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List of Acronyms and Abbreviations

Acronym/ abbreviation	
BIU	Bar Ilan University
ESR	Early Stage Researcher
WHO	World Health Organisation
WP	Work package

Contents

The following is a report on published literature related to ageism in service design and related product use of older adults, with a particular focus on the issue of older adults-centered design. Within this larger framework the report addresses everyday technology use (ESR 11), ageism and transport service design (ESR 12), supportive design intervention for improving healthcare experience (ESR 13), ageism in design of digital technology (ESR 14) and ageism in assistive technology design for older adults (ESR 15).

1 Introduction

The difficulties of undertaking a literature search on *ageism* was discussed at the meeting in Brussels October 25th, 2019. At this time, Vania De La Fuente Nunez from the World Health Organisation (WHO) suggested that the search strategy on *ageism* conducted by WHO could be used as a template for all students and they could add their focus to this expert search. At the time of this deliverable (March 4th, 2019) though, the search strategy had not yet been finalized. In line with the review strategies of the others working groups, WP3 decided to keep the deliverable as close to the ESRs' individual projects as possible. This deliverable therefore reports on the literature databases each ESR used and goes on to give a resume of literature/ gaps in the literature salient to their searches.

Section 2 shows the work of ESRs 11,12,13,14 and 15. Due to the strong focus on technologies within the working group, three reviews deal with different manifestations of ageism in the field of technology use and development (2.1, 2.4, 2.5), namely use of every day technologies, design of digital technology and assistive technology. Additionally, the reviews cover the field of health care, focusing on the improvement of health intervention experiences as a consequence of reducing ageist attitudes and discriminatory behavior among health or social care staff (2.3). Finally, investigating ageism in relation to public transport, housing and financial services (2.2), the deliverable covers three service sectors that have only rarely been addressed using the "ageism" framework.

2 Literature Report

2.1 Hanna Köttl, ESR 11, Bar Ilan University
Addressing ageism through empowerment and awareness: older adults and everyday technology use
Literature Review Process

The aim of this literature review was to shed light upon the prevalence of (self-)ageism in the context of everyday technology use. It also aimed at understanding the impact of ageism or self-ageism on performance and engagement in everyday activities that require technology use. The following databases were used: PubMed, Web of Science, APA PsychNET, PsycINFO (EBSCO), Academic Search Complete (EBSCO), and ProQuest. The search included articles in English and articles published from 1990 to 2019. Search terms were clustered in four major concepts addressing everyday technology, ageism, engagement and performance.

C1: ageism) agism) ageist) agist) age discrimination) age stigma*) age prejudice) age stereotyp*) self-perception* of aging) self-perception* of ageing) attitude* toward* aging) age identity) self-ageism) subjective age) subjective aging) subjective ageing). C 2: everyday tech*) transport tech*) home tech*) public tech*) technolog*) OR information communication techn) ICT) digital divide) technology adoption) technophob*) digital exclusion) OR computer literacy) OR gerontech*) OR technology anxiety) OR attitude* toward* techn*) OR technology acceptance). C3: engagement) participat*) social activity) involvement) activity engagement) empower*). C4: perceived difficult*) OR self-efficacy) OR perceived abilit*) OR competence) OR functional abilit*) OR function*) OR physical abilit*) OR cognitive function*) OR cognitive abilit*) OR mental function*) OR mental abilit*)

Literature Report:

The search identified only very limited evidence directly addressing ageism or self-ageism in the context of everyday technology use. Instead, the literature indirectly refers to it as digital divide, digital disengagement or digital inequality. These concepts aim to describe the persistent generation-gap in the use of new technologies and discuss the unequal access to emerging technologies within and across countries. While age is often centralized as a key determinant of this digital divide, this by itself ageist belief, is scrutinized in a systematic literature review by Fang et al., 2019. Within this paper the authors are confronting the often unquestionned attribution of digital illiteracy to chronological age and emphasize the role of other contributing factors, such as, education, income, gender, and generational status. Few research indirectly touches the potential association between ageism and engagement in everyday technology, although the quality of these studies seemed questionable and the results contradictory. While one study concluded that an ATM simulator increased stress and decreased self-efficacy of participants (Yagil, Cohen, & Beer, 2016) other research emphasized the positive effects of technology use in older adults, such as increase of self-efficacy, self-image, self-esteem, social coherence (Zambianchi and Carelli, 2016; Shapira et al., 2016). Only one research assessed the direct effect of technology use on subjective age, hypothesizing that the technology use might evoke age-related stereotype threat. Their findings suggested that technology increases subjective age (Caspi et al., 2018).

Conclusive remark:

No research directly addresses (self-)ageism in the context of everyday technology use. The search identified contradictive results in regard to whether engagement in everyday technology increases or decreases subjective age and self-efficacy. Moreover, it remains open in how far ageism and self-ageism predicts engagement of older adults in everyday technology.

2.2 Stefan Hopf, ESR 12, Age Platform Europe & NUI Galway

Doing Ageism: The social construction of age discrimination experiences in access to services and goods in two European countries with different legal protection frameworks.

Literature Review Process

The aim of the review was to investigate the prevalence of ageism in different "service sectors". Therefore, three sectors were selected: transport, finance and housing. Based on a three-dimensional strategy (referring to: C1. *topic, C2. ageism* and *C3. target group),* two databases, *SCOPUS* and *Social Science Citation Index,* were screened:

Pre-search filters:

Only peer-reviewed, English articles

Timeframe: 2009-2019

As the initial unlimited searches produced to many results, each search was further limited searching for C1) or C2) only within the category “topic” or “title” of article.

For all three topics keywords in C2) and C3) stayed the same:

C2) ageism OR "age ageism OR ageist OR "age discrimination" OR age stereotypes OR “age prejudice”

C3) older adults OR "older people" OR "older adults" OR “older age” OR "old age" OR senior* OR elder*

Public Transport

C1) "public transport" OR transportation OR transport service OR travel mobility OR travel behavior AND

Results

Unlimited search: 723

C1 ONYL topic: 63

C2 ONYL topic: 11

Relevant: 4

Housing

In order to focus the search, it was necessary to exclude medical topics adding C4

C1) housing* OR accommodation OR residence OR resident* OR dwell* AND

C4) NOT health OR healthcare OR care OR medical OR medicine OR nursing*

Results

Unlimited search: 12844

C1 ONLY topic: 305

C2 ONLY topic: 281

C1 & C2 ONLY topic: 21

Relevant: 3

Finance

C1) finance* OR "financial literacy" OR financial services OR financ* consult* OR bank* services AND

Results

Unlimited search: 7621

C1 ONLY: 38

C2 ONYL topic: 162

C1 & C2 ONLY topic: 3, no relevant article

C1 ONYL title: 14

C2 ONLY title: 74

C1 & C2 ONYL title: 2

Relevant: 1

Literature Report

Public Transport

The findings show that older people suffer from transport disadvantage and that there is a demand for need-orientated transport projects (Marx et al., 2010), especially in the face of persisting ageist-driving-licensing policies (O'Neill, 2015). Furthermore, future transport policies also need to take into account that ageism manifests itself not only in environmental, but also emotional, motivational and social barriers and it is therefore necessary to combat ageism in the mobility context (Kaiser, 2009), especially among service providing staff, which can for example be achieved by specialized training (Reynolds, 2010).

Housing

In the case of housing ageism can manifest itself in the political, economic or cultural reinforced choice out of quality intergenerational housing, (Portacolone and Halpern, 2016) often placing older adults in age-segregated areas, such as residential complexes. These age-segregated areas are, especially if developed in the absence of older people, in danger to incorporate ageism, due to age stereotypes of developers (Petersen and Warburton, 2012). Furthermore living in "uni-age" settings can foster ageist attitudes of older people themselves (Bodner et al., 2011).

Finance

Besides fraud, which relates rather to elder abuse, ageism manifests itself in unconscious age biases and rules that the financial system operates by, e.g. disclosure practices for investors, and a lack of more suitable policies and investment procedure for older investor (Setzfand and Watson, 2015)

Conclusive remark

The review clearly shows that ageism exits in all the investigated sectors, however the concept ageism and age discrimination are not highly common and further literature search indicated that depending on the research fields other concepts, e.g. social or financial exclusion or financial vulnerability, are used to describe disadvantages or inequalities experienced by older adults. Clearly these concepts cannot be understood as synonymous, but as strongly related to ageism and age discrimination.

2.3 Ghulam Mujtaba Nasir, ESR 13, Robert Gordon University

Supportive design intervention for improving healthcare experience by addressing the diversity of health and social care staff to reduce discrimination. A report on existing literature related to ageism as a barrier to provision of relevant support and services with particular focus on diversity of health and social care staff to reduce discrimination.

Literature Review Process

The aim of literature review is to understand how a design intervention for improving healthcare experience can reduce discrimination by addressing the diversity of health and social care staff.

Supportive design intervention for improving healthcare experience:

It is important to review the literature in this supportive design intervention which signifies that healthcare experiences may improve if any healthcare system improves the diversity of health and social care staff. This will lead to reduced discrimination against older people within minority groups, as ethnic minority groups face "double jeopardy" for being old and for being minority group.

The research project considers two scientific databases to produce literature review like CINAHL and Ageline using EBSCOhost. These databases were selected for number of reasons. CINAHL focuses on nursing and allied health professionals, meanwhile Ageline pays exclusive attention on issues of aging. Literature search used terms such as *ageism, health* and *diversity*. The search strategy contained a number of limits to identify the most relevant scientific journal articles.

- The search was limited to articles published in the English language.
- published from 2009 to 2018
- Scientific journal article (peer-reviewed full text)
- Exclude dissertations
- Original research article

Literature Report

The World report on ageing and health highlights great diversity in health and functioning in older age and marked health inequities in this group. Organizations have to be aware that age diversity can undermine the health of older and younger team members (Susanne C. Liebermann et al. 2013).

At this point in time, there is no clear understanding of how widespread and impactful nursing or healthcare ageism is, and what can best be done to prevent or address it (Donna M Wilson et al., 2017) (Pitt-Catsouphes Sweet et al. 2010).

As countries becomes increasingly diverse and globalization movements bring more people from around the world together, it may well be time to rethink and reorganize our concept of culture, cultural appropriateness, and diversity (Luis F Riquelme et al. 2013). Ageism and stereotyping influence attitudes, which in turn affect the way decisions are taken and resources are allocated at household, community, national and international levels. By 2060, the workforce participation rate of more than 50-year-olds will have risen by between 10% and 20% in most industrialized countries (OECD, 2011; Toossi).

Conclusive remark:

The analyses indicate that education and awareness of ageism, policy planning to address changing demographic patterns, cultural diversity, and disciplinary development were key themes in these publications. Results support both significant advantages and disadvantages for age-mixed teams. Based on the findings, the following preconditions for the effectiveness of age diverse teams are identified: high task complexity, low salience and high appreciation of age diversity, a positive team climate, low age-discrimination, ergonomic design of work places, and the use of age differentiated leadership. (Wegge, J. et al. 2013). It was found that the training reduces age stereotypes, team conflicts and enhances innovation.

2.4 Ittay Mannheim, ESR 14, Fontys University & Tranzo (Tilburg University)

Ageism in design of digital technology

Literature Review Process

The purpose of this review is to identify and define ageism in the design of digital technologies for older adults.

Data bases used on April 2019: PubMed, PsycINFO (EBSCO) and CINAHL (EBSCO). Search terms included 3 main concepts:

C1) Aging and Ageism. Although aging and ageism are not overlapping concepts, separating them to 2 concepts, including concept 2&3 revealed only several results (with some databases yielding 0 results). It is possible that ageism was not the focus of many papers relating to the design process of digital technology. Nevertheless, it is important for this study to try and identify if Ageism exists in the design process, thus I am aiming for a more inclusive approach for the phase of the database search. The search included: frail elderly; aged; Aged, 80 and over; aging; ageing; older adult*; older person*; older people*; elder*; senior* age identity;

old age; geriatr*; gerontolog*; ageism; agism; age discrimination; age prejudice; age stereotyp*; ageist; agist; self perceptions of ageing; self perceptions of aging; Attitudes toward* age; Attitudes toward* ageing; Attitudes toward* aging.

C2) Design process: codelivery; co-delivery; Coproduction; Co-production; cocreation; co-creation; codesign; co-design; person-centered design; person centered design.

C3) Digital technology: information technolog*; Wearable Electronic Devices; Digital technolog*; ICT; information and communication technolog*; digital; app; apps; robot*; smartphone*; smart phone*; computer*; smart watch*; smartwatch*; Wearable*; gps; mhealth; ehealth.

Literature Report:

The main gap in the literature was identified during the search. Using ageism as a separate concept or limiting all search terms to title and abstract yielded zero or close to zero results. This of course cannot be held as evidence for absence of ageism in the design process. Therefor a broader strategy was used to: a) search and identify relevant studies b) critically identify possible manifestations of ageism in relevant articles.

Of 166 articles found that met initial criteria 38 where selected after screening titles. Studies that were not about older adults, did not involve digital technology or did not involve co-design methods were excluded.

In the next step abstracts and full text will be examined. From the remaining articles it seems that some emphasize the importance and advantages of involving the older end users in technologies designed for their use. Yet some of the remaining studies do not involve the older adult directly, rather their family care givers or professionals. Especially in population living in nursing home or people with dementia. In the analysis of the articles justification for such exclusion will be examined.

Conclusive remark:

Many articles were excluded because the co-design process was not with the older adults themselves but rather with professionals. Some of these studies justify this by indicating the limitations of co-designing with specific older adults, for instance with residents of a nursing home. Considering ageism, it might be wise to identify the existing literature on digital technology developed without the older end user. More so examine the explanation provided as to why they were not involved in the design process.

2.5 Wanyu Xi, ESR 15, Bar-Ilan University

A report on published literature related to ageism in design and dissemination for older adults, with a particular focus on the issue of older adult-centered design of assistive technology

Literature Review Process

In March 2019, four databases were searched: EBSCO, SAGE, PubMed, JSTOR, as well as Google Scholar. Keywords of three groups are combined to search relevant articles. (1) To define the research focus, which is assistive technology design rather than technology design in general, the word searched were: assistive technology, assistive technology design. (2) To define the subject of the research, older, older adults, senior, elderly are used for searching. (3) To address the theme of our literature review, ageism, stereotype, stigma and prejudice is used.

Titles, abstracts and articles of the searching result were screened, and the inclusion criteria is set when selecting the articles:

1) Peer-reviewed research in English
2) Qualitative, quantitative or mixed methods research
3) Research aimed at addressing the ageism in assistive technology design with older adults involved
4) The publication time range is constrained in the past ten years, from 2009 to 2019.

Only one article is relevant to the review theme and completely met all the criteria.

Literature report

In spite of large number of research on assistive technology design for older adults, only limited number of research have addressed the existence of ageism and age stereotype in the design.

Lee, Tan, & Sabanovic (2016) addresses the fact that age stereotypes exist in the assistive robot technology design and it further negatively affect the older adults' attitude towards assistive robot and adoption intention. The qualitative research shows that as the age stereotypes hold by designers, there are negative representations of aging depicted in robot use scenarios among older users. Similarly, Mcneill & Coventry (2015) explores the design of assistive walking technology and conducted a focus group research. It finds that older users feel being stigmatized when using the assistive walking technology, however, the participatory design approach to involve older adults can improve the aesthetic design of the product and increase the willingness of adoption. Different from the first two research, Ferri, Bardzell, &

Bardzell (2017) indicts that existed purely assistive technologies often puts older adults into passive roles, a narrow focus on assistance may lead to conceptualize age as a loss of physical, social, and cognitive abilities. Thus, the article proposed an innovative concept: an anti-ageist empathic design, and calls designers for an empathy mindset. In summary, all these researches point the importance of communication with older adults during design process. Specifically, designers should better understand the meaning of assistive technology to older adults. In addition, designers should interpret aging from older adults' perspective to avoid embedding stereotyped representations of older adults in technology design.
Conclusive remark
The review result suggests insufficient research in addressing age stereotype or ageism in assistive technology design. Future research should consider how to better reduce age stereotype or ageism in older adult-centered assistive technology design and provide more guidelines and design concept to designers.

3 Discussion

Overall the present literature review, and especially the experienced difficulties of searching relevant literature using the "ageism" concept", shows that the "ageism" approach is not commonly used when challenges and societal barriers related to old(er) age are investigated in the addressed service fields. This finding indicates that the lack of awareness regarding ageism, which is frequently attributed to society, may also be prevalent in the scientific field or at least in some disciplines or thematic subfields. However, this does not imply a neglect of research into specific problems of older adults, but the adoption of different perspectives. Whereas for example in technology studies age inequalities might be addressed using concepts like "digital divide, digital disengagement or digital inequality", transport studies apply a "social exclusion" framework and financial research uses the term "financial vulnerability". Nevertheless, the review also demonstrated a potential "upswing" of the ageism concept, since a substantial part of the identified literature dates 2015 or later.

4 Conclusion

In sum, it can be concluded that a cross-discipline recourse to the Ageism concept should be encouraged and promoted in order to create a common basis of understanding serving as a shared

knowledge framework for a more holistic understanding of older age issues. Consequently, such a common basis could not only lead to a higher capacity for understanding between disciplines, but also opens up the possibility of developing new questions for the life phase "old age" and new possibilities to develop more powerful analytical concepts for explaining challenges and disadvantages related to this life phase. The EuroAgeism project, being an interdisciplinary and, by focusing on the micro-, meso- and macro-level, multi-perspective approach, clearly has the potential to advance this issue in the scientific as well as in the policy field.

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