accepted and continually utilized by the public. We finally reviewed some research on the topic of transformation through e-government and summarized a case study in that research area. Even though there are many different views that came to light in this survey, number of conclusions can be drawn from it:

- It is widely accepted that usability and accessibility are important and often deciding factors in the adoption of e-government initiatives.
- Usability is a wide research area that includes many subtopics such as universal usability, language and literacy levels.
- Factors that influence the adoption of government ICTs change from country to country. It is thus not easy to generalize any sort of rules for worldwide usability.
- While it is not easy for e-government initiatives to have a major transformational impact on society, it is possible.

Finally, this survey assessed the requirements such as usability and accessibility for successful societal transformation using e-government. It is clear from this survey that these factors are encapsulations of incredibly broad subtopics. It is not an easy task to consider all of these factors when embarking on any project nor will it guarantee success. It will however ensure that the project has the best possible chance of achieving its goals.
6. References


