

USER EXPERIENCE DESIGN VALUE FRAMING BASED ON SERVICE INNOVATION: STORYTELLING AS AN INTERVENTION TO SUPPORT AGING-IN- PLACE

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ABSTRACT

Based on reports both to the “Nation on Livable Communities” and to “Nordic Centre for Welfare and Social Issues”, aging-in-place is outlined as a desire of 90 percent of adults over the age of 65 and it has been and remains a guiding principle in the policy for care and housing that seniors should remain in their own homes. However due to their inability to carry out activities of daily living and particularly taking medication properly, substantial cost is required for their frequent common hospitalisation. Depending on which medications are missed, this can cause serious effects on an older person’s health. Communication is the key to convey the importance of proper treatment and storytelling is a potent behavioural tool for this population who are affected by cognitive impairment. In order to make seniors’ desire happen effectively and also reduce inessential hospitalisation costs, innovative modification design is required for the elderly. How to apply storytelling as an intervening effect of innovation into user experience design to support those wishing aging-in-place? Making connection between technology and healthcare area by designing an application in a story format can be a solution to fulfil their desire of aging-in-place. This eventually may lead to reduce the pressure on health services at hospitals.

Keywords: Aging in place, elderly, innovation, technology, design, medication, hospitalisation, user experience design

1 INTRODUCTION: AGING IN NORWAY

Longer life expectancy is one of the common grounds in all Scandinavian countries. According to Leibrock and Harris: In a few years’ time, half of Norway’s adult population will be over 50 years of age and today, Norwegians over the age of 45 own more than 70% of the population [12]. With the growth of this population, their needs in different areas will grow too and will demand practices of matching design solutions to the group norm. Based on a report published in 2017 from Samfunnskunnskap [7], the majority of elderly people in Norway live in their own home for as long as possible; only half of them over the age of 90 live at a nursing home and the rest still prefer to age in place. Here is a great opportunity to spot from innovation point of view since, innovation requires some form of demand if it is to take root, need is complementary pull to the knowledge push [9].

1.1 Why do seniors prefer aging-in-place?

Despite major health challenges, many older adults will be able to age successfully at home, often because they have a sense of purpose and ties to family, friends, and neighbours [1] and being close to the loved ones is a high priority for most of them, or because they do not have a pleasant picture of nursing homes like one of the interviewees in this project said: “Once you go in, you do not leave except when you die”. Many believe that nursing homes pose health threats that are not worth the risk [10]. On the other hand, Aging-in-place helps seniors to clinch independency, it is also cost-effective for the older person as well as for providers and payers of services because those who receive home nursing care and assistance pay a co-payment for these services and the municipality pays the remainder of the cost. The amount of the co-payment varies considerably from municipality to

municipality, but it is estimated that living at a nursing home costs around 800,000 Kroners per year totally [7]. Elderly living at a nursing home also pay a co-payment which on average is more expensive than aging-in-place expenses.

1.2 Non-adherence medication, a barrier to a successful aging-in-place

The number of drugs that elderly take contributes significantly to problems associated with non-adherence and the misuse of medication. Besides, physiological changes in the body associated with aging make the elderly more susceptible than others to the undesirable effects of adverse drug reactions [2]. During an interview with a pharmacist it emerged that while those over age 65 consume one-third of all prescriptions, on average an elderly patient may get 13 to 14 prescriptions a year. Older patients living in the community are particularly at an increased risk of medication-related hospitalisation [3] especially for who choosing aging-in-place and managing on their own without getting help of family members, friends or caregivers. The main risk factors reported for drug-related hospital admissions are advanced age, polypharmacy, and potentially inappropriate medications [3]. There the challenge lies, in communicating the importance of taking medicine properly, but also supporting the patient to keep taking the medicine since non-adherence is largely the result of people's behaviour rather than medical or pharmaceutical issue. Attending a "psychology in design" course, I learnt that storytelling is a potent communication tool that helps in recalling information over and over again; this shaped the research question, how to apply storytelling as an intervening effect of innovation into user experience design to support those wishing aging-in-place?

2 METHODS

Ethnographic research got chosen to delve into who the users are and the environment they engage with by contextual interviews since the first step in any UX design is getting to know the users. Subsequently, storytelling and mapping were used to cope with the complexity of this vast subject. To get more from ethnographic research, the next phase was mapping the insights. Empathy map is a tool that helps the design team emphasise with people they are designing for [8]. At a later time the 4-P map developed by Tidd and Bessant was used to discover what innovation can improve in the field of UX design.

3 FINDINGS

3.1 UX Storytelling: combining the craft of storytelling into innovation

Storytelling is a powerful behavioural tool because it does not give people the facts in an orderly list, it forces them to infer the facts for themselves, which leads to a greater comprehension and this is valuable when the approach is meant to be patient-friendly for elderly to "adhere" rather than "obey". It is most helpful to tell the story in a way that guides the reader to the desired action, logically instead of telling them what you want them to do, Put Your Reader in the Story. Humans are inherently self-interested. So, the best way to make your audience care about something is to make it about them [11]. Research shows that the human brain is better at retaining and recalling information and concepts when they are presented in a story format. Information structured through a narrative makes for very powerful mnemonic devices because stories provide order and structure allowing new information to slot into existing schemas and cognitive maps we already have about the world [4]. This much abbreviated exposition suggests that behaviour change can be enhanced when stories address behaviour-change issues, and the lesson to be taken from the story promotes health behaviour changes [5].

3.2 Finding in interviews

During the interviews with medical and pharmaceutical experts, it appeared that the most common hospital admission among elderly after fall-related injuries is ADR or adverse drug reactions. It emerged that there are some calendars called Webster-Pak designed to help people take their medication correctly, however there are some special medications that cannot be placed in those calendars. Warfarin is one of these medications that cause ADR hospitalisations. In fact Warfarin is number three on the worldwide list of drugs implicated in causing hospital admissions through ADR. In addition to lack of medication adherence, complicated dosing of Warfarin and Insulin is a real

Figure 2. One example of empathy maps that opens up the possibility of application design for medication. This map is used to analyse and synthesise the data from interviews and observations

4 DISCUSSION: STORYTELLING IN TERMS OF UX

Since time immemorial, humans have represented powerful messages and insights about their own condition through storytelling. Stories are powerful ancient tools, but applying them into other contexts like healthcare is simply connected to innovation. We already established that; innovation is a process and needs to be managed [9] so what is important to know is that by setting up medication instructions in a story format and within the process of designing an application, we can create a great innovative foundation for our final output. Each element is dependent on the previous elements when it comes to interface design, so by building up the story in a timeline according to a user's click on the screen, we make sure that our product/service will be solid. From another point of view, storytelling can be used as the main way of interaction between the user and a product/service as well as an innovative design process thinking since it is established that people love to hear a story, it is an enjoyable way to receive information too (Figure 3).

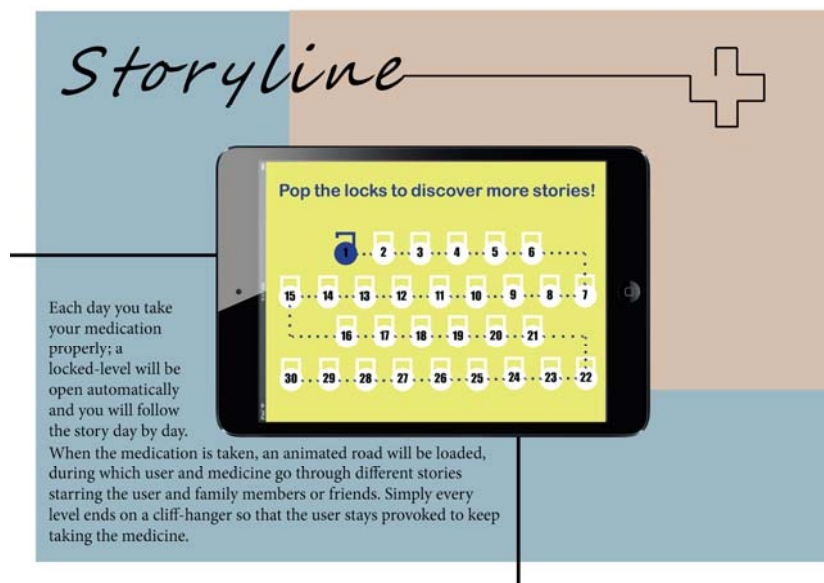


Figure 3. Giving medication instructions in a story format

Stories are the way we convey information to our users over and over again. This is beneficial especially when we target the elderly population who might struggle with cognitive age-related declines. For example imagine an old lady who cannot comprehend her medication dose or dosage structure; she needs to be informed about the dosing of her medication almost every week. According to findings, if the same information be told in a story framework, she is more likely to sense it, remember it and keep doing it (Figure 4).



Figure 4. Involving the user into the application's storyline in different stages

Earlier we recognised one of the key drivers of innovation which is need pull by continues growth in elderly population in Scandinavian countries and particularly in Norway. Although the need pull source in this concept is stronger, the growing field of information/communication technology and everyday use of smart devices have paved the ground for knowledge push innovations as well. With the rise of the internet the scope for service innovation has grown enormously, not for nothing is it sometimes called “a solution looking for problems” [9]. UX designers can benefit two sources of innovation, need pull and knowledge push, they also can inject emotion and value into the end innovative product/service for users [6]. In fact UX design can be the third key driver, the increasing importance of design as a source of innovation also engages with the world of services. The term “experience economy” is used to describe the evolution of innovation from meeting needs towards creating experiences.

5 CONCLUSION

In an increasingly competitive world, differentiation comes increasingly from “experience innovation” especially in services where fulfilling needs takes second place to the meaning and psychological importance of the experience [9]. Proper health services such as a smart-device-application can help the elderly who prefer aging-in-place, gain control over their treatments so that their frequent visits to hospitals caused by adverse drug reactions would decrease impressively, and this helps the government cut off inessential expenses. Users experience while using a product or service flows across many moments, as opposed to being restricted to a single point in time. Therefore, in order to appeal to such vital moments placed in user journey, we better use storytelling method. Applying storytelling on every stage of application design process as well as in application concept itself will empower our design to stand out in this competitive application market because it considers adoption in context of a larger social system and it looks at users as innovators. As the result we will be sure that the final designed application is solid enough to have a powerful story to tell and to create a pleasant experience for the users since the goal is not just to support an individual through the innovation adoption process but rather a community, until the final stage where our users may begin to influence others in their purchasing decisions when they want to use a healthcare application for smart devices.

REFERENCES

- [1] Barbara R. Greenberg and Jan Schwarz (2010). Aging in place with a little help from our friends: An Overview for Grant makers About Aging in the Community. *Healthcare Georgia Foundation*.
- [2] Agingcare.com. Retrieved October 3, 2017, from <https://www.agingcare.com/Articles/My-82-year-old-mother-lives-alone-She-takes-a-lot-of-medications-and-I-am-worried-that-she-might-104584.htm>.
- [3] Nibu Parameswaran Nair, Leanne Chalmers, Gregory M Peterson, Bonnie J Bereznicki, Ronald L Castellino, and Luke R Bereznicki (2016). Hospitalization in older patients due to adverse drug reactions: the need for a prediction tool. *Us national library of medicine, National institute of health*.
- [4] Medium.com. Retrieved October 26, 2015, from <https://medium.com/ideo-stories/the-antibiotics-234821e539ea>.
- [5] Tom Baranowski, PhD, Richard Buday, FAIA, Debbe I. Thompson, PhD, and Janice Baranowski, MPH (2009). Playing for Real: Video Games and Stories for Health-Related Behaviour Change. *Us national library of medicine, National institute of health*.
- [6] Francisco Inchauste (2010). UX storytelling for a better user experience :part one. *Smashing magazine* from <https://www.smashingmagazine.com/>.
- [7] Samfunnskunnskap.no. (n.d.). Retrieved October 19, 2017, from http://www.samfunnskunnskap.no/?page_id=521&lang=en.
- [8] Robert Curedale (2013). Mapping methods: for design and strategy. *Design community college Inc.Topanga, USA*.
- [9] Tidd, J., Bessant, J. R., & Pavitt, K. (2013). *Managing innovation: Integrating technological, market and organizational change*. Hoboken: Wiley.
- [10] Inclinor.com (n.d.), Upgraded 2018, from <http://www.inclinor.com/5-benefits-aging-in-place/>.
- [11] kunocreative.com. Retrieved October 26, 2017, from <https://www.kunocreative.com/blog/enhance-healthcare-content>.
- [12] Leibrock, C. Harris, D. (2011). *Design details for health: Making the most of design's healing potential*. Hoboken: Wiley.