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Aging, every-day information and technology use

Abstract

Information and information technology use shows age-related patterns. This presentation outlines a approach of age-related trajectories of how information and technology use surface as challenges during the life-course of individuals based on trajectories of relative *exposure* to different types of information technologies and information that unfold as real options in everyday-life.

1. Introduction

Age is often pointed out as a factor that affects both how people use information and information technologies (e.g. Blaschke et al., 2009; Nicholas et al., 2011; Lane et al., 2018; Agosto, 2020). Even if many of the observations on age-related differences can be explained by changes in cognitive and physical abilities, experience and life situations, the findings have been in many respects inconclusive. In addition to individual, context and situation related variation, there are paradoxical findings of high and low technology and information skills, capabilities and preferences in different age groups that have been difficult to explain (e.g. Menou, 2010; Asla & Williamson, 2015). We believe that apart from focusing on chronological rather than functional age (Asla & Williamson, 2015), another reason for the contradictory observations can be the tendency to study information behaviour and technology use as separate issues (Huvila et al., 2016). In contrast, we suggest that these two practices should be considered together and the variation in one can explain and compensate a part of the variation in the other.

The aim of this presentation is to theorise age-related trajectories of how information and technology use surface as challenges during the life-course of individuals. Instead of taking specific chronological periods of age as a starting point and approximating typical patterns of health information and technology use within these clusters, the outset of this paper is to focus on trajectories of how practices and preferences change during a life-course. We suggest that the key periods of life are not the extremes but rather transitions where the trajectories of information and technology related needs, wants and exposure intersect.

2. Age, information, and technology use

The practical implication of age and age categories in the context of information and technology use is that there is plenty of evidence that people's preferences and choices differ in different parts of their life. In contrast to a popular belief, there are indications that even if the widely observed gap in technology adaption between younger and older individuals can be expected lessen to a certain extent, it is unlikely to disappear completely (Charness & Boot, 2009; Wandke et al., 2012). Some of the age-related differences can be traced back to developing and declining cognitive and physical abilities. Others can be explained by changes in life-situation. For instance, retirement can affect individuals' access to and attitudes toward technologies (Birkland, 2012). Older adults have also been observed to have different reasons for using technologies than younger ones (Birkland, 2019), and different ways of using them (e.g. Lane et al., 2018). Older persons have been found to use less technology for accessing information, use less internet and email, fewer

devices (Lane et al., 2018), and in general, use technology less often than younger ones, even if technology use is increasing in all generations (Vogels, 2019).

3. Information needs and life-course

Similarly to technology use, there is also plenty of evidence of age-related and temporal differences in information needs and behaviour. Even if the general observation of the significance of time as a contextual factor in information behaviour is not new (Bothma et al., 2013), currently there is an emerging body of research that has started to elaborate the understanding of the temporal dimensions of how information is sought, used and managed in work and non-work contexts, what and how much information individuals need. A part of the discussion has focussed on significant life events such as pregnancy and motherhood (e.g. McKenzie, 2003; Ruthven et al., 2018) whereas others have focussed on their attention to generational, collective and individual long and short-term temporal rhythms, continuums and processes (e.g. Tana et al., 2019; Pontis et al., 2017; Widén et al., 2017; Du, 2014; Allen, 2011). As a whole, as Savolainen (2006) notes quoting Kari and Savolainen (2003), human life can be seen as a ‘as a process that is characterized by moving, changing, and evolving through time and space—from a past to a present, and from a present to a future’ (Savolainen, 2006, p. 113) that constitutes the elemental context of all everyday (as for Ocepek, 2017) life information activities. This means that individual and collective information needs, behaviour and practices change over time (Bothma et al., 2013).

In addition to a somewhat sporadic interest to the usefulness of generation as a unit of analysis (e.g. Widén et al., 2017; Taylor, 2012), much of earlier research has focused on specific age groups and their information activities (e.g. Meyers et al., 2009; Pálsdóttir, 2011; Anderson, 2013; Greyson, 2017). Investigations of the variation of behaviour and preferences between individuals of different ages (exceptions e.g. Huvila et al., 2018; Enwald et al., 2016, 2017) and longitudinal cohort studies with same individuals (Rowlands et al., 2008, with some, e.g. Olander, 2007, however, mostly short-term exceptions, e.g. Greyson, 2016; Rowley & Urquhart, 2007; Hyldegård & Ingwersen, 2007) have been less common.

However, as the reviews of Savolainen (2006) and Bothma and Bergenholtz (2013) show, the references to temporality and changes over time have many ambiguities. Many relevant aspects of information seeking and use change in time. These include the needs, states of knowledge and, for instance, the bodily and mental state of individuals similarly to what channels (Birkland, 2010) or technologies, and information is available for them.

4. Theorising age-related variations of health information needs and familiarity with technology and information

In addition to providing insights into specific preferences of the respondents in different age-groups, when brought together, the individual differences begin to provide a glimpse into patterns that can be interpreted as age-group typical positions. Further, a closer look at the differences between age-groups provide insights into what preferences, attitudes and practices change in the course of life.

Pulling all these observations together, we propose a model life-course trajectories of health information needs, and experienced of the predominance of technology and information related challenges. Whereas in the early life the experienced challenges tend to focus on information related issues, the experienced challenges in later life tend to focus on technology (similar observation in Benselin & Ragsdell, 2016). For generally healthy individuals, the trajectory of

health information needs follows an increasing/decreasing curve with the highest point in older adulthood.

Many factors influence these trajectories. Besides such individual factors as education, cognitive and physical condition, we are inclined to believe that for information and technologies, a central explaining factor is *exposure*. When seeking their ways to live their lives, younger individuals are exposed to a relatively large extent to a broad variety of both technical and social technologies whereas older individuals tend to have settled their lives around a certain established technology base. Older people might own fewer devices (Lane et al., 2018), have trouble using them (Benselin & Ragsdell, 2016) and consider it unnecessary to start using new technologies because it would be more 'trouble than worth' (Wandke et al., 2012) whereas the younger individuals who lack a similar infrastructure, are in an opposite situation. They might have more exposure to contemporary technologies gained while trying to find ways to live their lives, but at the same time, they have had in comparable terms less exposure to everyday-life related issues, might have more problems with information literacy (Benselin & Ragsdell, 2016), less life-experience (Cooper, 2002), information and knowledge to relate to (Sheldrick Ross, 1999) and to help to solve them in their life-context (Savolainen, 1995). However, instead of its quantity, the key attribute of exposure is its situational relevance (Wilson, 1973) in each situation-in-hand (e.g. Buchanan & Tuckerman, 2016). A lot of exposure to outdated technologies or information does not help to cope with contemporary issues. The technologies or information do not need to provide an optimal solution according any known standards but they have to work and make living a life possible.

An illustrative example of a specific category of information and technologies that can be explained by trajectories of exposure is health information and personal health information technologies. Younger individuals have generally fewer health issues and are thus less exposed to health information than older people who have used to deal with the health and ill-health of themselves and their family members. Actual and anticipated health information needs, on the other hand, remain low and sporadic for younger and healthier individuals until they peek, as we propose, in older adulthood, to level or decline when a person becomes a 'competent patient' and probably at some point, becomes a frequent user of healthcare services with a regular access to professional advice and care. Older adulthood appears in this model as a point of transition when people begin to anticipate and experience health issues (Huvila et al., 2018) and when the primary focus of challenges switch from information to technology. In this light, older adulthood emerges as one of the key periods in life-course for targeted health information and e-health interventions when individuals experience a simultaneous need of both information and means to get better informed.

In a broader scope, we suggest that it could be possible to identify similar transitory periods in other areas of everyday life where the trajectories of information and technology exposures cross each other. Such areas could be, for instance, banking and communication where the transitory period might approximately coincide with that of health information. Other areas of life, including learning and studying, entertainment and, for instance, some hobbies and leisurely interests, can probably be expected to follow somewhat different trajectories with comparable but distinct periods of transition. In addition to major life-long trajectories, it is plausible to assume that there are micro-periods of increasing and decreasing exposure to information, technology and other matters. Such fluctuations can be traced back to minor and major life-changes and external influence including temporary health problems, change of employment, and contextual factors, for instance, changes in the availability and unavailability of technologies and information, living environment, and preferences and choices made by colleagues, friends and family members.

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