

**Emilia Viklund**

## **Ageing Online**

Promoting older persons' subjective wellbeing in a digital everyday life





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# Ageing Online

Promoting older persons' subjective wellbeing  
in a digital everyday life

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Vasa, den 16 november 2022

*Emilia Viklund*

# Abstract

Viklund, Emilia, 2022: Ageing Online: Promoting older persons' subjective wellbeing in a digital everyday life

Supervisors: Associate Professor Anna K. Forsman, DrPH, Åbo Akademi University; Professor Ingeborg Nilsson, PhD, Umeå University

**Background:** Digital technology and online services are often seen as one response to many of the challenges that the modern welfare state is expected to face. Evidently, digital technology is an essential part of the society as well as in our daily lives alike. Therefore, the digital context should be taken into consideration when studying subjective wellbeing—also among older persons. Digitalization further entails new ways of working among the multiprofessional personnel groups within the health and social care sector. The importance of meaningful engagement of older persons as part of the development of services is being recognized both within the international policies of active and healthy ageing as well as within the field of innovation studies. In general, more applied research is necessary when moving from evidence to practice in research regarding the promotion of wellbeing among older persons and related working methods and initiatives.

**Aim:** To explore the multidimensionality of older persons' subjective wellbeing and to deepen the understanding of health promotion practice and participatory approaches together with older persons in an increasingly digital everyday life.

**Methods:** A multi-method design was applied and the thesis consist of four separate studies. Two studies were based on data from a cross-sectional, population-based survey study (the GERDA-project) conducted in 2016 in the Bothnia region (Finland and Sweden,  $n =$ ). Study III was a focus-group study with practitioners working with community-level health promotion targeting older persons in two regions in Finland and Sweden in 2019–2020. The last study is based on semi-structured interviews with older persons participating in the @geing online project in 2018–2020.

**Results:** According to the study findings, there is a statistically significant association between subjective well-being and internet use in the studied older population. However, nuanced and multidimensional approaches—simultaneously taking into account the kind of online activities that the older persons engage in, as well as the particular dimensions of subjective wellbeing under study—are needed in order to develop the knowledge field. When it comes to health promotion practice, the findings highlight the importance of seeing the persons among the older people. Digital technology as well as an increased user involvement can support tailored work approaches and initiatives in future health promotion practice by breaking the current perceived barriers related to inflexible organizational routines and the own prejudices. The findings further highlight that being part of the development of

an application can be an uplifting experience and increase the interest and confidence in digital technology use among older participants and combat stereotypical beliefs. However, participatory approaches are not linear, rather they are perceived as messy processes— which also can evoke experiences of disappointment among the participants.

**Conclusion:** Digitalization is not only about the technology. Future research endeavours applying various, and preferably mixed methods, simultaneously examining the everyday life both online and offline in later life are warranted. This in order to deepen the understanding regarding the underlying mechanisms between subjective wellbeing and internet use and further answering the remaining question if internet per se actually is the driving component— affecting experienced well-being in later life— or if it is merely a key component of an already rich everyday life. In both design and implementation of technology, the process could entail more value and be facilitated if the user groups (which can be both older persons and practitioners) are actively participating and contributing with their expertise and contextual knowledge. However, advances are needed also regarding the methods for participatory technology design among older persons and especially regarding participatory approaches with diverse groups of older persons (especially more vulnerable groups). The findings highlights the importance of not generalizing the perquisites nor the health promotion actions for experiencing wellbeing an increasingly digital everyday later life.

**Keywords:** Older persons, subjective wellbeing, digital technology, internet, health promotion, participatory approaches, Finland, Sweden, health sciences, caring science



# Abstrakt

Viklund, Emilia, 2022: Att åldras uppkopplad: Främjande av äldre personers subjektiva välbefinnande i en digital vardag

Handledare: Äldre akademilektor Anna K. Forsman, DrPH, Åbo Akademi; Professor Ingeborg Nilsson, PhD, Umeå universitet

**Bakgrund:** Digitaliseringen av tjänster är en snabbt växande samhällstrend och ses som en av de viktigaste lösningarna för att göra de omställningar som krävs för att möta många av framtidens utmaningar. I och med att digitala verktyg och tjänster är en stor del av vardagen för en klar majoritet av befolkningen är det följaktligen viktigt att undersöka välbefinnandet i en digital vardagskontext – också bland äldre. Digitaliseringen innebär också ett förändrat arbetssätt inom social-och hälsovårdssektorn. Att på ett meningsfullt sätt inkludera äldre i utvecklingen av tjänster som berör dem är viktig och rekommenderas i såväl riktlinjer för att främja ett aktivt och hälsosamt åldrande som inom innovationsforskning. Överlag behövs mera tillämpad forskning för att kunna göra framsteg inom det gerontekonogiska forskningsfältet och för att kunna utveckla det hälsofrämjande arbetet.

**Syfte:** Att undersöka det mångdimensionella subjektiva välbefinnandet bland äldre och att fördjupa kunskapen om hälsofrämjande arbete och samskapande arbetssätt med äldre personer i en alltmer digital vardag.

**Metod:** Avhandlingen har en multi-metod design och innehåller fyra enskilda studier. De två första baserar sig på material som insamlats genom en enkät inom ramarna för GERDA-projektet år 2016 och är befolkningsbaserade tvärsnittsstudier. Den tredje studien består av fokusgruppintervjuer som gjorts med personal som arbetar med hälsofrämjande arbete i två regioner i Finland och Sverige under 2019–2020. I den fjärde studien analyserades semi-strukturerade intervjuer som gjordes med äldre personer som deltog i projektet @geing online under åren 2018–2020.

**Resultat:** Avhandlingen visar på att det finns ett samband mellan subjektivt välbefinnande och internetanvändning och digitala tjänster bland äldre personer i Botnia regionen. För att inte gå miste om viktig information om kopplingen mellan subjektivt välbefinnande och internetanvändning behöver man beakta både vilka digitala tjänster som äldre använder samt hur välbefinnande egentligen mäts. Vad gäller hälsofrämjande arbete riktat till äldre visar avhandlingens resultat på vikten att se de äldre personerna inom den äldre befolkningen. Vidare förslås också att digitala tjänster och samskapande tillvägagångssätt kan möjliggöra personcentrering och skraddarsydda tjänster genom att förändra styva riktlinjer och arbetssätt samt motarbeta de egna fördomarna. Resultaten visar också att det kan vara upplyftande att delta i utvecklingen av en ny applikation och att intresset för digitala verktyg och tilltron till sig själv som teknikanvändare ökade bland äldre deltagare. Samtidigt är samskapande innovationsprocesser inte linjära,

utan det rör sig snarare om omständliga processer som också kan väcka olika känslor förknippade med besvikelse bland deltagarna.

**Slutsatser:** Digitaliseringen handlar om mycket mer än bara teknik. För att kunna få svar på frågan om internetanvändning verkligen påverkar välbefinnande bland äldre eller om olika digitala tjänster bara är en del av ett sedan tidigare rikt liv behövs mera forskning. Framtida studier behöver inkludera och kombinera olika metoder samt undersöka båda "offline" och "online" aktiviteter samtidigt i en vardagskontext för att kunna titta närmare på för vem och under vilka omständigheter internet potentiellt kan främja välbefinnande. Både utvecklingen och implementeringen av nya digitala verktyg kan underlättas och ge mervärde ifall användare (både äldre och personal i detta fall) aktivt deltar och involveras. Forskning om samskapande innovationsprocesser behöver utökas och metoder för sådana tillvägagångssätt utvecklas – speciellt då det kommer till äldre och de olika grupperna inom den äldre befolkningen. Slutligen är det viktigt att inte generalisera då det kommer till äldres subjektiva välbefinnande, internetanvändning och hälsofrämjande arbete.

**Nyckelord:** äldre, subjektivt välbefinnande, internet, digitala tjänster, samskapande metoder, hälsofrämjande arbete, Finland, Sverige, hälsovetenskaper, vårdvetenskaper

# Tiivistelmä

Viklund, Emilia, 2022: Ikääntyminen verkossa: Ikääntyneiden subjektiivisen hyvinvoinnin edistäminen digitaalisessa arjessa

Ohjaaja: Dosentti, Yliopistonlehtori Anna K. Forsman, DrPH, Åbo Akademi; Professori Ingeborg Nilsson, PhD, Umeå universitet

**Tausta ja tavoitteet:** Palveluiden digitalisaatio nähdään usein vastauksena nykyaikaisen hyvinvointivaltion kohtaamiin haasteisiin. Digitaaliset palvelut ovat olennainen osa yhteiskuntaa – ja vastaavasti jokapäiväistä elämäämme, ja siksi digitaalinen konteksti tulisi ottaa huomioon moniulotteisessa hyvinvoinnin tutkimuksessa – myös ikääntyneiden keskuudessa. Digitalisaatio merkitsee myös uusia toimintatapoja sosiaali- ja terveysalalla. Ikääntyneiden mielekkään osallistumisen merkitys palvelujen kehittämisessä tunnustetaan niin kansainvälisessä aktiivisen ja terveen ikääntymisen politiikassa kuin innovaatiotutkimuksen alalla. Soveltavaa tutkimusta tarvitaan lisää, jotta voidaan edistää ja kehittää geronteknologiaa tutkimusalanana sekä edistää terveyttä ja hyvinvointia yhä digitaalisemmassa arki- ja työympäristössä. Tutkimuksen tavoitteena oli tutkia ikääntyneiden subjektiivinen hyvinvoinnin moniulotteisuus sekä syventää ymmärrystä terveyden edistämisen käytännöistä ja osallistavista käytäntöjä yhä digitaalisessa arkipäivässä.

**Menetelmät:** Väitöskirja on monimenetelmäinen ja sisältää neljä yksittäistä tutkimusta. Kaksi ensimmäistä perustuvat GERDA-projektissa vuonna 2016 tehtyyn väestötutkimukseen, joka toteutettiin kyselynä (poikkileikkaus-tutkimus) sekä Suomessa että Ruotsissa Merenkurkun molemmin puolin. Kolmas tutkimus koostuu fokusryhmähaastatteluista, jotka on tehty terveyden edistämisen parissa työskenteleville ammattihenkilöille kanssa kahdella alueella Suomessa ja Ruotsissa vuosina 2019–2020. Neljännessä tutkimuksessa haastateltiin @geing online -projektiin osallistuneita ikääntyneitä Suomessa 2018–2020.

**Tulokset:** Tutkimustulosten mukaan ikääntyneiden subjektiivisen hyvinvoinnin ja internetin sekä digitaalisten palveluiden käytön välillä on yhteys. Jotta emme jäisi paitsi tärkeästä tiedosta subjektiivinen hyvinvoinnin ja internetin käytön välisistä yhteyksistä, on pohdittava sekä sitä, mitä digitaaliset palveluja ikääntyneet hyödyntävät ja miten koettua hyvinvointia mitataan. Ikääntyneille suunnatun terveyden edistämistyön kannalta tulokset osoittavat ikääntyneiden henkilöiden näkemisen tärkeyttä osana ikääntyneiden joukkoa. Lisäksi tutkimuksessa nousi esiin, että digitaaliset palvelut ja osallistavat lähestymistavat voivat mahdollistaa ihmiskeskeisen hoitotavan toteuttamisen ja palvelujen räätälöimisen tulevaisuudessa ja muuttaa nykyisiä joustamattomia organisaatiorutiineja ja ennakkoaluuloja. Tulokset korostavat myös, että ikääntyneiden osallistuminen digitaalisen sovelluksen kehittämiseen voi olla voimaannuttava kokemus ja lisätä kiinnostusta ja luottamusta digitaalisen teknologian käyttöön, ja sitten torjua teknologian

käyttöön liittyvien stereotyypioiden omaksumista osallistujien keskuudessa. Samaan aikaan on tärkeä tiedostaa, että osallistavat toimintatavat eivät ole lineaarisia; vaan pikemminkin monimutkaisia, pitkiä prosesseja, jotka voivat myös herättää osallistujissa erilaisia pettymykseen tunteita.

**Johtopäätökset:** Digitalisaatiossa ei ole kyse pelkästä teknologiasta. Lisätutkimusta tarvitaan, jotta saadaan vastaus kysymykseen, vaikuttaako internetin käyttö todella ikääntyneiden subjektiiviseen hyvinvointiin vai ovatko erilaiset verkkopalvelut vain osa jo ennestään rikasta elämää. Tulevaisuuden tutkimuksissa on sisällytettävä ja yhdistettävä eri menetelmiä ja tarkasteltava sekä "offline"- että "online"-toimintaa samanaikaisesti arkisessa kontekstissa, jotta voidaan tarkastella lähemmin, kenelle ja missä olosuhteissa internet ja siihen liittyvät toimintaa voi mahdollisesti edistää hyvinvointia. Sekä uusien digitaalisten palvelujen kehittämistä, että niiden käyttöönottoa voidaan helpottaa ja niiden arvoa lisätä, jos käyttäjät (tässä tapauksessa sekä ikääntyneet että henkilökunta) osallistuvat prosesseihin aktiivisesti. Osallistavien innovaatioprosessien tutkimuskenttää on laajennettava ja tällaisten lähestymistapojen tutkimusmenetelmiä on kehitettävä – niin että iäkkään väestön eri alaryhmiä olisi mahdollista osallistaa aktiivisesti. Kun on kyse ikääntyneiden ihmisten subjektiivisesta hyvinvoinnista, internetin käytöstä ja terveyden edistämistyöstä, on tärkeää välttää yleistämistä.

**Avainsanat:** ikääntyneet, subjektiivinen hyvinvointi, internet, digitaaliset palvelut, terveyden edistämistyö, osallistavat toimintatavat, Suomi, Ruotsi, terveystieteet, hoitotiede

# List of original publications

## Article I

Viklund, E.W.E., Nilsson, I., & Forsman, A.K. (2022). Nordic population-based study on internet use and perceived meaningfulness in later life: How they are linked and why it matters. *Scandinavian journal of public health*, 50(3), 381–388. <https://doi.org/10.1177/1403494820987459>

## Article II

Viklund, E. W.E., & Forsman, A. K. (2022). Exploring the Nuanced Links Between Internet Use and Subjective Well-Being Among Older Adults: A Nordic Population-Based Study. *Frontiers in psychology*, 12, 797269. <https://doi.org/10.3389/fpsyg.2021.797269>

## Article III

Viklund, E.W.E, Nordmyr, J., Häggblom-Kronlöf, G., & Forsman, A. K. (2022). Health Promotion Practice Among Older Persons: A Nordic Multi-Professional Focus Group Study Exploring what It Is and How It Could be Achieved. *Journal of applied gerontology*, 41(7), 1665–1674. <https://doi.org/10.1177/07334648221082021>

## Article IV [in manuscript]

Viklund, E.W.E., Nilsson, I., Hägglund, S., Nyholm, L., & Forsman, A.K. (2022). The perks and struggles of participatory approaches: Exploring older persons' experiences of participating in designing and developing an application. [Submitted to a gerotechnology-focused journal in October 2022].

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# 1. Introduction

‘How are you?’ (Swedish: ‘hur är det?’, ‘Finnish: ‘mitä kuluu?’, German: ‘Wie geht’s?’) is one of the first questions we often ask when starting a new conversation. However, why do we ask this question? We use it as a generic polite conversation starter, but also as a genuine enquiry with the aim of receiving information about the other person’s feelings and experiences. We do this even though we can likely form an opinion or picture of the person in front of us from our observations and other types of available information, for example, from national and international reports on the health, life and circumstances of the general population and groups within the population. The reason we ask this type of questions is to gain a crucial and otherwise missing piece of the health puzzle: the person’s own perspective. We may furthermore expect that health is not static and can mean different things to different people.

Within the health sciences and their many and different sub-disciplines, health is of certain interest. However, the perspectives for approaching and exploring health might vary. Humanistic health traditions suggest that there are many subjective aspects of health and subjectivity is therefore essential for capturing the nuances of health. From a humanistic health perspective, health is not defined in terms of the presence or absence of ill-health; rather, it takes a holistic view of health in which both concepts can be more or less present at the same time. Furthermore, when pondering questions such as ‘How are you?’, we often move beyond the purely health-related aspects and take our general life situation — our day-to-day living experiences and broader judgements about life as a whole — into account (Brülde & Tengland, 2003). Thus, the whole life of a person needs to be taken into account when considering their state of health (Fagerström, 2021) as health is created and lived by persons in their everyday life (Ottawa Charter, 1986).

The experience of wellbeing has engaged scholars from a wide-range of disciplines over the years, and an increased interest in subjectively experienced wellbeing can also be seen within policy and politics where wellbeing-based measurements have been added to traditional economic measurements to explore societal wellbeing (Martela & Sheldon, 2019). There are many ways of conceptualising what we, in more everyday terms, call happiness; however, the most used concept is subjective wellbeing (Martela & Sheldon, 2019), which can be viewed as an evaluation of an individual’s life and health from his or her own perspective (Ferring & Boll, 2010). Subjective wellbeing, in contrast to happiness, is considered to encompass more than just a pleasant life; it is multidimensional and includes living a meaningful and engaged life (Schueller & Seligman, 2010).

I first became interested in older people’s subjective wellbeing during my studies in developmental psychology. Or rather, it was the lack of or limited presence of information about older persons and ageing in the literature and

lectures that piqued my interest. Even though early life experiences are important in terms of mental health throughout the life course and can be considered especially eventful in terms of human development, later life cannot be a blind spot. Therefore, I decided to study this life period in depth. However, while exploring the literature related to ageing, I noticed that more attention was paid to dysfunction (e.g. the development of dementia) and risk factors (e.g. loneliness) than to subjective wellbeing and the resources required for leading later life as desired. Available studies report that many older persons are experiencing subjective wellbeing all or most of the time (80% of people aged 65–74 years in Finland, 70% in Sweden, with 68.9% in Finland and 62, % of people 75 years or older in Sweden reporting experiences of happiness, Eurostat, 2018). It is important to identify the factors that contribute to these older persons experiencing wellbeing so that these prerequisites for a good life and health can be made available to everyone.

One factor that has received a lot of media and research attention in relation to mental health is digital technology and related online activities. The influences of screen-based activities on the mental health of children and adolescents has been a particular area of focus. Issues related to sleeping problems and bullying have frequently been raised, as well as such activities having positive influences; for example, they can be used to increase connectivity and to provide a channel for advocacy. However, in terms of older persons, the discussions have been less focused on the gains and losses related to mental health and subjective wellbeing and more focused on the digital divide and the acceptance of digital technology. Even though it is also critical to recognise that there are groups of older persons that are not managing the transition to digital technologies and online services, many older persons are online and digital technologies are inherent part of their everyday lives. For example, in Sweden, 66% of people born in the 1940s (80+ years old) and 89% of people born in the 1950s (70+ years old) reported daily internet use in 2021 (The Swedish Internet Foundation, 2021) and an increase in internet usage over the last 10 years is apparent (23% in 2010 to 69% in 2019 among 75 + year-olds) (The Swedish Internet Foundation, 2019).

Substantially, the focus of this thesis is not on older persons' attitudes towards or acceptance of technology nor on how older persons with substantial health care needs interact with technology. Instead, it should be seen as a study about older persons' subjective wellbeing in everyday life and related health promotion practice in today's world, which is marked by digitalisation and the presence of digital technology. Within this thesis a multi-method design is applied in order to meet the overarching aim of the thesis—which is to describe older persons' multidimensional subjective wellbeing, as well as the broad spectrum of community-level health promotion work and participatory approaches together with older persons in an increasingly digital everyday life.

## **2. Health and subjective wellbeing in a digital everyday life**

The focus of this chapter will be on health and subjective wellbeing in a digital everyday life. Humanistic health theories are the starting point for understanding health as wellbeing and psychosocial ageing theories are presented in order to address the mental and social aspects of ageing. The digital everyday life constitutes the context for this thesis – thus, how we lead our lives (all the things we do) on an everyday basis in a dynamic and ever-changing social environment marked by the digitalization and the presence of digital technology and online services.

### **2.1. Health from a humanistic perspective**

When attempting to answer the question of what constitutes our health, two approaches appears from the literature (Medin & Alexandersson, 2000). In the first approach, health is the result of mainly biological processes. This approach represents a biomedical perspective of health and suggests the use of mainly objective instruments for measuring health (Nordenfelt, 2018). In the second approach, health is something more than what can be explained by biological or psychological processes (Nordenfelt, 2018). This approach involves considering health from a humanistic perspective and is the approach adopted as the basis for this thesis

The World Health Organization's (WHO) definition of health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO, 1948) can be seen as reflecting the humanistic approach to health and diverging from former conceptualisations of health in terms of disease. The WHO's definition also addresses the multidimensionality of health—that there might be different dimensions of health (Huber et al., 2011). Additionally, by using the term 'wellbeing', a subjective dimension of health is emphasised, as the term commonly refers to a person's own experience of health (Brülde & Tengland, 2003). Later, in the Ottawa Charter of Health Promotion, health was further described as a resource for everyday life (WHO, 2021a). The WHO's definition of health has gained significant recognition and further inspired other humanistic health theories. However, it has also received considerable criticism for including the word 'complete' in relation to health.

Similar elements of health are also seen in Eriksson's work on health within the caring sciences. Eriksson considered health as a 'multidimensional whole' and suggested that health is unique to every human being (Eriksson, 1986/2000/2018). Even though the most basic needs might be universal, the structure is suggested to vary from person to person. Eriksson further departed from the WHO's original definition of health as a 'state'. According to Eriksson, health is a dynamic process in which the person is an active agent, making

decisions about their own life and health, based on their needs (Eriksson, 1986/2000/2018). Hence, within Eriksson's theory, health is described as a constant movement between three levels: health as doing, being and becoming (Fagerström, 2021). The first level is understood to be related to lifestyle choices and factors, whereas the second level is connected to balance and harmony. The third level, becoming health, represents an existential dimension, where health is related to developing and thriving as a person (Fagerström, 2021). Thus, an existential dimension of health is included in Eriksson's theory and it suggests that health should be understood in relation to a person's perception of meaning in life. Namely, being healthy does not matter if life does not matter—if it does not feel meaningful to the person living it (Medin & Alexandersson, 2000). The urge to live, love and find meaning is suggested as a driver of seeking health (Eriksson, 1986/2000/2018).

A similar dynamic view of health is found in another health science sub-discipline: occupational therapy. Wilcock (1999) also defined health in terms of doing, being and becoming, but added a fourth 'b': belonging. Wilcock (1999) emphasised that who we are, our needs, our opportunities to develop, and a sense of belonging and communion are important to health and that these elements are related to the activities in which we engage. Additionally, Antonovsky (1996) highlighted the importance of meaningfulness for experiencing health. He was especially interested in what makes some people more resistant to stressful events than others and suggested that these people have a special orientation towards life—they perceived their world as comprehensible, manageable and meaningful. Antonovsky called this orientation a sense of coherence and found it to be significant for a person's movement towards health (Antonovsky, 1996).

Against this background, three common elements of humanistic theories and conceptualizations of health can be distinguished. They advocate for a holistic or multidimensional approach to health, they place importance on subjective perspectives and they recognise the essential role of the answers to existential questions, such as the meaning of life.

## **2.2 Wellbeing and mental health**

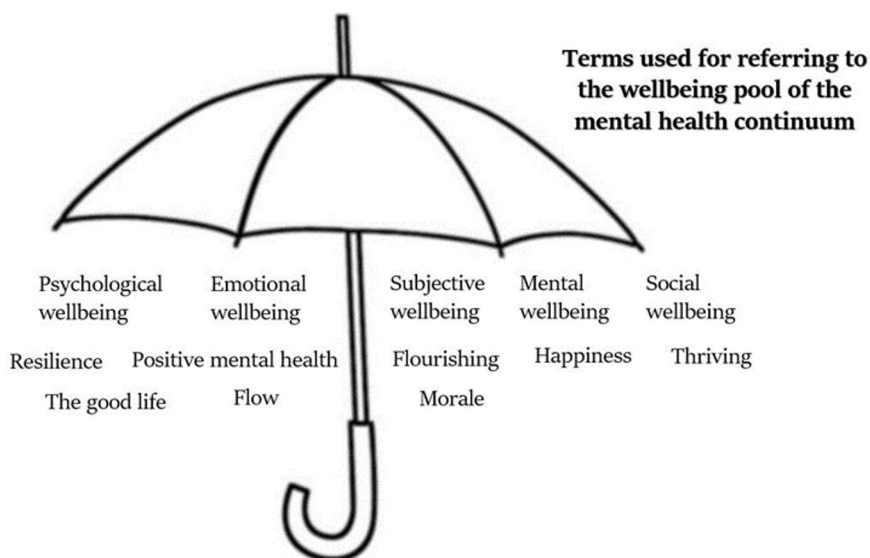
The term wellbeing is often used to refer to a person's own experience of health (Brülde & Tengland, 2003), which encompasses emotional and psychological aspects and is assumed to be a complex construct (Dodge et al., 2012). The WHO (2021) describes wellbeing as

'a positive state experienced by individuals and societies' and suggests it to be, like health, a resource for daily life that is determined by a range of social, economic and environmental conditions' (WHO, 2021a, p. 10)

Wellbeing is closely associated with mental health, as mental health is defined as a 'state of well-being in which the individual realizes his or her

abilities, copes with the normal stressors of life, works productively and fruitfully, and makes a contribution to his or her community' (WHO, 2001, p. 1). Hence, mental health can be seen as both an individual resource for everyday life as well as capital for communities and societies (Ministry Social Affairs and Health, 2020a). In line with the general concepts of health and ill health, the concept of mental health includes more than the absence of illness and can be viewed as a continuum in which both mental wellbeing and illness are included (e.g. Keyes, 2002; Lahtinen et al., 1999). However, many different terms and concepts are used when referring to the wellbeing aspects of mental health, which complicates the literature review process. Sometimes the terms are used interchangeably and in parallel when referring to the same phenomenon, and sometimes they are used for referring to distinct concepts. To illustrate this dilemma, a figure was created that was inspired by the salutogenesis umbrella originally created by Lindström and Eriksson (2010). Figure 1 illustrates the mixture of concepts and terms used for referring to wellbeing on the mental health continuum.

Within this thesis, a person's own perspectives on their mental health and life are central. Therefore, the term 'subjective wellbeing' is used.



**Figure 1.** Illustration of the mishmash of terms used within wellbeing literature.

### **2.1.1 Conceptualising subjective wellbeing**

Subjective wellbeing can be described as an evaluation of an individual's life and health from his or her own perspective (Ferring & Boll, 2010). The question of what constitutes our wellbeing and characterises a good life has engaged scholars from a wide range of disciplines and resulted in many

conceptualisations (Dodge et al., 2012). However, two traditional directions for outlining subjective wellbeing can be generated from the literature: the hedonic and the eudaimonic perspectives (Ryan & Deci, 2001). The hedonic perspective generally enhances the importance of pleasure, enjoyment and the absence of discomfort in relation to experiences of wellbeing (Huta & Waterman, 2014). The existence of positive and negative affect—everyday life feelings—was central in the early work (e.g. that of Diener) and seen as an important aspect of subjective wellbeing. The term ‘happiness’ is seen as related to the hedonic tradition and focuses generally on the presence of more positive affect than negative affect (Diener, 1984). However, it has been argued that happiness is a vague concept that is being used more often in daily discourse (Diener, 1984) and therefore scholars have added other dimensions to measure happiness in research (Foregard et al., 2011). For instance, Diener, Spapya and Suh (1998) added a cognitive or evaluative component to the hedonic perspective of wellbeing, which can be seen as a global assessment of a person’s life. Diener et al. defined subjective wellbeing as ‘a person’s cognitive and affective evaluations of his or her life’ (Diener, et al., 2002, p. 63). The evaluative way of conceptualising subjective wellbeing is sometimes referred to as a separate dimension of subjective wellbeing and sometimes as an addition to the hedonic perspective (Pavot & Diener, 2008; Huta & Waterman, 2014). Life satisfaction is one example of such an evaluative component that refers to a cognitive sense of satisfaction with life and is also the most commonly used proxy for measuring subjective wellbeing (Foregard et al., 2011; Steptoe & Fancourt, 2019; Raima & Voicu, 2020).

The eudaimonic perspective emerged as a counterpart to the hedonic tradition and views subjective wellbeing as something more than just a cognitive and affective evaluation (Ryff & Singer, 1998). The eudaimonic approach emphasises functioning well as important for subjective wellbeing (Vik & Carlquist, 2018), and the term ‘flourishing’ is often associated with this way of viewing subjective wellbeing (Huta & Waterman, 2014). Hence, the principal focus of the eudaimonic approach is on the full development of our potential as human beings and on what is worth pursuing in life (Huta & Waterman, 2014). Having meaning or a purpose in life, sometimes referred to as the existential dimension of wellbeing, is often included in the eudaimonic approach.

According to Brülde (2019), there are two common ways to approach the topic of meaning in life. In the first, meaning refers to having a higher purpose in life. In the second, meaning refers to having a clear task or life mission. However, Brülde further argued that meaning in life does not necessarily have to be about higher causes or life missions—life can have a meaning to an individual if it contains elements perceived as meaningful to that specific person. Hence, meaning in life can be defined in terms of meaningfulness. Brülde (2019) has also presented some ideas about what commonly makes life meaningful to most human beings: having meaningful content in life, perceiving life as coherent, having central life goals and sensing that one is a

part of a bigger whole. Relationships have also been argued to be important sources of meaning (Nakamura & Csikszentmihalyi, 2003).

Taken together, the literature showcases different perspectives and conceptualisations of subjective wellbeing and what it entails. However, today, scholars seem to agree that a multidimensional notion of wellbeing is needed to reach a fuller picture of subjective wellbeing (Ryan & Deci, 2001; Huta & Ryan, 2010). Since each of the dimensions is understood to capture different nuances of the concept (Steptoe et al., 2015), a combination of the different perspectives is needed. In this thesis, the hedonic (measured as perceived happiness), evaluative (measured as life satisfaction) and eudaimonic dimensions (measured as perceived meaningfulness) of subjective wellbeing are explored in the sub-studies.

## **2.3 Subjective wellbeing among older persons**

### **2.3.1 Who are the older persons?**

'Age' commonly refers to a person's chronological age (WHO, 2002), which can be calculated by counting years from birth until the day of death (Fry, 2002). In Western societies, chronological age receives considerable attention, as many social and cultural functions (e.g. starting school, retirement) are tied to it (Brülde, 2019). However, there is no general consensus on the chronological age at which a person becomes an older person (WHO, 2002), and this is due to it being partly a cultural phenomenon. Hence, views of old age can differ and depend on the context. In most Western countries, 60 or 65 years has been used as a cut-off point for defining older persons, as this has been a common age for retiring from gainful employment until this date (WHO, 2007). The United Nations (2015) typically classifies those aged 60 years and above as older persons and those 80 years and above as the oldest-old.

However, given that different pathways and conditions in life lead to differences in health between individuals (Halfon & Forrest, 2017), it is not always ideal to define older persons by chronological age in health research. It is difficult to talk about older persons as one group (Jaul & Barron, 2021), and older persons are individuals with different viewpoints on life and health (Shabahangi, 2014). Instead, other conceptualisations such as biological age, psychological age, social age and personal and subjective age have been suggested as supplements to chronological age (Birren & Cunningham, 1985; Uotinen, 2005).

The sub-studies conducted within this thesis included a wide range of older individuals, representing different age cohorts and chronological ages. In the studies, the focus was on subjective wellbeing and the experiences of being involved in an innovation project among older persons and not on age or ageing per se; age is just one factor that might influence these experiences.

Moreover, it is not only different perceptions of age that circulate in the literature; different terms for describing persons of older age are also used. The

American Psychological Association (2020) has suggested that one should avoid using terms such as 'elderly' and 'seniors' because of their negative connotations and instead encourage the use of 'older persons' or 'older adults' to avoid ageism. Therefore, the terms 'older persons' and 'older adults' are used interchangeably in this thesis.

### **2.3.2 The changing paradigm of ageing and health: Exploring theories of ageing**

The view of ageing as being associated with decline has been dominating the public debate, and in combination with the strong biomedical paradigm, it has been argued that ageing has become medicalised (Shabahangi, 2014). Thus, ageing is often considered a burden (with older persons viewed as heavy social and health service users) instead of a great achievement (Shabahangi, 2014). However, recently, counter movements and concepts such as positive ageing have emerged in the debate, with older persons seen as resources and not burdens.

One approach that highlights older persons as valuable members of society is the existential-humanistic process approach presented by Shabahangi (2014). Shabahangi's conceptual framework suggests that instead of viewing ageing as a line of medical problems—a chain of loss and gain—it is viewed as a life-long process in which one's body, mind and soul simply change. There is no emphasis on whether each change is good or bad. Change in itself is seen as neutral, and the ageing person decides about how they experience the changes (Shabahangi, 2014). According to Shabahangi (2014), there are factors other than physical health and longevity that must be taken into consideration when exploring health while ageing, and a core element within the conceptual framework is life meaning. Hence, 'human beings need to create meaning in their lives if they are to live a life that is worth living' (Shabahangi, 2014, pp. 216), and finding the elements of what makes life meaningful is suggested to be even more relevant in later life than in earlier life phases. This is because daily life is driven by social and economic obligations, such as education, career and family life, in earlier life phases, whereas later life is seen as less circumscribed. Older persons are suggested to enjoy more freedom in deciding how to go about their daily lives and what is important to them. There is a line of ageing theories that support Shabahangi's suggestion that life meaning and meaningful elements become increasingly important as we age. Carstensen's socioemotional selectivity theory argues that the subjective sense of time in life has an impact on the motivation and goals of older persons (Carstensen, 2021, first developed in 1993). When time horizons become more limited, people tend to become more focused on making the time count and doing activities that are perceived as meaningful. Moreover, Tornstam (2005) also suggested that the meaning and importance of relations changes in life and that older persons become more selective and tend not to prioritise superficial relations.



Even though the theoretical framework presented by Shabahangi (2014) describes later life as less active in a way, other ageing theories highlight the importance of engaging in activities to maintain wellbeing. For instance, the activity theory developed by Havighurst and Albrecht (1953) suggests that by participating in different types of activities, older persons are able to adapt to social and physical changes that ageing individuals face and maintain their wellbeing through these changes. According to the theory, older persons have social needs that are comparable to those of middle-aged people, and therefore an active lifestyle is considered important to maintaining wellbeing (Bengtson, 2016). The continuity theory, first presented by Atchley, highlights the importance of continuing activities and having similar activity patterns as in earlier life to maintaining wellbeing in later life (Atchley, 1999). In other words, continuing with activities and relationships can help us maintain wellbeing and develop while ageing (Atchley, 1999).

### **2.3.3 Subjective wellbeing among older persons**

Older persons in Western countries are reporting high levels of subjective wellbeing; for instance, in Finland, 80% of people aged 65–74 years and 68.9% of people aged 75 years or older reported experiencing happiness all or most of the time during the last month (Eurostat, 2018). Similar proportions of happy older persons were also found in Sweden (70% of 65–74 year-olds and 62.8% of 75+ year-olds) (Eurostat, 2018). Thus, in contrast to the expectations, older persons report high levels of subjective wellbeing (Donisi et al., 2021), and this is often referred to as a paradox of wellbeing and ageing.

Blanchflower and Oswald (2008) observed and reported a U-shaped relationship between subjective wellbeing and age, suggesting subjective wellbeing is lowest around middle age and rises throughout older age. Longitudinal studies have provided some evidence of a U-shaped curve of subjective wellbeing during the life course (e.g. Frijters & Beaton, 2012). Although, other studies have failed to demonstrate such a relationship and researchers have proposed that the association between age and subjective wellbeing is dependent on the cultural and geographical contexts of the studies (e.g. Deaton, 2008). A more S-shaped relationship has also been suggested, with subjective wellbeing declining among the oldest age groups (Bauer et al., 2017). Hansen and Slagsvold (2017) stated that some dimensions of subjective wellbeing seem to remain stable or increase during older life stages, whereas others seem to decline. In particular, the hedonic dimension tends to remain stable or increase, whereas the eudaimonic dimension is suggested to decline (Friedman et al., 2017). In their study of a multidimensional structure of subjective wellbeing, Donisi et al. (2021) found both similarities and differences among different age groups. One of the differences they reported was that social engagement was identified as a dimension for the oldest-olds, but not for the 18-64 years and 65-79 years age groups.

However, it is not only age that matters when it comes to subjective wellbeing in later life. The diversity among older persons should not be forgotten (Cattan, 2009; Barry, 2019). The WHO's (2021) definition of wellbeing introduced earlier states that wellbeing is determined by social, economic and environmental conditions, and the extensive work of Marmot (e.g. Marmot et al., 2008) has highlighted the importance of examining the daily life conditions where a person is born and where they grow, live, work and age (the social determinants) to understand health. The lower the socio-economic status, the worse the health, and a social gradient is apparent between all levels of socio-economic status in a society (Marmot, 2006). When it comes to subjective wellbeing among older persons, ethnicity has been suggested to be related to subjective wellbeing, with minority groups generally reporting lower levels of subjective wellbeing (George, 2010). Moreover, education and income are strong predictors of subjective wellbeing for young and middle-age groups; however, for older persons, the association seems to be less clear, as study findings are incongruous (George, 2010). Many studies also highlight health status as a predictor of subjective wellbeing and this seems to be the case especially for older age groups. The social dimension (e.g. marriage, contact with children and friends and social support) is also connected to subjective wellbeing in later life (George, 2010). Finally, it has been suggested that subjective wellbeing is associated with living a longer life (Steptoe et al., 2015).

Qualitative studies capturing older persons' views on subjective wellbeing have described similar factors to be of importance: physical health, functional ability, social activities and relationships and interactions with important people (Douma et al., 2017; Lara et al., 2019; Nordmyr et al., 2020). Moreover, remaining active in the community and engaging in meaningful activities and activities of one's own choice have also been highlighted as important contributing factors for subjective wellbeing in later life (Douma et al., 2017; Nordmyr et al., 2020). Natural surroundings (Douma et al., 2017; Söderbacka, Nyström & Fagerström, 2017; Lara et al., 2019), living conditions (e.g. housing, neighbourhood and safety) (Douma et al., 2017; Söderbacka, Nyström & Fagerström, 2017) and societal attitudes towards older persons (e.g. stereotypical views of older persons) (Bostock & Miller, 2003) have also been noted as contributing factors. Additionally, the literature also presents arguments that personality traits (Lucas, 2008) and attitudes such as a positive outlook on life (Lara et al., 2019; Nordmyr et al., 2020) also matter when it comes to subjective wellbeing in later life. The existing research in this field highlights the importance of having a multidimensional (Lara et al., 2019) and contextual approach (Douma et al., 2017) when exploring subjective wellbeing in later life. All in all, older persons' subjective wellbeing is difficult to understand when studied in isolation from and not alongside social and cultural processes, and an increasing number of scholars suggest acknowledging social context within gerontology (Gallistl & Wanka, 2018; Peine & Neven, 2019).

## 2.4 Subjective wellbeing in a digital later life

Older persons' subjective experiences of well-being is difficult to understand in isolation from the social and cultural processes we all are being a part of. Scholars argue that the social context, which also includes digitalisation and digital technology (Gallistl & Wanka 2018; Peine & Neven 2018) should be increasingly acknowledged within gerontology (Gallistl & Wanka, 2018) as the older persons of today have been living side by side with the technological development. During their lifetime, a great number of new technology has been integrated to their everyday lives, such as the television, dishwasher, video, stereo, mobile phone and computers (Hagberg, 2008). This has resulted in their daily lives and routines constantly have been changing due to the adoption of new technology. Lately the *digitation* (i.e. the converting from analogue to digital technology) and the more extensive conversion of services into digital and online formats (*digitalisation*) have fundamentally changed the way we go about our daily business, work, communicate and meet with family members and friends (Alm et al., 2016). Nationwide surveys monitoring the distribution of internet usage in the population show that 93% of the population aged 16–89 years use the internet in Finland (2021). Similar frequencies have been reported in the neighbouring Nordic countries (94% in Sweden in 2021 and 99% in Norway in 2021). A recent increase in internet usage by older adults is apparent: 66% of people born in the 1940s (80+ years old) and 89% of people born in the 1950s (70+ years old) reported daily internet use in 2021 (The Swedish Internet Foundation, 2021). Of the oldest-olds (90+ years old), 40% reported using the internet on a daily basis (The Swedish Internet Foundation, 2021). Additionally, digital technology can also be seen as a cornerstone of the efforts to tackle the COVID-19 pandemic (European Commission, 2021) leading to people using online services more frequently than ever before. Many of the older persons in particular have increased their frequency of use or expanded their online repertoire, as well as took their first steps into the cyber space during this period of time (The Swedish Internet Foundation, 2020). Hence, various *digital technologies* (in this thesis used for a broad range of devices including computers, mobile or smart phones and tablet computers), *the internet* (here, 'Internet use' and 'internet users' are used as umbrella terms to describe people who access and use the World Wide Web or not) and the *online or internet activities* (the online content: different internet-based sites, applications or programmes, such as social media, email, online banking or health services, newspapers and games) that *digital tools* (used as a synonym to digital technologies) gives access to— are a part of the everyday life of many older persons.

However, not all of the older persons have managed to follow the transition to online services and previous studies suggest that internet use in later life is linked to sociodemographic factors (age, generation, gender, education and income level) and personal resources (health, attitude towards technology, previous experience of using it and a positive outlook on oneself) (Keränen et

al., 2017; König, et al., 2018; Vroman, et al, 2015). This means that it is more likely that older men with a higher education or income level and with a better health status are using the internet than older women with a low education or income level and with a worse health status (König & Seifert, 2020). Furthermore, some scholars have argued that older persons with several leisure activities tend to be more active internet users (Näsi, et al., 2012), while others have not found any connection between participating in activities, such as volunteering and religious gatherings, and the use of technology (Ihm & Hsieh, 2015). Social patterning seem to also exist for online activities, as differences in online activities among different socio-economic older groups have been observed, suggesting that more disadvantaged groups in terms of socio-economic position might engage in different online activities than more privileged groups (Gallistl et al., 2020). The internet has therefore been referred to as a super social determinant of health in recent studies (Sieck et al., 2021), as it has been noted that internet use can impact other social determinants. Thus, the digitalisation is becoming a more and more integrated part of society – and correspondingly also of our everyday lives, in spite of being online or not.

#### **2.4.1 The connection between subjective wellbeing and internet use among older persons: Exploring the current research-based evidence**

An increase in the number of studies focusing on technology and older persons over the last two decades is apparent. Gerontechnology refers to the interdisciplinary research field that combines aspects of gerontology and technology research for the development and implementation of technological products for older persons (Bouma et al., 2007). While a lot of the studies within the gerontechnological research field have been exploring technology uptake, acceptance and adaption among older persons— a scarce but steadily growing number of studies from a wide-range of scientific disciplines is focusing on the influences of internet usage on mental health and wellbeing in particular. These studies have been using different methodologies and are conducted within different contexts. The studies that provide evidence of a connection between internet use and subjective wellbeing mirror the literature on subjective wellbeing overall in that they use many different but related terms and concepts that can be viewed as different subjective wellbeing dimensions (life satisfaction and happiness) and/or as protective factors (social connectedness and autonomy). Additionally, mental ill health and social risk factors, such as loneliness and isolation, have been studied to a wide extent in relation to internet use among older persons. Therefore, to provide a more detailed picture of the evidence currently available on subjective wellbeing and internet use in later life, these aspects are also included in the presentation of research-based evidence in this chapter.

### **Does internet use have a positive or negative impact on experiencing wellbeing in later life? Presenting inconsistent findings**

Previous studies based on national representative data from China (Lu & Kandilov, 2021) and Germany (Schlomann et al., 2020) present a positive association between subjective wellbeing related aspects and internet use in later life. The findings indicate that older persons with lower levels of subjective wellbeing benefit more from using internet-based programmes than older persons with higher levels of subjective wellbeing (Lu & Kandilov, 2021). Older adults who used the internet were also found to report lower levels of loneliness and anomie (disorientation) and higher levels of autonomy than older adults who did not use the internet (Schlomann et al., 2020). Lower levels of loneliness among internet users have also been reported in other studies. For instance, Cotton et al. (2013) found that, after controlling for several different factors, being online was associated with significantly lower loneliness scores. Additionally, feelings of social connectedness and the strengthening of social bonds and contacts have also been reported as results of internet use. The use of social media has been shown to provide feelings of social connectedness similar to those derived from traditional, offline, social contexts (Sinclair & Grieve 2016), and daily social network users report lower social isolation scores compared to less frequent users and non-users (Hajek & Köning, 2020). Additionally, more frequent Facebook users reported significantly higher levels of relatedness compared to less frequent Facebook users (Clark & Moloney, 2020).

The current literature also encompasses studies that have utilised and analysed longitudinal data, and the findings seem to indicate that internet use can positively influence subjective wellbeing. Lissitsa and Chachashvili-Bolotin (2016) found that internet use increased life satisfaction, after controlling for sociodemographic variables and health conditions, among older persons in Israel, using data covering a 10-year period. Moreover, Lam et al. (2020) explored the associations between internet use, life satisfaction and depression over a 4-year period and found a positive longitudinal effect on life satisfaction among older persons using the internet daily, compared to less frequent users, after adjusting for different factors. Using digital technology was also found to have positive effects in terms of decreased depressive symptoms (Forsman et al., 2017) and feelings of loneliness (Larsson et al., 2016) in studies designed as technology-based interventions. Additionally, having access to communication, information-seeking functions and games through a software program resulted in decreased loneliness and increased perceived social support after 6 months in a randomised controlled trial (Czaja et al., 2018). Even though the group differences were not maintained after 12 months, the group who used the software program still showed improvements over their baseline results (Czaja et al., 2018).

Thus, significant evidence exists of a positive association between subjective wellbeing (and related protective and risk factors), internet use and activities in later life. However, the reported effects are often small (Damant et al., 2016)

and the current evidence base also consists of studies indicating that internet use and related activities might have no or even negative influences on mental health and subjective wellbeing. For instance, Lam et al. (2020) found no effect of daily internet use on depression levels in a longitudinal study, and the findings of Choi and DiNitto (2013) indicated that there are higher levels of depression and anxiety among internet users than non-users in the USA. The findings of studies conducted in an Asian context similarly suggest that internet use seems to increase the incidence of depressive symptoms among older persons (Wu & Chiou, 2020; Xie et al., 2021). Depressive symptoms were also significantly associated with social media use among older Taiwanese adults (Wu & Chiou, 2020). However, there seem to be gender differences, as Xie et al. (2021) showed that Chinese women were more negatively influenced than men.

### **It might not be internet use per se: Exploring indirect influences, various online activities and dimensions of subjective wellbeing to understand the connection**

In their efforts to understand why the association between subjective wellbeing and internet use seems to vary, scholars have explored and suggested that the association can be moderated, mediated or influenced by other factors (van Ingen, et al., 2017). For instance, in a Hong Kong study based on telephone interviews (with participants aged 50 years and older), Fang et al. (2018) suggested that age moderated the association between internet use and subjective wellbeing, as a connection was only found among older persons aged 75+ years old. The connection was further found to be moderated by contact with family. Hence, the authors suggested that internet use could facilitate contact with family members and thereby enhance experiences of wellbeing among persons aged 75+ years old. Furthermore, having the opportunity to connect with family members enhanced social connectedness (meaningful social interaction) among the participants who had relatives living far away from them in a study evaluating a novel communication technology (Barbosa Neves et al., 2019). Thus, internet use might be indirectly associated with subjective wellbeing when it provides access and opportunity to connect with people important to the users.

In terms of loneliness, Nowland et al. (2018) suggested a bidirectional and dynamic relationship between social internet use and loneliness. They stated that when the internet is used to enhance existing relationships and form new social contacts, it can reduce loneliness and thereby have a positive influence on wellbeing. In contrast, it can also have the opposite effect and increase feelings of loneliness when digital tools replace offline social activities (Nowland et al., 2018). Furthermore, Clark et al. (2018) suggested that social networking sites can benefit their users when they are used for making meaningful social connections. Findings from qualitative studies also indicate that it might not be internet use per se that enhances wellbeing in later life. For instance, it has been found that maintaining contact with one's social network (Hill et al., 2015;

Khvorostianov et al., 2011) by using different types of digital tools and internet-based services can contribute to experiencing wellbeing in later life. This is especially so when digital tools make it possible to keep in contact with loved ones despite limited mobility and great geographical distance between the parties (Hill et al., 2015; Khvorostianov et al., 2011). An interview study conducted by Ten Bruggencate et al. (2019) further highlighted that social technology can strengthen existing social relationships and enrich social life by providing access to meaningful social interactions. However, experiences of social-based technologies restricting meaningful offline social interactions were also mentioned in that study. The study by Ten Bruggencate et al. (2019) raised another important issue: that social technology can play different roles in different older persons' everyday lives. The findings of other studies have also indicated that internet use might positively influence subjective wellbeing by promoting social and civic engagement. Szabo et al. (2019) tested the ways in which internet use can influence wellbeing (measured by aspects such as autonomy, control, self-realisation and pleasure) and found that social use predicted wellbeing over time by decreasing loneliness levels and increasing community engagement. Internet use increased engagement in volunteer activities, which was seen as having the potential to promote wellbeing (Szabo et al., 2019). Ihm and Hsieh (2015) and Matthews and Nazaroo (2016) found similar associations between older adults' internet use and their social engagement and participation. Older adults who used the internet as an instrument for gathering information attended more social gatherings offline, which in turn can influence social wellbeing (Ihm & Hsieh, 2015).

It has been argued that the connection between internet use and subjective wellbeing is dependent on how the internet is used (Sum et al., 2008), and therefore the connection between different internet activities and subjective wellbeing in later life has been analysed. Nordmyr and Forsman (2016) found a connection between online hobbies and entertainment and emotional aspects of subjective wellbeing. Lifshitz et al. (2018) connected leisure activities to life satisfaction and Gaia et al. (2021) connected the use of social networking sites to subjective wellbeing. Lam et al. (2020) found that using the internet for communication (email) was associated with higher life satisfaction, and informational use was associated with higher levels of depression. Gallistl and Nimrod (2020) found that different groups of internet users (with different patterns of online and offline activities) had different associations with subjective wellbeing (life satisfaction). For instance, more selective use was related to higher subjective wellbeing, according to the authors.

However, the findings of previous studies also indicate that examining subjective wellbeing and its different dimensions may be important for understanding the complex association between internet use and subjective wellbeing. Quintana et al. (2018) and Nordmyr and Forsman (2016) explored different dimensions of subjective wellbeing in relation to internet use. Quintana et al. (2018) suggested that internet use has a positive impact on evaluative and eudaimonic dimensions of subjective wellbeing in later life, while the connection

with hedonic dimensions seems to be more limited. Nordmyr and Forsman (2016) found a connection to the emotional aspects of subjective wellbeing, but not to the other dimensions under study (physical and social health).

Based on the current literature, it is not clear whether internet use has a positive or negative influence on subjective wellbeing in later life. The existing evidence indicates that there may be a complex link. In addition, the complexity and multidimensionality of the wellbeing concept challenges the exploration of its connection to and the effects of internet use. Moreover, the character of the connection may be dependent on how the internet is used and combined with other factors in the socio-environment (e.g. sociodemographic position and offline social activities and interactions), as well as on what subjective wellbeing dimension is under study and how subjective wellbeing is conceptualised and measured.



### **3. Health promotion targeting older persons in a digital everyday life: What, why and by whom?**

In this chapter, the focus will be on health promotion targeting older persons, which applies to different activities and services that are resource-oriented. To maintain and promote health in daily life is one of the corner stones of the primary social and health services, which are the first-contact care provided in a community setting. The everyday work life of practitioners' is also marked by digitalisation and the presence of digital technology as the adoption rates of digital solutions in primary care in Finland and Sweden are among the highest in Europe (Lupiáñez-Villanueva et al., 2018; Randall et al., 2020). Along with exploring the digital work environment of practitioners, this chapter will also pay attention to practices aiming to give older persons a voice in the design and development of new online services and digital tools.

#### **3.1 Health promotion: An interdisciplinary and practice-oriented field for improving and increasing control over health and its determinants**

Health promotion refers to a wide range of activities performed in different contexts and settings (Lucas & Lloyd, 2005) and on different levels. To date, the most prominent definition of health promotion is 'the process of enabling people to increase control over, and to improve their health' (WHO, 2021a, p. 4). It was formed in the Ottawa Charter (1986), which together with the Alma Ata conference in 1978, set the tone for modern health promotion work. The release of the Ottawa Charter signified a paradigm shift in public health as it outlined new directions for public health that differed from the earlier focus on disease prevention; instead, it emphasised capacity building for health (Mold & Berrigde, 2013). In the Ottawa Charter, health is framed as a resource for everyday life, and there is an emphasis on social and personal resources and physical capacities (Tilford, 2018). Mental health promotion can be considered a branch of general health promotion, and it is used as an umbrella term to cover a variety of strategies designed to promote mental health (WHO, 2001). As in general health promotion, the strategies include both the encouragement of individual resources and skills and improvements in the socio-economic environment (WHO, 2001), as well as work across sectors and settings (Rowling & Taylor, 2005).

The health promotion community has agreed upon a set of guiding principles for health promotion work. Health promotion initiatives should be empowering, participatory, holistic, intersectoral, equitable and sustainable

and apply a multi-strategy approach (Rootman et al., 2001). In the health promotion context, empowerment is a core concept and refers to the process in which persons gain greater control over decisions and actions that influence their health (WHO, 2021a). Individual empowerment refers to an individual's ability to make decisions and have control over their health, whereas community empowerment encompasses collective efforts to gain greater influence over the factors shaping the determinants of health. Thus, 'creating the conditions which offer better chance of there being a relationship between the efforts of individuals and groups and subsequent health outcomes' (WHO, 2021a, p. 14).

Interventions are an important aspect of public health work in general and can be performed in various contexts at a macro level (e.g. national initiatives), a meso level (e.g. in specific regions) and a micro level (e.g. tailored interventions that target individuals) (Forsman, 2014). Health promotion interventions are designed to enhance and/or maintain the health resources of individuals (Cattan & Tilford, 2006), whereas preventive interventions are designed to prevent ill health before it occurs (primary intervention) or at an early stage (secondary intervention) or to alleviate symptoms of ill health (tertiary intervention) (Forsman, 2014). However, health promotion activities and interventions can vary in terms of content, duration and mode of delivery (Zingmark et al., 2019).

In Finland, health promotion and prevention initiatives can be traced back to the public health legislation released in 1972 (Juntunen, 2017). In this new legislation that redesigned Finnish primary care, health centres were established to facilitate access to local and affordable healthcare. The health centres also integrated health promotion and prevention into practice (Juntunen, 2017), and since that time, health promotion has been recognised as an essential part of both social and health services.

## **3.2 Health promotion among older persons**

### **3.2.1 Healthy ageing: Contemporary policies and initiatives**

Successful ageing and active ageing are popular concepts in the promotion of older adults' health and wellbeing, and various theoretical models and policy documents have been generated about such concepts (Foster & Walker, 2015). Recently, international health promotion strategies that target older adults have been moving away from successful and active ageing, instead focusing on the concept of healthy ageing—the creation of environments and opportunities that enable people to live their life as they desire (WHO, 2021b). Healthy ageing is a process of 'developing and maintaining the functional ability that enables well-being in older age' (WHO, 2021b, p.2). 'Functional ability' refers to being able to meet one's basic needs, learn, grow and make decisions, be mobile, build and maintain relationships and contribute to society (Rudnicka et al., 2020).

To promote healthy ageing for all, the development of strategies for increasing person-centred approaches in primary health services, which are responsive to the needs of older persons, has been warranted along with multi-sectoral collaboration and meaningful engagement of older persons (WHO, 2021b). Meaningful engagement and empowerment of older persons are essential for the healthy ageing agenda.

Healthy ageing further recognises that the older population is diverse and therefore both universal and targeted approaches are required to meet the population's needs (WHO, 2021b). Moreover, ageing in place—the opportunity to live one's later life in one's own home and community—is also acknowledged as an important aspect of healthy ageing, and the potential for ageing in place has been boosted by the advent of technologies that support independent living (WHO, 2015).

### **3.2.2 Promoting active and healthy ageing in a Nordic context**

Promoting the health and wellbeing of older persons is high on the agenda of the ageing policies in the Nordic region as a result of the demographic trend of population ageing. The active ageing and healthy ageing concepts are being used in parallel and are central to the framing of the policies (Nordic Welfare Centre, 2022).

Health- and ageing-related initiatives are found at multiple levels: the national, regional and local levels. The overarching strategies are outlined at the national level by various authorities (THL, Folkhälsomyndigheten, Socialstyrelsen) and the national governments (Nordic Welfare Centre, 2020). Regional organisations (SKR in Sweden) coordinate actions that are carried out by a 'collaborative body of various operators' (p. 24), such as municipalities, organisations and companies (public, third and private sector) at the local level (Nordic Welfare Centre, 2020). In Finland, municipalities have the primary responsibility of arranging and offering health promotion activities and services. In Finland, the municipalities has the primary responsibility of arranging and offering health promotion activities and services to this date. The public sector collaborates with companies, non-profit organizations (third sector) and associations representing older persons in order support the older populations' wellbeing and health (Act on the Care Services for Older Person 980/2012, § 1, 4). However, recent reforms of the social and healthcare sector in Finland are leading to the integration of health and social services into larger 'wellbeing service counties'. These counties will be responsible for organising and providing both primary healthcare and social work services as well as specialised care in the future (Health and Social Service Reform, 2022). While the primary responsibility for health promotion will remain at the municipalities, the delivery of health promotion activities will be shared by operators in the future (Health and social service reform, 2022). The municipalities are obligated to have a plan for the measures they implement for supporting wellbeing among older persons (Act on the Care Services for

Older Person 980/2012, § 5) and are also required to organise counselling and guidance services that support wellbeing, health check-ups and receptions or home visits for senior citizens (Act on the Care Services for Older Person 980/2012, §12). Preventive services, such as physical exercise and recreational activities organised by day centres, are also a part of the services arranged by the Finnish municipalities for promoting wellbeing and preventing ill health in later life (Ministry of Social Affairs and Health, 2020c). Health promotion and prevention services for older persons are a part of the eldercare, which also encompasses services supporting persons with substantial care-needs. Eldercare include both social and health services targeting older persons.

In its report on healthy ageing promotion strategies in the Nordic region, the Nordic Welfare Centre (2020) identified four joint focal areas: fostering age-friendly cities and societies, creating more opportunities for safe and intergenerational living arrangements, combating loneliness and social isolation, and promoting active and healthy ageing with welfare technology. Most of the identified initiatives for promoting active and healthy ageing involved welfare technology (Nordic Welfare Centre, 2020). This focal area was perceived as highly topical and critical to creating both efficient health promotion work and tailored initiatives, as technology is expected to support independence and self-determination. Likewise, the role of technology in the implementation of sustainable ageing policies can also be seen within the Finnish programme on ageing. It outlines actions for the development and utilisation of Finnish technology for ageing, in addition to improving functional ability, extending working careers and enabling voluntary work, ensuring equal, efficient and economically sustainable services and creating more age-friendly housing options (Ministry of Social Affairs and Health, 2020b). The importance of enhancing the older person's role and voice in society is also stated in the Nordic policies; for instance, all Nordic countries have councils of older persons, which discuss and address questions and issues related to ageing and older persons (Nordic Welfare Centre, 2020).

### **3.3 Who are the health promotion practitioners? A multi-professional workforce working in a changing field**

Health promotion is a vital element of improving population health (Barry, 2019) and an important part of the work of various professions and volunteer groups (WHO, 1984) within the social and healthcare sector. Practitioners within primary health and social care in particular have an important role (WHO, 2021a; Teperi et al., 2009), as one of the aims of primary social and health services is to maintain and promote the health of individuals in their living environment (Health Care Act, 2010/1326, § 3). Partnerships and intersectoral collaboration are at the core of modern health promotion practice since the promotion of one's health, with all its complexities, requires expertise

from many scientific disciplines, community members and health and social care practitioners (Barry, 2019).

### **3.3.1 Digital technology: Increasingly important in the social and health services for older persons**

There is a constant demand for innovative and effective ways to deliver services that promote active and healthy ageing (Ministry of Social Affairs and Health, 2020b & 2020c), and technology is often suggested as an important tool for the delivery of such services. This is not only because of its potential in relation to older users, but also because it is a means for improving the work environment of healthcare and social care practitioners (Frennert, 2019; Kamp et al., 2019; Schulz et al., 2015). The Nordic countries are at the forefront of adopting digital solutions in social and health services, and the adoption rates of digital solutions in primary care in Finland and Sweden are among the highest in Europe (Lupiáñez-Villanueva et al., 2018; Randall et al., 2020). In recent years, practitioners working in home care have integrated many digital technologies and online services into their everyday practice, including different planning systems, electronic patient recording systems and video-conferencing tools (Rantala et al., 2021). Practice in the social and healthcare sector has been influenced by digitalisation via various digital and technological tools and internet-based services (Pekkarinen et al., 2019) and requires knowledge of digital technology and ethical issues to provide good care (Konttila et al., 2018).

In a cross-sectional study by Baudin, Gustafsson and Frennert (2020), elder care practitioners in Sweden were found to have overall positive attitudes towards new technologies. However, some scepticism towards more technology-based care also seems to be present among the current workforce. Studies have reported that practitioners are afraid that care will become more technology-based than human-based and that an increase in digital care will result in the loss of the human touch in care (Pekkarinen et al., 2019; Pekkarinen et al., 2020; Segercrantz & Forss, 2019). This fear seems to emerge especially in relation to elder care, where human-to-human interaction is considered essential by practitioners (Frennert & Baudin, 2019). Moreover, in Finland, discussions about the implementation of technologies, such as care robots, have often been accompanied by financial and economic rhetoric. There is a risk of social and health services becoming dehumanised when the focus seems to be on efficiency rather than human values, which in turn could amplify scepticism and fears (Pekkarinen et al., 2020). The implementation of technology into the existing constrained working reality, which is characterised by heavy workloads, has also been reported to lead to a feeling of being overwhelmed because learning new digital routines requires effort (Frennert, 2020). Moreover, the high turnover of healthcare personnel also complicates the commissioning of new technology, as knowledge might be lost with the rapid change of personnel (Frennert, 2020).

The potential positive outcomes of digitalised care are also recognised. Technology can contribute to sustaining the humanistic values associated with care if the division of work tasks between humans and the technology is done correctly (Pekkarinen, Melkas & Hyypiä, 2019). Human practitioners could focus on the tasks that require social and emotional skills, and the technology could perform the more technical, routine work (see Turja, et al., 2018; Pekkarinen et al., 2019). It has also been found that attitudes seem to become more positive when people become familiar with technology in general (Pekkarinen et al., 2020; Melkas et al., 2020) and when they recognise the positive influence it might have on clients (Melkas et al., 2020).

### **3.4 Participatory approaches: Means and measures for increasing the empowerment of users**

Participatory approaches, user involvement/participation, co-creation and patient and public involvement are all umbrella terms (Kujala, 2003; Brett et al., 2014; Stock et al., 2021) used to describe work approaches in which ‘users’ are active partners in discussions and decisions, sharing their unique expertise, knowledge and perspectives (Iwarsson & Jönson, 2021, p. 39, freely translated into English by the author). These umbrella terms, accompanied by many other concepts, are used in parallel and occur in the literature emanating from many different scientific disciplines. However, they may have slightly different meanings depending on the context in which they are used.

Within the context of ageing and health, different motives for utilising participatory approaches can be distinguished. The decision to apply a participatory approach can be motivated by values, such as an aim to democratise science and development, give a voice to marginalised groups and loosen hierarchy structures (Wanka & Urbaniak, 2022). In addition, motives for participatory approaches can be instrumental: a desire to improve services for older persons or to collect data from the everyday environment (Wanka & Urbaniak, 2022).

Engaging users in service design has long been a part of designing thinking in software development (Tokkonen, 2019). Hence, participatory approaches are embedded in technology and digital services design and development processes and are considered key for creating usable products (Kujala, 2003). In this context, participatory approaches are means and methods for directly involving and being in contact with different types of users (so-called end-users as well as other stakeholders) (Kujala, 2003). The innovation process is commonly divided into four stages: generating an idea, (re)designing and developing prototypes, testing of the prototype and dissemination of the innovation (Merkel & Kucharski, 2019). The degree of user participation in each stage can vary between different conceptualisations and methods. A ladder of citizen participation created by Arnstein in 1969 (Arnstein, 1969) has been further developed and used in studies on participatory approaches within

different fields and among various user groups to illustrate that participation can be achieved to different degrees and at different levels. Merkel and Kucharski (2018) described four levels of participation within gerontechnology, based on the work of Arnstein. The first level of participation is described as no participation at all; hence, grounding design choices on the literature and imaginary personas. A low level of participation involves conducting surveys and/or observational studies, whereas a medium level encompasses more active and direct user participation at single design stages, such as the evaluation. The highest level, full participation, involves users at all stages of the design process as equal partners (Merkel & Kucharski, 2018).

User-centred design (UCD) and participatory design (PD) are two examples of participatory approaches in technology design and development. UCD includes different methods for actively focusing on the users and their needs, wants and limitations in each of the stages in an iterative design process (Sebe, 2010). Methods commonly used within UCD for involving end-users are interviews, surveys, observational studies and usability testing (Hakobyan et al., 2015), and these methods can be applied at different stages of the design process. Usability testing invites the end-users to complete different tasks using the tested technology that is being tested, and a researcher or a developer evaluates the performance to identify usability issues (Franz & Neves, 2019). UCD is a form of user-driven development and technology improvement; however, it does not necessarily mean that the users are involved in all stages and in the decision-making process (Endtner, 2020; Kujala, 2003). Within the context of gerontechnology, PD has been defined as a research methodology for the design of technology that involves users in the research and design work together with stakeholder groups, such as designers and researchers (Merkel & Kucharski, 2019). In PD, user participation can also be achieved in various ways and at different levels (Bratteteig & Wagner, 2016). In contrast to UCD, users can be more involved in the decision-making process in PD than they are in UCD. Hence, PD tends to focus on user involvement in decision-making; thus, it provides users with opportunities to shape actions and choices within the design process (Bratteteig & Wagner, 2016).

### **3.4.1 Working with participatory approaches in gerontechnology**

The gerontechnology literature encompasses studies that have explored barriers and enablers for using participatory approaches with older persons in technology design and development and suggests best practice examples based on analyses of case studies. Early studies (Dickinson et al., 2007) involving older adults in technology design activities reported a wide range of barriers connected to health and functional ability, such as diminishing motoric skills, mobility issues and hearing and vision impairments. Health-related factors are thought to make the involvement of older persons more complex than working with younger age groups (Zajicek, 2004). Declining functional ability and health status were initially often seen as challenges in the design and

development process, since these issues were perceived to complicate the use and testing of technological products. Overall, test activities associated with UCD processes have been reported to be both cognitively demanding and emotionally stressful for test persons (Endtner, 2020), as well as time-consuming processes (Lindsey et al., 2012), which can challenge the participation of a person with a more limited health status. Hence, allowing flexibility regarding the time and duration of the project sessions is an important factor in older persons' participation (Dickinson et al., 2007; Johnson & Finn, 2017). The involved stakeholders should tailor the test activities to the participants and redesign the activities along with the process to successfully create participatory approaches (Hakobyan et al., 2015).

Communication between developers and older persons has been suggested as an additional challenge in participatory approaches. For instance, Lindsey et al. (2012) reported that the lack of technical vocabulary and challenges with communicating and illustrating one's ideas regarding technologies can result in older persons' ideas and recommendations not being considered in the design of technology, which in turn can result in diminished interest and enthusiasm regarding participation. Moreover, the language being used should also be considered, and the stakeholders should avoid using technical jargon and instead use language that reflects the participants' experiences and pre-understandings (Hakobyan et al., 2015). Additionally, being mindful of the diversity among older adults during the recruitment process and teaching the participants something new (e.g. offering additional lessons on technology use) have also been suggested as factors that can increase meaningful participation of older persons (Jarke, 2019; Johnson & Finn, 2017). A friendly atmosphere can also facilitate participation — especially when it is a new experience for the participants (Hakobyan et al., 2015).

Fisher, Peine and Östlund (2020) examined empirical studies that applied participatory approaches with older persons in the design of technologies and found three common outcomes: learning (the developers learnt more about the older persons and the older persons learnt more about the technology), adjusted design (digital technology was tailored to suit older persons' needs), and an increased sense of participation and belonging (the older persons enjoyed making a contribution and felt an increased sense of belonging to the tech-savvy generation).

In general, the importance of increasing the older person's role and influence in society, enhanced by active and healthy ageing policies, is also seen within a digital context (Endtner, 2020). Participatory approaches are becoming an essential component of research and development projects, not in the least because of the criteria set by funders (Jarke, 2019). They are a means for increasing the usability, quality and acceptance of technological products and hence diminishing the proposed gap that exists between digital technology and the actual needs and preferences of older persons (Fischer et al., 2020; Mannheim et al., 2019; Peine & Neven, 2019). Previous studies have found that not only do participatory approaches matter in terms of the products being



developed, but also that the act of participation itself matters in terms of the participants and aspects related to their wellbeing (Iwarsson et al., 2019; Jönson et al., 2021).

The digitalisation of society and of our everyday lives further contributes to the rationale of this thesis. Digitalisation with innovative services is often seen as one response to many of the challenges the modern welfare state is expected to face. The potential of technology in supporting active and healthy ageing and in improving the working environment of social and health service personnel is being recognised in global and Nordic policies. Today, many older persons are 'ageing online', and digital technologies and diverse online activities are part of their everyday lives. Therefore, the digital context should be included when studying the complex and multidimensional subjective wellbeing concept. Existing studies have shown that internet use might have both positive and negative influences on subjective wellbeing and related mental health aspects; thus, a more nuanced perspective is required to understand the connections. In contrast, there is also a need to move beyond describing the association between subjective well-being within research. More applied research is necessary to advance the field and to promote health and subjective wellbeing in the increasingly digital everyday life and work context. A multi-method approach is being applied within this thesis in an attempt to combine information about subjective well-being in a digital everyday life with practice-based knowledge on health promotion and participatory practice related to digital technology. This in order to gain a more comprehensive and multidimensional picture of the topics of interests.

## 4. Aim

The overarching aim of this thesis is twofold: to explore the multidimensionality of older persons' subjective wellbeing and to deepen the understanding of health promotion and participatory practice together with older persons in an increasingly digital everyday life. In other words, the first part of the thesis focuses on describing the multidimensional subjective wellbeing in a digital everyday life, while the second part is practice-oriented—focusing on the implementation of health promotion practices and participatory approaches related to digital technology. The research questions that have guided Study I-IV are described below and the specific study aims are displayed in Table 1.

- Are there differences in the distribution of subjective well-being among Nordic older internet users compared to non-users and users? (Study I and II)
- Are there differences in the distribution of various dimensions of subjective wellbeing among Nordic older internet users and the use of various internet-based activities? (Study I and II)
- According to multi-professional practitioners, what should contemporary health promotion targeting older persons entail? (Study III)
- According to multi-professional practitioners, what are the barriers and enablers for health promotion practice? (Study III)
- How do older persons experience their own participation in the design and development of an application targeting older persons? (Study IV)
- According to the older persons, what are the benefits and challenges related to participating in a participatory innovation project? (Study IV).

## 5. Pre-understanding

In both qualitative and quantitative research, study findings are the result of interpretations and choices made by researchers. A pre-understanding is a structure that is activated when we are making an observation and our mind connects the observation to something we have experienced before (Gadamer, cited by Nyström & Dahlberg, 2001). Heidegger thought that without pre-understandings we cannot understand the surrounding world or ourselves (Brinkkjaer & Höyen, 2020). Our understanding about the world is not only based on the information we collect about external stimuli via our senses; it is also knowledge-based. That is, we use our experiences, knowledge and expectations to understand the world (Chalmers, 2013). Thus, our knowledge and experiences—our pre-understandings—are reflected in our interpretations of the surrounding world.

A source of potential bias in the research presented in this thesis is the author's educational background and previous work experiences. The author's interests in psychosocial factors and wellbeing should be noted and are naturally a result of her formal educational background, namely, a bachelor's and a master's degree in social sciences (developmental). It is reasonable to conclude that the author's knowledge in this research field and the pre-understandings she gained during her years of academic studies have influenced and directed the thesis process towards seeking associations with subjective wellbeing. Furthermore, the author's former work experience in community-level health promotion targeting older adults might also have influenced the research. For instance, the author identified with many of the experiences shared by the practitioners in Study III. Also, stereotypical views of older persons could have been transferred to the results even though the author consciously made efforts to ensure that they did not influence the findings. However, it is possible that we are not consciously aware of all pre-understandings and that some might be more hidden than others, creating potential sources of bias.

## **6. Methodology and methods**

### **6.1 Theoretical perspectives on the methodological choices and the overall study design**

The metaparadigm of interest within nursing science is often summarised into four core concepts: person, environment, health and nursing (Fawcett, 1984; Fagerström, 2021), and our own mind is the starting point for exploring these concepts. This means that our understanding of the concepts of interests within nursing sciences is limited to our human existence and viewpoint. For instance, Nagel (1974) argued that we can gather a lot of information about bats, but we can never fully understand how it is to be a bat as our exploration of the world is always going to be from the perspective of a human being. Pragmatism refers to different theoretical perspectives that enhances action and the experiences role when collecting knowledge of the world surrounding us (Koshy et al., 2011). Experiences does not happen outside of life, rather within a life that already happens (Martela, 2019)—hence, pragmatism acknowledges the complexity of everyday life and that many factors interacts with each other and that the “reality” is not simple (Borglin, 2015). Pragmatism is a problem-oriented philosophy that focuses on finding the best research methods for investigating specific research questions and supports combining several methods to provide as comprehensive a picture of the studied phenomenon as possible (Creswell & Creswell, 2018).

In the search for different types of knowledge about the older person’s (person) subjective well-being (health), internet use (environment) and health promotion practice (nursing) a multi-method design was selected for this thesis. The use of a multi-method design is encouraged when studying the same phenomenon at different levels (e.g. at the micro and macro levels) or from different perspectives (Morse, 2003). Additionally, when exploring complex and multifaceted phenomena, such as the main concepts of interest in this thesis, the use of a multi-method design and an interdisciplinary approach are required (NIH Office of Behavioral and Social Sciences, 2018). In multi-method design, the separate study results form a comprehensive whole; however, the results are not integrated with each other. This separates multi-method designs from mixed-method designs in which different methods are used simultaneously— for meeting the same research aims from different perspectives, often within the frames of the same study. In a project with a multi-method design, each of the included studies must be methodologically rigorous and independent (Venkatesh et al., 2016).

Within this thesis, each of the sub-studies have been conducted separately with its own specific study aim. In order to meet the first overarching aim of the thesis, a quantitative study design was chosen as this type of studies are suggested to be suitable for exploring the contribution of differences in values

of the variables of interest to variance in other variables (Maxwell, 2010). Quantitative studies provide descriptive information and the opportunity to examine the relationships among variables and to generalise information to a population (NIH Office of Behavioral and Social Sciences, 2018). With the aim of moving beyond cross-sectional and more descriptive studies (see Borglin, 2015), a qualitative study approach was chosen for responding to the second overarching aim. Qualitative study approaches enable an exploration of the context, meaning and experiences of the participants — thus, they provide a more local analysis of individuals, events or settings (Maxwell, 2010) while emphasising the voice of the participants (NIH Office of Behavioral and Social Sciences, 2018).

## **6.2 The specific studies**

Four separate studies were conducted, and information about the four specific studies is summarised in Table 1 below.

The first two sub-studies are based on data derived from a population-based, cross-sectional, survey study targeting older adults in the Bothnia Region (Finland and Sweden) conducted within the GERDA project (Gerontological Regional Database). More information about the project can be found on the project web page<sup>1</sup>.

The third sub-study is based on a regional explorative focus group study (Co-Epic) in Östebotten (Finland) and Västra Götaland (Sweden) with the aim of hearing the health promotion practitioners' views, experiences and expectations related to their work in the changing landscape of social and health services targeting older people. The project was a collaboration between researchers at Health Sciences, Åbo Akademi University and at AgeCap (Centre for Ageing and Health, Institute of Neuroscience and Physiology) at Gothenburg University.

The last sub-study is a part of a Nordic innovation project called @geing Online, which aimed to design, develop and evaluate a tailored application for tablet computers to promote meaningful social activities among older persons in the Bothnia region (Finland and Sweden). The project involved different stakeholder groups and potential end-uses in the participatory innovation process, including older persons. A user-centered design approach was applied within the project, condensed into four steps: understanding the views and needs of older persons (focus group interviews), designing the application and the work approaches, developing the prototypes and feedback (usability testing, interviews, surveys). More information about the project can be found on the webpage of the INTEREG Botnia Atlantica programme<sup>2</sup>, in the manuscript related to Study IV as well as in a report (in Swedish)<sup>3</sup>.

**Table 1.** An overview of the sub-studies included in the thesis.

Study	Title	Aim	Data	Analysis
<b>I</b>	Nordic population-based study on internet use and perceived meaningfulness in later life: How they are linked and why it matters	To explore the association between internet use, the use of specific internet-based activities and perceiving life as meaningful among older adults in two regions in Finland and Sweden	Cross-sectional, survey study targeting older adults in the Bothnia Region (GEDRA). The survey was conducted in 2016 and in total N= 9386 participated and this study included N= 8758	Odds Ratios with 95 % confidence intervals were calculated while controlling for sociodemographic factors using binary logistic regression analyses.
<b>II</b>	Exploring the Nuanced Links Between Internet Use and Subjective Well-Being Among Older Adults: A Nordic Population-Based Study	To explore the various associations between subjective wellbeing (using three proxies: meaningfulness, happiness and life satisfaction) and internet use among older adults in two regions in Finland and Sweden	Cross-sectional, survey study targeting older adults in the Bothnia Region (GEDRA). The survey was conducted in 2016 and this study included N= 8758 (meaningfulness), N= 8382 (happiness), N= 8277 (life satisfaction)	Odds Ratios with 95 % confidence intervals were calculated while controlling for sociodemographic factors using binary logistic regression analyses.
<b>III</b>	Health Promotion Practice Among Older Persons: A Nordic Multi-Professional Focus Group Study Exploring what It Is and How It Could be Achieved	To explore a wide spectrum of practitioners' experiences of community-level health promotion targeting older persons in Finland and Sweden	Nine focus group interviews were conducted in 2019-2020 with 34 practitioners in Österbotten (Finland) and Västra Götaland (Sweden).	Qualitative content analysis exemplified by Kyngäs (2020).
<b>IV</b>	The perks and struggles of participatory approaches: Exploring older persons' experiences of participating in designing and developing an application	To explore older participants' experiences of participating in an innovation project, designing and developing an application for older persons	Individual semi-structured interviews with 38 community-dwelling older persons (Finland).	Thematic analysis by Braun and Clarke (2006).

1 <https://www.gerdacenter.com/home?setlang=13>,

2 <https://www.botnia-atlantica.eu/about-the-projects/project-database/geing-online>,

3 <https://kfvn.se/wpcontent/uploads/2022/05/ageing-online-digitala-tjanster-for-medingsfulla-sociala-aktiviteter.pdf>

## 6.3 Study participants

The four studies applied different strategies for recruiting the study participants. In Studies I, II and IV, the study participants were older persons. In Study III, the participants were practitioners involved in community-level health promotion work targeting older persons. All studies focus on older persons without substantial care needs.

### 6.3.1 Studies I and II

The Gerontological Regional Database and Resource Center (GERDA) project members carried out the data collection for the first two studies. To achieve a representative sample of the older population living in the Bothnia region, the survey was posted to all individuals aged 65, 70, 75, 80 and 85 years who were living in rural areas and to every second or third person living in urban areas (in total about 20 000 persons) based on population registers from the National Tax Board in Sweden and the Population Register Centre in Finland. Some of the characteristics of the respondents in Studies I and II are illustrated in Table 2, and more details are presented in the published articles related to the specific sub-studies.

**Table 2.** Information about the informants in Study I and II.

	<i>Not Internet users</i>	<i>Internet users</i>	<i>All</i>
	<i>% (N)</i>	<i>% (N)</i>	<i>% (N)</i>
<b>Gender</b>			
Men	<b>29.7</b> (1236)	<b>70.3</b> (2924)	<b>46.5</b> (4160)
Women	<b>36.3</b> (1739)	<b>63.7</b> (3047)	<b>53.5</b> (4786)
<b>Region</b>			
Sweden	<b>31.4</b> (1325)	<b>68.6</b> (2891)	<b>47.1</b> (4216)
Finland	<b>34.9</b> (1651)	<b>65.1</b> (3082)	<b>52.9</b> (4733)
<b>Age</b>			
65	<b>12.9</b> (348)	<b>87.1</b> (2351)	<b>30.2</b> (2699)
70	<b>23.6</b> (651)	<b>76.4</b> (2108)	<b>30.8</b> (2759)
75	<b>42.1</b> (673)	<b>57.9</b> (926)	<b>17.9</b> (1599)
80	<b>62.3</b> (746)	<b>37.7</b> (451)	<b>13.4</b> (1197)
85	<b>82.0</b> (553)	<b>18.0</b> (121)	<b>7.5</b> (674)
<b>Educational level</b>			
Low educational level (6 years or lower)	<b>52.2</b> (1568)	<b>47.8</b> (1568)	<b>36.9</b> (3277)
Middle (more than 6 years)	<b>28.2</b> (962)	<b>71.8</b> (2447)	<b>38.4</b> (3409)
High educational level (University exam or similar)	<b>12.1</b> (264)	<b>87.9</b> (1924)	<b>24.7</b> (2188)

	<i>Not Internet users</i>	<i>Internet users</i>	<i>All</i>
	<i>% (N)</i>	<i>% (N)</i>	<i>% (N)</i>
<b>Marital status</b>			
Living alone	49.5 (1159)	50.5 (1184)	26.3 (2343)
In a relationship	27.3 (1796)	72.7 (4773)	73.7 (6569)
<b>Income level</b>			
Low (0- 500, 501-1000 €)	52.7 (1145)	47.3 (1028)	25.1 (2173)
Middle (1001-1500 €)	34.0 (1370)	66.0 (2664)	46.6 (4034)
High (1501-2000, 2000- €)	12.7 (310)	87.3 (2136)	28.3 (2446)
<b>Self-rated health</b>			
Moderate/poor	49.3 (1555)	50.7 (1597)	35.5 (3152)
Good	28.9 (827)	71.1 (2038)	32.3 (3152)
Very good	19.4 (553)	80.6 (2299)	32.2 (2852)
<b>Subjective wellbeing</b>			
Life is meaningful	28.4 (2005)	71.6 (5048)	80.5 (7053)
Life is not meaningful	50.8 (866)	49.2 (839)	19.5 (1705)
Happy at the moment	29.5 (2054)	70.5 (4906)	77.8 (6960)
Not happy at the moment	44.4 (820)	55.6 (1026)	22.2 (1986)
Satisfied with life	31.8 (2609)	68.2 (5596)	94.5 (8205)
Not satisfied with life	41.7 (198)	58.3 (277)	5.5 (475)

### 6.3.2 Study III

Information about the study and an invitation to participate was distributed through email or phone via the heads of organisations that provide services and activities that aim to promote health and wellbeing among older persons in the study regions. Eligibility criteria for study participation included recognising oneself as working with community-level health promotion and with community-dwelling older adults, as well as working experience of at least one year. To ensure that diverse experiences were represented, practitioners from different municipalities, different types of organisations and with different professions and work descriptions were intentionally included. In total, 34 informants participated in the study in nine focus groups (range 4–6, mean 3.78). Of the 34 participants, 28 were women and 6 were men. Most of the informants worked within the public sector (70.6%), whereas about 30% represented the third sector. Of the work descriptions of the informants, coordinator of activities and services for older persons was the most common (23.5%), followed by physiotherapist (14.7%) and counsellor/consultant (14.7%).



### **6.3.3 Study IV**

In total, 38 older persons participated in semi-structured interviews during different phases of the design and development process in the @geing online project. Information about the study was distributed to the heads of organisations and associations providing services and activities for older persons in the study regions. Eligibility criteria were being community-dwelling and identifying oneself as a pensioner. Of the 38 participants, 24 were women and 14 were men. The mean age of the participants was 79.7 years (range 58–90 years). Half of the study participants (19) lived alone and the other half (19) were living with a partner. Four of them participated in two or more of the testing sessions arranged within the project, whereas most of them were involved in only one session. In terms of experience with using digital tools, 81% reported daily usage of a mobile phone (not necessarily a smart phone) and 42% reported daily use of a computer. A majority (65%) of the participants had never used a tablet computer before entering the project.

## **6.4 Data collection**

### **6.4.1 Cross-sectional population-based survey**

In Studies I and II, data were collected through a population-based, cross-sectional survey conducted in 2016 as a part of the GERDA project.

Compared to interviews, postal surveys can reach a higher number of participants, which enables the exploration of the prevalence and distribution of a phenomenon within a population. A cross-sectional design can be described as taking a picture at one point in time of a particular population (Mahadeva & Yadav, 2014). Utilising this type of study design allowed exploration of the distribution of subjective wellbeing and its different dimensions among older adults in the Bothnia region and exploration of the association between internet use and internet functions and other factors that may influence subjective wellbeing.

### **6.4.2 Focus group interviews**

In Study III, nine focus groups were conducted and the groups consisted of multi-professional practitioners working in health promotion among older persons. The focus group interviews took place in Ostrobothnia (Finland) and Västra Götaland (Sweden) during 2019 and 2020. The author of this thesis conducted seven out of nine of the focus group interviews.

Focus group interviews are widely used in various disciplines to collect data and can be defined as group discussions in which persons representing a target group reflect upon a topic (Dahlin Ivanoff & Hultberg, 2006). It is considered a suitable method when the purpose of the study is to explore and develop a deeper understanding of how people think or feel about a certain theme or phenomenon (Casey & Kreuger, 2009), as it can provide insight into the

situation of the targeted group (Dahlin Ivanoff & Hultberg, 2006). An interview guide for the focus group study was created jointly within the project team and touched upon themes such as everyday work and current and future health promotion practice.

In focus group interviews, the researcher encourages the participants to share their experiences and views of the topic and the predetermined questions. Thus, the researcher supports the discussion between the participants and aims to create a relaxed and friendly discussion climate in which opposing views and critical voices are allowed (Dahlin Ivanoff & Hultberg, 2006). Focus group interviews are more of a discussion than an interview, as the majority of the interactions are between the participants and not between the researchers and the participants. The data obtained from a focus group interview are the result of a group process and not the opinions of specific individuals (Casey & Kreuger, 2009), and the method, compared to individual interviews, enables the collection of broader data.

### **6.4.3 Semi-structured interviews**

The data presented and analysed in this thesis were collected from 34 semi-structured interviews conducted between 2017 and 2020. The interviews lasted from 30 to 60 minutes and were conducted after usability test sessions by one or two members of the project team. The project team members developed the interview guide jointly, and the questions were chosen to enable capturing of the participants' experiences, views, feelings and preferences related to the participatory process and the innovation project. The interviews were conducted at universities, activity centres for senior citizens and a hotel. The final five interviews were conducted via phone due to the COVID-19 pandemic restrictions. The author of this thesis conducted several of the interviews included in the sub-study IV.

Semi-structured interviews are used to gather systematic information about predefined topics and questions stipulated in an interview guide, and they also provide opportunities for exploring and developing new topics and issues raised by the informants (Wilson, 2014). Semi-structured interviews are an effective means for gathering data on users' attitudes, opinions, views and goals in the UCD process (Wilson, 2014).

## **6.5 Measurements**

### **6.5.1 Subjective wellbeing**

Study I focused on experiencing life as meaningful. The informants responded to the following single-item question in the survey: 'How meaningful do you experience your life at the moment?' The response alternatives were: 'Very meaningful', 'Pretty meaningful', 'Hard to tell', 'Relatively meaningless' and 'Very meaningless'. The measurement was dichotomised, and the two first

options were recoded as 'Meaningful' and the three latter options were recoded as the variable 'Not meaningful'.

In Study II, two other single-item questions were added to measure subjective wellbeing: 'How happy or unhappy do you feel at the moment?' (experienced happiness) and 'Are you satisfied with your life?' (life satisfaction, based on a question included in a shorter version of the Positive Life Orientation Scale). The happiness item was recoded and dichotomised in a similar way to that used for the experienced meaningfulness proxy in Study I (explained above). The life satisfaction question had only two answer options (yes and no) and was thus already dichotomised for the analysis.

### 6.5.2 Internet use and related activities, socio-environmental factors, background information and self-rated health

Internet use and related activities were measured in Studies I and II by a question with four response alternatives, which were recoded into three indicators: independent internet use, internet use with support and no internet use. Furthermore, an additional question about the participants' reasons for using the internet during the past month was included. The participants were able to choose from a list of seven internet activities and were able to suggest other activities that were not mentioned in the list through an open-ended option ('Other, what?'). The seven alternatives were recoded into four variables for the statistical analysis.

Other socio-environmental factors included in the analysis were study region, educational level, income level and marital status. The cut-off points for the recoding process were chosen in accordance with other scientific articles based on the GERDA study (e.g., Forsman et al., 2012). The variables for age, gender and study variables were kept in their original versions.

A variable measuring self-rated health was also included in the analysis. The health status variable was based on a single-item question that had answer options on a 5-point Likert scale that were recoded into containing three levels before the analysis. All of the variables are displayed in Table 3.

**Table 3.** Information about the variables used within Study I and II.

Variables	Response options	Recoded variables used in analysis
<b>Sociodemographic variables</b>		
Gender	Men , Women	*
Age	65, 70, 75, 80, 85	*
Study region	Finland, Sweden	*
Marital status	Unmarried	Single
	Divorced	
	Widow/Widower	In a relationship

Variables	Response options	Recoded variables used in analysis
	In a relationship Living with a partner Married	
Educational level	Less than 6 years of elementary school Elementary school Girls school Folk high school	Low
	Occupational school Upper secondary school	Middle
	University degree	High
Income level	0-5000 SEK/ 0-500 € 5001-10 000/ 501-1000	Low
"Your monthly income after taxes?"	10 001-15 000/ 1001-1500 15 001-20 000/ 1501-2000	Middle
	More than 20 000/ 2000	High
<b>Self-rated health</b>		
"In general, how would you described your health?"	Bad Fair	Fair/bad
	Good	Good
	Very good Excellent	Very good
<b>Internet use</b>		
"Are you using the Internet (via computer, tablet computer, smart phone or similar devices)?"	No, someone else is managing my errands on the internet for me No, I do not use the internet	Not internet users
	Yes, independently Yes, with support from others	Internet users Internet users with support
<b>Internet-based activities</b>		
	Utilities <sup>1</sup> Work or studies	Instrumental use
"Have you been using internet for the following purposes	News updates or information gathering <sup>2</sup>	Informational use
	Hobbies/entertainment <sup>3</sup>	Hobbies/Entertainment

Variables	Response options	Recoded variables used in analysis
during the last month?"	Communication with relatives and/or friends <sup>4</sup>	Social networking and support
Multiple answers are allowed.	Communication to create new contact <sup>5</sup>	
	Support groups	
	Else, what? <sup>6</sup>	Other functions

\*The original variables were used in the analysis

<sup>1</sup> bank, travel arrangements, social security

<sup>2</sup> newspapers, news forums

<sup>3</sup> music, movies, games, forums connected to interests

<sup>4</sup> email, Skype, Facebook, social networks

<sup>5</sup> Facebook, forums, online dating

<sup>6</sup> blog, sports, games, church services

### 6.5.3 Health promotion practice among older persons

Study III focused on practitioners' perspectives and views on the ideal health promotion practice targeting older persons and their experiences of barriers to and facilitators of current practice. The results also contained the background information of the practitioners in terms of their gender, study region, work description and work sector (public or third sector).

### 6.5.4 Experiences from being involved in an innovation project

Study IV focused on older participants' experiences of participating in an innovation project, co-creating an application targeting older persons. Specifically, the experiences related to the participatory approaches were the focal point, paying attention to motivators, benefits and challenges for participation. In addition to the subjective experiences, the background information of the participants was collected and reported, including gender, age, study region, living arrangement and information on computer, smartphone and tablet use.

## 6.6 Data analysis

Different data analysis methods were used within the different sub-studies, in addition to basic descriptive statistical analysis. In Studies I and II, logistic regression analyses were conducted. In Study III, a qualitative content analysis was applied, and in Study IV, thematic analysis was performed.

### 6.6.1 Logistic regression analysis

Logistic regression is one of many methods used for analysing the relationships between qualitative variables in statistical analysis. The aim of conducting a

logistic regression analysis is to find a model that best fits the data and that can describe the relationship between the variables (Pampel, 2000). A logistic regression model is distinguished from a linear regression model by the fact that the outcome variable is dichotomous (dummy variables) and that the connection does not need to be linear (Pampel, 2000). To explore the relationship, the variables need to be transformed into logits, which begins with calculating odds. These odds express the likelihood of an occurrence relative to the likelihood of a non-occurrence. Logistic regression analysis is a good method of choice when the aim is to explore the relationship between categorical variables that have a multidimensional character, as the method provides the opportunity to test different models consisting of different variable sets. It also allows control of the dependent variable and independent variables for sociodemographic variables. (Pampel, 2000).

In Study I, the association between experienced meaningfulness in life and internet use and related activities was explored by calculating odds ratios (OR) with 95% confidence intervals (CI) using a stepwise binary regression analysis. Likewise, in Study II, the association between the different subjective wellbeing dimensions and internet use and related activities was explored by calculating OR with 95% CI using a stepwise binary regression analysis. Furthermore, the goodness of fit of the logistic regression models was tested using the Hosmer–Lemeshow test (Hosmer & Lemeshow, 2013) and Nagelkerke’s R-squared (Field, 2013). The author of this thesis conducted the statistical analyses with the support of the co-authors/supervisors.

## **6.6.2 Qualitative content analysis**

Inductive qualitative content analysis, described and exemplified by Kyngäs (2020), was used as a guide for the exploratory analysis of the focus group data of Study III. Content analysis is a data interpretation method that is used when the intention is to generate knowledge and new insights (Elo & Kyngäs, 2008). It is a method for analysing qualitative data that has been applied within many disciplines and by Kyngäs et al. (2020) within nursing sciences. The method is generally used for describing human experiences and perspectives in the context of a daily life setting (Kyngäs, 2020). There are no rules and predetermined formats for how to conduct an inductive content analysis and how to interpret the data. The researcher forms and organises categories, concepts and themes by carefully comparing similarities and differences between the coded data. By systematically decomposing the data into codes, units and categories, a broad description of a phenomenon can be produced.

The first step of the data analysis involved listening to the recorded interviews and reading the transcripts several times. Thereafter, codes were created by writing down sentences that described the content of the transcripts; hence, the data was reduced. Next, the codes were compared to each other and then grouped based on similarities and differences, resulting in sub-categories. The sub-categories were subsequently reorganised and formed into groups

based on similar content, creating the categories of perceived barriers and facilitators. The overarching themes were recognised as topics that recurred throughout the transcripts. The analytical steps were performed several times until the authors agreed upon the structure. The author of this thesis conducted the data analysis and the results and structure were reviewed by the other co-authors.

### **6.6.3 Thematic analysis**

Thematic analysis, described and exemplified by Braun and Clarke (2006), guided the data analysis in Study IV. Thematic analysis has been described as a flexible and useful tool for identifying, analysing and reporting patterns within data (Braun & Clarke, 2006). Both inductive (bottom-up) approaches and deductive (top-down) approaches can be used in thematic analysis. In this case, an inductive exploratory approach was used to analyse the data. In contrast to other qualitative data analysis methods, the thematic approach of Braun and Clarke is described as requiring active work by the researcher; in other words, the work is done over several steps. The themes are actively formed and generated by the researchers conducting the analysis; they are not just messages that come to the researcher. Braun and Clarke (2006) wanted to support researchers by forming guidelines and vocabulary that could be used to describe how an analysis was conducted. A key advantage of thematic analysis is that there is easy-to-follow literature, and this is also why the method was found to be interesting in the first place. By applying a systematic course of action and describing the steps taken, the methodological rigour of a thematic data analysis can be enhanced (Braun & Clarke, 2006).

Thematic analysis involves six steps; however, there is constant movement between the different steps. For instance, writing up the results is a part of the analysis and a constant companion of the process, not just an activity undertaken at the end. The first step is to become familiar with the data; in this case, this was done first when transcribing the interviews and later when the data set was read through several times. Based on the notes made about the data set and what it contains, codes are constructed. The raw data was processed by making notes about the text using Microsoft Word. The list of codes became the basis for finding patterns among the codes by grouping them together into overarching themes. Many different arrangements of the codes were assessed. Potential sub-themes, themes and overarching themes were then suggested. The first author conducted the first steps of the analysis and the drafts of the codes, sub-themes and themes were critically reviewed by the other authors. Several revisions were made to the initial draft, and when the authors agreed upon a structure, the names of the themes were defined and redefined. The last step involves writing up the results, and this was started when the suggested themes were being reviewed and completed when the manuscript was being prepared. The author of this thesis conducted the data analysis and the results and structure were reviewed by the other co-authors.

## 7. Ethical considerations

Research needs to be conducted responsibly and ethically to be reliable and credible. The principles that are endorsed by the research community, which are integrity, meticulousness and accuracy in conducting, recording, presenting and evaluating research, must be followed. The responsible conduct of research and ethical considerations apply to all phases of a study, ranging from data collection to reporting and presenting data as well as interacting with study participants. The Finnish Advisory Board on Research Integrity's (2019) ethical principles of research with human participants and within the human sciences must be considered by all researchers operating in Finland.

Ethical considerations start when a study is being planned and designed. For a study to be ethically sufficient, methodological choices must be made in accordance with the research questions, and the methods must be carried out ethically and rigorously (Finnish National Board on Research Integrity TENK, 2019). For instance, when conducting interviews and surveys, it is important to ensure that the questions being asked are presented in a way that makes them comprehensible for the informants and respondents. It is also important that questions are posed in a way that allows informants and respondents to perceive that their expertise is being requested and that they are actively involved, are encouraged and have space to share their experiences and views. The latter applies especially to qualitative studies, as the opportunities to share thoughts are often more limited in survey-based studies.

A fundamental principle of all research that involves the participation of people is that participation is optional throughout the process. Thus, the participants themselves decide whether they are interested in participating or not after receiving information about the research and specific studies (informed consent), and they can withdraw their participation at any given time during the study (Finnish National Board on Research Integrity TENK, 2019). In all the studies linked to this thesis, informed consent was obtained from all of the persons participating after they received information about the study (including the aims and research procedure). In all of the studies, written informed consent was obtained, except for the last interviews in Study IV. Due to the COVID-19 pandemic restrictions, phone interviews were conducted, and the participants gave verbal informed consent regarding their participation. However, in participatory approaches, informed consent can be challenged, as the whole research project cannot be planned in detail in advance and complete information about how the studies will be performed cannot be shared with the participants at the beginning (Berge et al., 2020; Waycott & Vines 2019;). Means for handling the dilemmas relate to informed consent were taken as informed consent and information about the project and the research activities were given before each and every activity in Study IV. Hence, some of the participants who participated in more than one interview session gave informed consent several times.



Another important aspect of ethical research that must be taken into consideration is data storage. The researcher is responsible for storing the data, and the participants' privacy should be protected during all stages of the study, including in publications and the drafting of manuscripts. In all of the studies included in this thesis, the participants' personal information (name, phone numbers, address) was removed and kept separate from the data. Together with the interview recordings, the personal data were stored in the author's own space on the university's server, which is personal and only accessible with the author's username and password; it is also protected by the university. The published articles and the included manuscript do not contain any information that a reader could use to identify any of the persons who participated in the studies. However, confidentiality and anonymity are easier to protect in more 'traditional' data collections, such as those of Studies I and II, where the sample was large and population-based. It is impossible to distinguish individual answers in larger population-based studies; however, in focus group interviews as well as in participatory innovation projects, keeping personal information, such as name, profession and workplace, anonymous from other participants is difficult. Because the topics and themes related to the focus group interviews and the innovation project are considered non-sensitive in nature (e.g. everyday work and experiences related to participating in an innovation project), the risks of participating in the studies are considered low. Furthermore, the discussions during the interviews were driven by the participants themselves, and they could thereby avoid speaking about sensitive subjects and sharing personal information if they so wished.

In accordance with best practice, measures must also be taken to avoid any kind of misconduct (e.g. fabrication, falsification and plagiarism). Allowing peer review of a study or thesis is a step that can be taken to detect any kind of misconduct. Carefully describing the data and the analysis (tables and quotations) can also help to create transparency. The importance of communicating the results in an open and responsible way is also stipulated in the Finnish National Board on Research Integrity TENK (2019) guidelines. Furthermore, respecting the work of other scholars by citing their publications appropriately is an example of responsible research communication. When communicating research, agreements and principles regarding authorship must be discussed and followed. Åbo Akademi University's recommendations for authorship have been followed, which require substantial contributions from all authors during the drafting of articles. Additionally, potential conflicts of interest need to be declared and financial sources reported. A declaration of no conflicts of interest and of the financial support received for this thesis have been provided separately in the included published articles and manuscript related to the sub-studies.

Furthermore, for the studies included in this thesis, an ethical review was conducted for Studies I, II and IV, as they are part of larger research projects. However, according to Finnish legislation, an ethical review is only necessary when the research contains dilemmas related to the participants being

underage, when the research deviates from the principle of informed consent or when the research can threaten the integrity and health of the participants or persons in their immediate surroundings. Therefore, an ethical review was not required for Study III.

## **8. Results**

The first chapter presents the findings from Studies I and II, the second chapter presents the findings from Study III and the third chapter presents the findings from Study IV.

### **8.1 Findings regarding internet use and subjective wellbeing in later life: Are they linked and how?**

The first part presents the findings on the distribution of the multidimensional subjective wellbeing among older persons in the Bothnia region. The findings contribute to the overarching aim of the thesis by providing information on subjective wellbeing and internet usage among older adults in the Bothnia region and particularly on the differences in the various dimensions of subjective wellbeing between internet users and non-users and users of different internet activities.

#### **8.1.1 The subjective wellbeing of older persons in the Bothnia region**

Subjective wellbeing was the dependent outcome variable in both of the quantitative studies. Overall, high levels of subjective wellbeing were found among the older persons, with 80.1% reporting experiencing their life as meaningful, 78.7% feeling happy at the moment and 94.6% being satisfied with their lives. However, the results from the Pearson's  $\chi^2$  tests indicated variance in subjective wellbeing. Significant between-group differences were found for variables measuring individual characteristics, socio-environmental factors and health status. To summarise, subjective wellbeing seems to be higher among older persons who have a high income level, have very good self-rated health and are in a relationship. For instance, 35.4% of the older persons who rated their health status as poor or moderate did not experience their life as meaningful. The analysis also indicated that a larger share of the younger age groups perceived their life as meaningful and were happy than among the older age groups (87.6% of 65-year-olds and 57% of 85-year-olds perceived life as meaningful, and 84% of 65-year-olds and 62.1% of 85-year-olds reported experiencing happiness). No significant between-group differences were found for life satisfaction among the age groups. Thus, some variance was observed between the different subjective wellbeing proxies used in terms of individual characteristics and socio-environmental factors.

### **8.1.2 The association between subjective wellbeing and the use of the internet and related activities**

The results from Study I showed that there are significant differences between internet users and non-users when it comes to experiencing life as meaningful. Of the internet users, more than 85% experienced their life as meaningful, in contrast to among 70% of the non-users. Moreover, all of the included internet functions showed statistically significant differences in experienced meaningfulness. More than 80% of the older persons using the internet for any of the listed internet functions experienced their life as meaningful. The regression analysis results indicated that older persons who were using the internet independently and with support from another person had more than two times higher odds for perceiving their life as meaningful (OR: 2.083 and 2.674, respectively) compared to non-users. The associations between these two variables measuring internet use and perceived meaningfulness were statistically significant (95% CI: 1.667–2.603 and 2.392–2.990, respectively) and remained significant after a set of sociodemographic variables and self-rated health status were added to the analysis. Furthermore, all of the studied internet activities were found to have statistically significant associations with perceived meaningfulness and increased the odds for perceived meaningfulness, compared to not engaging in the activity being measured. However, only internet activities related to leisure/entertainment showed statistical significance (OR: 1.192, 95% CI: 1.015–1.401; the OR was close to significant for social network and support at OR: 1.173, 95% CI: 0.996–1.383) when the analysis controlled for a set of sociodemographic variables and self-rated health status. The results from the different regression models showed that several more of the added variables had significant associations with perceived meaningfulness, namely gender, some of the age groups, marital status, income level and self-rated health status.

In Study II, the same variables were used as in Study I; however, in addition to perceived meaningfulness, two more proxies for subjective wellbeing were included as outcome variables. Given that the results for perceived meaningfulness were very similar to those of Study I, only the results for perceived happiness, life satisfaction and internet use are presented herewith.

With regard to perceived happiness, both independent internet use and internet use with support increased the odds for being happy (OR: 1.996 and OR: 1.366, respectively) in contrast to the non-users, and the associations were statistically significant (95% CI: 1.791–2.225 and 1.114–1.675, respectively). Moreover, among the studied internet activities, all of the included variables increased the odds and displayed statistically significant associations, except for 'Other' activities. However, in the adjusted model (in which a set of socio-environmental factors and health status were added to the analysis, as in Study I), none of the variables measuring internet use were found to have statistically significant ORs. For some of the variables, the odds for perceived happiness

among internet users with support, instrumental users and users of other activities decreased; however, they were not statistically significant. In contrast, internet-based activities related to leisure/entertainment also showed statistical significance in relation to perceived happiness in the adjusted regression model (OR: 1.171, 95% CI: 1.007–1.361).

For the association between internet use, internet-related activities and perceived life satisfaction, only independent internet use (OR: 1.586, 95% CI: 1.306–1.926) and informational use (OR: 1.514, 95% CI: 1.160–1.975) showed statistical significance in the first model. However, no such associations were found in the adjusted model.

## **8.2 Experiences related to the implementation of health promotion practices in an increasingly digital work environment**

The second set of findings focuses on health promotion practices that target older persons in Finland and Sweden. The findings (Study III) highlight the practitioners' perspectives on the important elements of health promotion practice as well as their experiences of facilitators of and barriers to ideal practice. Moreover, older person's experiences in participating in an innovation project co-designing and developing an application are also presented, with attention to the motives, challenges and enablers for their participation from their perspective.

### **8.2.1 Health promotion among older persons in the 21st century**

The content analysis generated a description of the older population as a heterogeneous group consisting of older persons with individual needs and preferences. 'Seeing the persons' was mentioned as the ideal approach to adopt for health promotion practice. Thus, it was considered highly important that practitioners can respond to the needs of older persons and that older persons' needs and preferences be the starting point for their work.

### **8.2.2 Perceived barriers to ideal health promotion practice**

Two main types of barriers were discussed among the practitioners in the focus group interviews: limits and borders of the workplace and limits and borders of the practitioner's role. The barriers were perceived as hindering the practitioners' ability to consider older persons' individual needs and preferences and tailor activities and services according to these. Examples of the mentioned barriers related to the workplace included the strict organisational structures and guidelines and inflexible working routines, which did not allow for adopting the services and activities after the situation and fluctuating interest and needs among older persons. The practitioners also described a discrepancy between older persons' actual needs and the

guidelines being established within the organisation, and an example of such a discrepancy was the increased digitalisation of services. According to the practitioners, the decisions made about expanding the online services were not anchored in the needs, preferences and competencies of the target group. The practitioners also perceived that the increasing digital work routines, such as documentation, changed the notion of everyday work—sometimes far from the desired and expected practice. The increased use of digital tools was perceived as resource-intensive, taking focus and time from the encounters they have with the older persons.

The limits and borders of the practitioner role were connected to the informants' pre-understandings and ethical competence and how these hindered the practitioners from being able to see the older persons. Education, personal and professional experiences formed the lens through which practitioners saw the older persons' situation, and letting go of that lens is more easily said than done. Supporting the older persons' viewpoints on and preferences for health and wellbeing was sometimes perceived as complicated. The practitioners shared that they were sometimes overprotective of older clients and that this action could hinder tailored health promotion activities.

### **8.2.3 Perceived facilitators for ideal health promotion practice**

In addition to the practitioners' commenting on how their everyday practice was impaired by obstacles, they also shared their views on how older persons' personal needs and preferences could be more prominent in current and future health promotion practice.

Digital technology was identified as a double-edged sword. On the one hand, the practitioners described work routines related to technology usage as a barrier, and on the other hand, they saw it as a potential facilitator. The practitioners recognised that technology could be utilised to perform some of the technical or routine work tasks, such as dispensing medicines, to a larger extent. In this scenario, the use of technology could provide practitioners with more time to see older persons and their needs. Furthermore, digital technology could also be beneficial for older clients, as they could take part in a greater range of activities. When online services and activities are available and accessible nationally, and also internationally, it is not necessary to fit all the older persons in a municipality into one or a few local health promotion initiatives.

Moreover, user involvement and more user-driven health promotion initiatives were seen by the practitioners as potential means for facilitating ideal health promotion practices. By increasing the role of older persons and encouraging them to take an active part in initiatives, the informants perceived that their own pre-understandings could be challenged and diminished. The practitioners suggested various tangible ways to involve older persons and gather their views and experiences (e.g. evaluation questionnaires, reference groups and advisory boards). From the analysis, it also emerged that the practitioners perceived that the role of older persons in health promotion initiatives would be larger in the future. Digital technologies could be platforms

for encouraging older persons to mobilise and develop their own health promotion initiatives in the future as well as create new housing designs.

### **8.3 Participatory approaches in gerontechnology: The experiences of participation from the older participants' perspective**

From the thematic analysis results in Study IV, it appears that participating in an innovation project, which involves designing and developing an application with a participatory approach, is an uncertain process that evokes various feelings among older participants.

To influence the development of society and to facilitate the everyday life of older persons were strong motivators for participating in the project and elements, which contributed to the participation being an uplifting experience for the older participants. Developing and designing an application for older persons was seen as requiring the perspective of an older person, and it was perceived as important that older persons participate. Similarly, contributing to research was perceived as important and meaningful, as it perhaps could improve and facilitate the everyday life of other older persons in the long term. Contributing and including older persons' voices were such strong drivers for participation that some chose to participate even though they were not interested in tablet computers and applications.

Moreover, some of the older participants were curious about technologies, such as tablet computers, and saw participating in an innovation project as an opportunity to learn more and new things. Participation was also seen as a way to challenge oneself—to test one's abilities and vitality. Some of the older participants changed their views of technology, reporting that the technology was much easier to use than they had expected. The participants also reconsidered their own views of themselves as technology users, as they were more capable than they had expected, which resulted in increased interest in tablet computers. Nevertheless, feelings related to disappointment—related to not living up to expectations were also observed. The participants experienced feeling disappointment in relation to themselves as technology users, as participants, as co-designers and in terms of the project activities.

The innovation project extended over a period of three years. With such a long project period, change that impacts both the participants and society is inevitable. It is also difficult to foresee and take into account all potential changes beforehand. From the narratives, it appeared that the older participants' needs and interests changed during the project period. For instance, fluctuating health statuses, needs and interests changed their view of participation. The COVID-19 pandemic arose at the end of the project period and also challenged the older persons' participation in the project. However, flexibility and participation on one's own terms were seen as enablers of participating in processes that extend over long periods.

The findings from Studies III and IV contribute to the overarching aim of the thesis by providing information on the implementation of practice related to health promotion and participatory approaches in an increasingly digital everyday life.



## 9. Discussion

The results of the sub-studies within this thesis emphasize the complexity of the association between subjective well-being and internet use in later life. Further, the opportunities and challenges associated with implementing ideal health promotion practices in an increasingly digital work environment, as well as with participatory approaches in technology design among older persons are highlighted. The scope and findings of this thesis will in this chapter be discussed in relation to previous research studies and policy documents.

### 9.1 Subjective wellbeing and health promotion: Why are they important?

It has been argued that the subjective wellbeing of people will not be increased only by reducing and treating mental ill health as they are two separate, yet related, concepts (Keyes, 2003). Therefore, initiatives that focus on the promotion of mental wellbeing are needed and are equally important from a public health perspective. It is also worth noting that even though the WHO (2001, p. 1) defines mental health in terms of wellbeing and a resource for leading life, the term 'mental health' is more often used in reference to mental ill health than to the positive aspects of mental health (Barry, 2019).

Similar tendencies to focus on pathologies and risk factors rather than on salutogenesis and protective factors can also be observed within the broader fields of ageing and health. A glance at the abstracts included in the June 2022 Nordic Congress of Gerontology held in Odense shows that about 270 of the approximately 400 oral and poster presentations focused on diseases and health problems (e.g. dementia, cancer, diabetes, hip fractures, depression and anxiety), risk factors (e.g. alcohol usage, falling, loneliness, social exclusion and isolation) or on care and/or rehabilitation. Hence, about 30% of the reviewed abstracts were considered by the author to focus on health, wellbeing and the promotion of these protective factors.

Practitioners also report experiencing resistance to health promotion. In a focus group study by Tamminen et al. (2019), Finnish professionals reported that mental health promotion often needed to be marketed and sold to be considered within health services, especially in disease-oriented settings and practices. Skills related to advocacy and marketing were therefore seen as important for practitioners so that they could communicate the benefits of mental health promotion to receive resources for such practice (Tamminen et al., 2019). Previous studies have also highlighted that nurses perceive the lack of resources and time as hindrances to incorporating health promotion activities into their clinical work (Kemppaninen et al., 2012). In line with these findings, practitioners working within home care services perceived health promotion as difficult to integrate into their working routines as they

experienced that other tasks were prioritised, such as solving acute problems and emergencies (Karlsson et al., 2020). Overall, the Nordic countries spent around 0.3% of the total GDP on preventive health services in 2017, whereas 9.8% of the GDP was allocated to care (Copenhagen Institute for Future Studies, 2019).

Nevertheless, when looking at the research and policies that do focus on health promotion, subjective wellbeing and aspects related to a good life seem to have gained less attention than physical health and functional ability. For instance, healthy ageing is defined as a process of ‘developing and maintaining the functional ability that enables wellbeing in older age’ (WHO, 2021b). When looking at scales and measurements (e.g. Goncalves et al., 2017; Sanchez-Niubo et al., 2021), aspects related to mobility, activities of daily living, cognitive dysfunction and mental health problems are central. It has been suggested that discussion of functional and dysfunctional older persons has replaced discussion of salutogenesis and pathogenesis in an ageing and health context (Marshall & Katz, 2016; Wanka & Gallistl, 2018). Thus, subjective wellbeing and aspects related to a good life seem to have less attention within health promotion policies. Similar patterns that emphasise functional ability are also observed in gerontechnology. Many technologies for older persons have been developed with the aim of supporting functional health and safety and ageing in place (e.g. sensor-based networks for activity monitoring, fall and wandering detectors and various e-health applications) (Peek et al. 2014; Schulz et al., 2015) or for use within care contexts (Mannheim et al. 2019). Fewer technologies have been developed with the aim of promoting enjoyable and empowering activities, even though there is evidence that older persons also want to use digital technology for purposes other than health-related functions (Astell, 2013).

This situation then leads to the question of: Why has subjective wellbeing received less attention than mental health problems, physical health and functional ability? Perhaps the complex and multifaceted nature of subjective wellbeing discourages some researchers. The literature presents many different terms and conceptualisations, and the question of whether it is even reasonable to measure such a highly subjective and somewhat fuzzy phenomenon in a reliable manner has been raised (Larsen & Eid, 2008). Brülde (2003) approached the question of whether life quality, which can be seen as being related to subjective wellbeing, can be measured and asked if it is possible to rate a person’s life at different times on the same scale and whether different people’s life quality can be compared using the same scale. While Brülde seems to have reached the conclusion that it depends on how life quality is conceptualised and defined, the prevailing perspective seems to be that subjective wellbeing and related concepts can be measured. Many scholars from various scientific fields are studying subjective wellbeing and related concepts using many different scales, measurements and proxies related to self-reporting (Alexandrova, 2015).

While the strengths and limitations of the proxies and measurements used in the studies included in this thesis are discussed in the methodological considerations section, the general challenges associated with measuring subjective wellbeing with self-reports are raised here. The proxies used in Studies I and II touch upon three concepts: happiness, life satisfaction and meaningfulness. They can all be argued to be somewhat vague, ambiguous and multifaceted concepts, and therefore the risk exists that they may be interpreted as measuring the same factor (Brülde & Fors, 2014). The nuances between the concepts can be particularly difficult to capture in a survey, where there is limited space to evolve the reasoning around the concepts. Moreover, the cultural context, norms and linguistic and semantic factors also seem to matter when it comes to our understanding of the concepts and terms related to subjective wellbeing. For instance, in a study that involved university students in Denmark, the Danish word for happiness was found to refer to a stronger emotion than the English word (Lolle & Andersen, 2016). In a study by Carlquist et al. (2017), satisfaction was considered to be more closely associated with the hedonic dimensions of subjective wellbeing than happiness in a Norwegian context. Consequently, a challenge in studying subjective wellbeing is that one cannot be sure that there is a consensus—a common understanding—about what has been measured.

Despite the fact that subjective wellbeing can be highly personal, the question of what constitutes wellbeing and characterises a good life has been engaging scholars from a wide range of disciplines, and has resulted in many conceptualisations and measurements that are considered to be reliable and valid (Larsen & Eid, 2008). When it comes to older adults' wellbeing, an appraisal of existing instruments used to measure subjective wellbeing found six instruments to be of high quality. However, instruments focusing particularly on the oldest age groups and the multidimensional subjective wellbeing are still desired (Martín-María et.al 2020).

From a holistic or multidimensional health perspective, the mental and spiritual components of health are equally important as the physical and functional components. They can also be considered as being related, especially in later life. Moreover, it has been argued that mental health problems and subjective wellbeing are distinct but related concepts; therefore, alongside the many already existing research initiatives focusing on mental health problems, there is a need for studies that examine what constitutes and influences subjective wellbeing in later life.

## **9.2 The association between subjective wellbeing and internet use: How are they linked and why does it matter?**

One of the central questions of this thesis focuses on how subjective wellbeing and internet use are linked and why the association matters in terms of the

promotion of subjective wellbeing in later life. The results from Studies I and II and from previous studies (see e.g. Gallistl & Nimrod, 2019) suggest that there is an association between subjective wellbeing and internet use in later life. Independent internet users and users with support showed higher odds for perceiving life as meaningful compared to non-users, and the association remained significant after adding a set of socio-environmental factors and self-rated health status to the analysis in Study I. However, the findings from both Study I and II indicate that not all of the online activities (included in the study) might be linked to experiencing subjective well-being. Only internet activities related to leisure and entertainment showed statistical significance after adjusting for socio-environmental factors and self-rated health status for the subjective well-being dimensions related to meaningfulness and happiness in the logistic regression analysis, closely followed by social network and support services. Hence, the type of online activity that older persons engage in seems to matter when it comes to subjective wellbeing and this argument is supported by the findings of previous studies (e.g. Lam et al., 2020; Nowland et al., 2018; Sum et al., 2008). The purpose of internet use was also highlighted as crucial to subjective wellbeing in the functional model developed by Lifshitz et al. (2018), who connected leisure activities to increased life satisfaction and decreased depression levels. It is nonetheless important to keep in mind that the older persons probably indicated that they engaged in more than one of the online activities and that it is very likely that a combination of different online activities is associated with subjective wellbeing.

Additionally, the findings from Study II further suggest that it is not only about what older persons do on the internet that matters when it comes to the association to subjective well-being. The findings of Study II further addressed the question of how subjective wellbeing and internet use are linked by suggesting that the dimension of subjective wellbeing (or the proxy) under study also seemed to have a role in the association. This conclusion was drawn based on the fact that internet use and internet activities showed diverse outcomes for the proxies used for measuring the hedonic (perceived happiness), evaluative (perceived life satisfaction) and eudaimonic (perceived meaningfulness) dimensions of subjective wellbeing. The eudaimonic dimension, measured by perceived meaningfulness in life, differed from the other two dimensions as it was the only one that showed statistically significant associations with internet use in the most advanced regression model when the socio-environmental and health status variables were controlled for.

Other studies have also applied a more nuanced approach, paying attention to the different dimensions of health or wellbeing in relation to internet use. Quintana et al. (2018) studied older adults' internet use in relation to the different dimensions of subjective wellbeing by using longitudinal data. They also found a positive and statistically significant connection between internet use and the eudaimonic dimensions (items such as control, personal growth and self-acceptance) of subjective wellbeing, but not between the hedonic and

evaluative dimensions, after adjusting for health and socio-economic indicators. However, Quintana et al. (2018) did not examine the specific internet activities; they measured internet use in terms of users and non-users and therefore suggested that digital literacy has a positive influence on the eudeimonic dimensions. A study that did consider various online activities in relation to subjective wellbeing was that conducted by Lifshitz et al. (2018). They found that internet use for leisure activities contributed to increased life satisfaction and decreased depression levels. Lifshitz et al. (2018) did indeed study life satisfaction, which can be seen as a dimension of subjective wellbeing, and also explored depression; consequently, they studied subjective wellbeing from a one-dimensional perspective. Nordmyr and Forsman (2016) included both internet activities and different dimensions in their study and found that online hobbies and entertainment were significantly associated with emotional health status among older adults and not with social or physical health status. However, they studied different dimensions of self-rated health status and not subjective wellbeing per se. Still, previous studies' results suggest that different dimensions of subjective wellbeing are associated with internet use and internet activities.

These findings then raise the question: Why are online activities that are related to leisure, hobbies and entertainment connected to various subjective wellbeing dimensions? In a qualitative study, internet use for leisure activities was described as rewarding and as something that expands the sphere of everyday life (Ronning & Solvberg, 2017). These functions were specifically highlighted because they were driven by the older persons' own interests, unlike online banking or healthcare services that were experienced as being forced upon the users by society. Moreover, older persons have also reported that social-based technology can strengthen existing social relationships and enrich social life by providing access to meaningful social interactions (Bruggencate et al., 2019). As described above, Olsson et al. (2018) suggested that older persons create patterns of internet use based on personal relevance; that is, what is perceived as meaningful in the everyday life context. Gallistl and Nimrod's (2020) findings further support the notion that older persons are selective in their internet use patterns, and they proposed that more selective use of internet activities is related to subjective wellbeing in later life. Older persons seem to engage in online activities that are of personal significance to them as they were found to be the most used in a study by Vroman et al. (2015).

Ageing theories highlight the importance of engaging in activities for maintaining wellbeing in later life (e.g. Havighurst & Albrecht, 1953; Achtle, 1999). However, it seems rather outdated to accept that a high activity level is important for all older persons, as stated in the activity theory (Havighurst & Albrecht, 1953). Additionally, the continuity theory fails to acknowledge that older persons might change and develop and might not be interested in continuing the same lifestyle as they had in middle age (Achtle, 1999). It has been suggested that older persons become more focused on the elements of life that matter—that are meaningful to them. Thus, they prioritise meaningful

activities and relationships (Carstensen, 2006/2021; Tornstam, 2005; Shabahangi, 2014). Engaging in meaningful activities has been suggested by older persons themselves in qualitative studies as important for experiencing health and wellbeing in later life, together with social interaction and good physical health (Douma et al., 2017; Lara et al., 2019; Nordmyr et al., 2020;). For instance, engaging in meaningful activities and activities of one's own choice have been highlighted as important contributing factors of subjective wellbeing in later life (Douma et al., 2017), as this gives meaning to everyday life (Söderbacka et al., 2017). Older persons themselves have also identified a wide range of activities as being meaningful, including cultural activities, intellectual games, gardening, handcrafts and social interactions (Tiilikainen, 2020). Participating in meaningful activities has also been suggested to contribute to perceiving life as meaningful in previous studies investigating the link between the two (Ekman, 2013) and in philosophical conceptualisations (Brülde, 2019). Meaningfulness is an important element of health in the humanistic health theories of Antonovsky (1996) and Eriksson (1986/2000/2018). Hence, engaging in activities of interest and that matter to the person could perhaps be related to perceiving life as meaningful and thereby subjective wellbeing.

However, separately studying internet activities can be considered a limitation of this thesis and it is nonetheless important to keep in mind that the older persons probably indicated that they engaged in more than one of the online activities and that it is very likely that it is a combination of different online activities that is associated with subjective wellbeing. For instance, a study by Olsson et al. (2018) analysed and identified online repertoires and hence patterns of internet use among older persons. These repertoires were created from a 25-item questionnaire and survey, and the researchers found that not all of the items were frequently used by older persons. An individual online repertoire was created based on how relevant the different online activities were to the participants. Likewise, Gallistl and Nimrod (2020) applied a more nuanced approach towards internet use and similarly identified different groups of internet users (with different patterns of online and offline activities), and these groups showed different associations with subjective wellbeing (life satisfaction).

Taken together, the findings of Studies I and II make vital contributions to the field, which strives to identify the association between subjective wellbeing and internet use in later life. It is clear that a more nuanced perspective is required to study online activities and broader online repertoires as well as how subjective wellbeing is conceptualised and measured to understand the association. Finally, it is important to not lose sight of why we need to understand the link between subjective wellbeing and internet use. As digitalisation becomes more widespread, knowledge of the association between subjective wellbeing and internet use becomes more critical—for instance when designing future health promotion initiatives. Information

regarding the association could inform decisions regarding which type factors should be considered when planning initiatives related to digital competence.

### **9.3 Internet use and online activities: Enhancing subjective wellbeing or tools for older persons already experiencing wellbeing?**

Because of the cross-sectional study design used in Studies I and II, the causality between subjective wellbeing, internet use and engagement in online activities cannot be determined. Thus, it could be the case that people who have a higher subjective wellbeing are more likely to use the internet overall and especially engage in activities related to leisure and entertainment. This is a very likely scenario, since there seem to be many intersections between the determinants of internet use and those of subjective wellbeing.

Sociodemographic factors (age, generation, gender, education and income level) and personal resources (health, attitude towards technology and previous experience of using it) are associated with internet use among older Europeans (König et al., 2018). This means that people of the male gender, of a younger age, with higher educational and income levels, a better health status, positive attitudes and experience in using digital technology are more likely to be internet users. A recent Finnish population-based longitudinal study (Heponiemi et al., 2022) likewise reported that a high education level predicted increased use of the internet during the COVID-19 pandemic, and a poorer health status and declining memory negatively predicted internet use, and high age, low education and a change to living alone predicted a decrease in internet use over time. The tendency of older persons' who are more privileged being internet users to a higher frequency than more disadvantage groups, was also noted by older persons in an interview study by Hill et al. (2015). The older persons participating in the study (Hill et al., 2015) perceived the digital divide as being driven by other factors, such as limited mobility and lack of knowledge of social activities and forums to connect with others. They further discussed the digital divide in terms of a vicious cycle: the 'digitally rich' continue to be digitally included, whereas the 'digitally poor' become more isolated within a culture where technology is emphasized (Hill et al., 2015). Because of the strong influence of social and structural factors on the internet use among older persons, the material praxeology of ageing with technologies (Wanka & Gallistl, 2018) questions whether using the internet or not is just for older individuals to decide (Gallistl et al., 2020). However, it is not just internet use or non-use that is influenced by various factors (e.g. health status) and social context. Gallistl and Nimrod (2020) found that the patterns of online (and offline) activities among older persons differed significantly between socio-economic positions and that more disadvantaged groups might have different patterns of use to more privileged groups. Olsson et al. (2018) also related increased material, discursive (e.g. former computer experience) and social (active social

networks) resources to broader online repertoires. Additionally, age and gender (female) were further associated with less broad repertoires.

Many of the same variables also influence subjective wellbeing. The results of previous studies suggest that ethnicity, marriage, social contact and health status (George, 2010) influence subjective wellbeing in later life, whereas the influence of age, gender, educational level and income level seems to be less clear (George, 2010). The results of Studies I and II indicate that there are significant between-group differences for factors such as age, marital status, educational and income level and self-rated health status when it comes to subjective wellbeing. For instance, the older persons who rated their health status as very good had more than five times higher odds for meaningfulness than the older persons who rated their health status as moderate or poor. However, the significant factors did vary between the dimensions of subjective wellbeing under study.

In the adjusted regression analysis (i.e. when the variables measuring individual characteristics, socio-environmental factors and health status were included), it was found that internet use overall (independent users, users with support and non-users) was not significantly associated with life satisfaction or happiness. Moreover, only leisure-based internet activities displayed significant associations in the adjusted model with happiness and meaningfulness, and no significant associations were found between the internet activities and life satisfaction when controlling for the variables. This means that some of the variables that were controlled for (or the combination of them) probably influenced the association under study. Thus, the association between subjective well-being and internet use in later life seem to be complex and multifaceted – influenced by many different factors related to ourselves, our surrounding and the society, which we live in. With regard to subjective wellbeing, Diener (2008) argued that there is a ‘myriad of influences of contextual factors’, such as values, social structure, cultural patterns and role expectations, which probably influence how socio-environmental factors (e.g. income, educational level and marital status) affect the association with subjective wellbeing. For example, Diener stated that it is likely that the influence of income level on subjective wellbeing is affected by a person’s goals, values and expectations and that there might be cultural differences in what level of income increases the chance of experiencing subjective wellbeing. A similar rationale can probably also be applied when it comes to the connection between subjective wellbeing and internet use.

In the Happiness Research Institute’s (2019) report that explored the use of social media in relation to mental health among adolescents in the Nordic countries, the importance of considering the context was highlighted. Specifically, it was stated that the adolescents’ online activities were closely connected to their offline activities and that their use of social media mirrored their overall social life and wellbeing. Therefore, attention needs to focus on who uses various online services and how they are used, not only by considering the different programmes, but also by examining internet use in



the larger context of daily routines and social interactions (Happiness Research Institute, 2019). Thus, separating the physical from the virtual daily life and not considering the whole context of everyday life could lead to important insights about the internet use–subjective wellbeing link being missed.

Furthermore, when the line between online and offline activities becomes more blurred in everyday life, the conceptualisation of internet users and non-users is no longer valid. Gallsitl and Wanka proposed that internet use and non-use should not be considered as dichotomous counterparts, but as a process (Gallsitl & Wanka, 2019) that also needs to include offline activities (Gallsitl & Nimrod, 2020). Moreover, Szabo et al. (2019) tested two ways in which internet use can potentially influence wellbeing (measured by aspects such as autonomy, control, self-realisation and pleasure) and found that social use predicted wellbeing over time by decreasing loneliness levels and increasing community engagement. Additionally, informational use predicted increases in engagement in volunteer activities, which the researchers suggested as having the potential to promote wellbeing (Szabo et al., 2019). Hence, the study suggests an indirect link between subjective well-being and internet use, by internet use promoting social engagement, which in turn promotes subjective well-being. This has implications for the current thesis, as the results of Studies I and II were analysed without taking into account the offline activities that the participants simultaneously undertook alongside their online activities.

At the same time, some forms of internet use might also promote subjective wellbeing in later life. In a longitudinal study that covered a ten-year period, Lissitsa and Chachashvili-Bolotin (2016) found that internet use increased life satisfaction after controlling for sociodemographic variables and health condition among older persons in Israel. Moreover, Lam et al. (2020) explored the associations between internet usage and life satisfaction and depression over a four-year period using a longitudinal sample and, after adjusting for different factors, found a positive longitudinal effect of using the internet daily on life satisfaction compared to less frequent use. The use of the internet for communication (email) was associated with higher life satisfaction.

Now we return to the question posed in the subheading of this section: Does internet use and undertaking online activities enhance subjective wellbeing or are they tools for older persons who already experience wellbeing? Based on the findings of this and previous studies, higher levels of both internet use and subjective wellbeing seem to be present among more resourceful groups (e.g. health status and socio-economic position). Thus, it is feasible that internet use is more common among older persons who already experience high levels of wellbeing— thus, being a key component of an already rich everyday life consisting of various online and offline activities of own choice. Future research need to focus on under what circumstances internet use might be more or less important for experiencing well-being in later life. It is furthermore important to include various offline activities in the analysis to acquire a fuller picture of the association.

## **9.4 Seeing the older persons among older people: One size does not fit all**

Even though ageing is a universal biological phenomenon—it happens to us all every day—there is no single way of ageing nor single recipe for healthy or ‘successful’ ageing (if this exists at all). The current literature suggests that we, as human beings, become more diverse as we age, and there is evidence that the heterogeneity within a birth cohort increases over the life course (Light et al., 1996). This is especially the case when it comes to health. The health status of an older person is influenced by the many factors they face during their life, and older adults must therefore be seen as older persons (Jaul & Barron, 2021) with differences between different groups and within the groups (Mehrotra et al., 2008).

The practitioners in Study III and the older participants in Study IV both addressed the diversity of older people. The findings of Studies III and IV highlight the importance of considering both personal or individual needs (within group differences) as well as diverse needs (between groups differences) when developing initiatives and services for older persons. The practitioners in Study III highlighted that older people should be seen as older persons; that they are a similarly diverse group as women. They further shared that acknowledging individual needs and preferences is therefore important and should be the starting point of health promotion initiatives. Likewise, the older participants in Study IV emphasised the heterogeneity of the older population and the inclusion of diverse groups of older persons in the design process. At the same time, they commented that every older person is unique and that there are no identical life experiences and perspectives among older persons. Therefore, according to the data collected and analysed in Studies III and IV, the older person’s view of health and their everyday life context should be the starting point for health promotion initiatives.

‘Seeing the person’ is one of the central elements of person-centred care—an approach that has become an international slogan for high-quality health and social care (McCormack et al. 2015). It is also part of the Nordic vision of responsive health systems that acknowledges patients’ needs and actively involves patients in care (Randall et al., 2020). Previous studies on person-centred care have reported that person-centredness can positively influence the quality of life of the residents in nursing homes (Sköldunger et al., 2020) and alleviate stress (Edvardsson et al., 2014; Barbosa et al., 2015) among practitioners (Sköldunger et al., 2020). However, the evidence base for the positive impact of person-centred care on occupational wellbeing and residents’ quality of life is also argued to be somewhat fragmented due to the methodological limitations and heterogeneity of the available studies (Barbosa et al., 2015; Chenoweth et al., 2019). Additionally, initiatives and interventions that are designed in accordance with individual factors, goals, needs, preferences and resources (Beck et al., 2011), tailored initiatives, have been suggested to be elements of importance for successfully promoting mental

health among older persons in a systematic review by Niclasen et al. (2019). Interventions that consider individual needs and preferences might be more motivating than interventions that do not rely on personal needs and preferences (Niclasen et al., 2019). Larsson et al. (2016) explored a tailored social internet-based intervention for older adults and found positive effects of the intervention; it reportedly reduced feelings of loneliness. The authors associated the positive effects of the intervention with the fact that the intervention was tailored—the intervention design took into account the individual and what they perceived to be meaningful online activities.

However, from the findings of Study III, it emerged that it was not that easy to implement the ‘seeing the person’ ideal and related tailored work approaches into practice. Hence, a discrepancy between what is perceived as ideal practice and what is the actual, realised, health promotion practice among older persons was described by the practitioners. Previous studies on the perspectives of professionals (Moore et al., 2017; Olsen et al., 2019) and older persons (Dunér et al., 2019) themselves have likewise found that older persons’ preferences are not currently being considered to the extent that they would like them to be. In Study III, several barriers to ‘seeing the person’ were reported. For instance, the current organisational structures and guidelines that direct everyday practice were suggested to be stiff—not allowing for flexibility. In particular, current routines related to digital documentation were perceived as taking time and focus from ‘seeing the person’. Other studies of practitioners’ experiences of health promotion practice have also highlighted the organisational structure and culture as potential influencers of practice, which can contribute to a gap between the understanding of health promotion in theory and its practical implementation (Marent et al., 2018). In a study by Olsen et al. (2019), existing organisational structures, guidelines and working routines were perceived by professionals as being designed to meet efficiency and productivity needs—the economic needs of the organisation—rather than to meet the needs of the service users or service providers. Moreover, time optimisation and streamlining of activities to increase efficiency have been argued to be at the centre of current paradigms within health and social care (Kamp et al., 2019). However, it is viable to incorporate person-centred care with cost-effective care; they are not mutually exclusive. In fact, it has been shown that person-centred approaches can entail lower costs and be more effective in the treatment of various diseases than usual care (Pirhonen et al., 2020a; Pirhonen et al., 2020b). The effectiveness of person-centred care for dementia has also been evaluated, and according to a cross-sectional survey study by Sköldunger et al. (2020), implementing person-centred care does not increase resource utilisation in nursing homes. Hence, limited resources and cost-effectiveness should not be the main arguments for not implementing practices that are attentive to older persons’ individual needs and preferences within social and health services.

Additionally, during the analysis of the practitioners’ responses in Study III, it was found that their pre-understanding—formed from their existing

knowledge and experiences—could be a barrier and hinder them from being attentive to individual needs and preferences. Like the general population, practitioners also hold negative attitudes and stereotypes about many groups in society (Zestcott et al., 2016). Being prejudiced towards, forming stereotypes of and discriminating against a person based on their age (Ayalon et al., 2019) are all referred to as ageism. Jönson (2013) described how older persons are often portrayed within care settings as having different and more basic and modest needs and preferences than persons representing younger generations. In a recent review of current municipality guidelines for social and health services targeting older adults in Sweden, Möllergen (2021) found traces of this ageing stereotype, as basic activities such as cleaning, showering, responding to safety alarms, grocery shopping and outdoor walks were some of the most frequently mentioned activities in the guidelines. Moreover, Mannheim et al. (2021a) explored ageism among healthcare professionals and found that they perceived older persons as less capable of using health-related digital technology than younger age groups. Practitioners holding ageist views could result in older persons not being offered innovative services and activities to the same extent as younger persons. Even though programmes and interventions have been developed to reduce prejudicial attitudes towards and stereotypical beliefs about particular social groups in different types of workplaces (Hagiwara et al., 2020), the current evidence base fails to recognise specific, reliable and effective interventions (Fitzgerald et al., 2019). However, the WHO (2021c) has suggested education and intergenerational contact as means for combating ageism.

The practitioners in Study III suggested participatory approaches, accompanied with digital technology platforms, as means for combating preunderstanding and similar suggestions can also be seen within gerotechnology literature. The participation of older person is viewed as means for decreasing the possibilities that stereotypical pictures held by developers and researchers are being integrated into the technology designed (e.g. Fischer et al., 2020; Frennert & Östlund, 2014; Köttl, et al., 2021; Peine & Neven, 2019;). However, this requires an active participation of older persons in all of the steps in the processes, which is not common within current practice related to technology design (Merkel & Kucharski, 2019). However, the findings of Study IV point towards that participatory approaches can to some extent reduce older persons own preunderstandings regarding older persons technology use.

Taken together, the importance of considering the diversity of older adults and tailoring initiatives so that they align with a person's own desires, which was identified as the ideal for health promotion practice for older persons by the multi-professional practitioners in Study III, is also reflected in international policies on ageing and health, such as the decade of healthy ageing (UN, 2020). Others have also reported that, from the practitioner's perspective, some elements of current social and health service practices are preventing the ideal from being implemented, barriers related to inflexible work routines exist and pre-understanding of older persons' health-related

needs may create obstacles. There is furthermore a need to find a balance between equality and equity in standardised working routines that will ensure high-quality services for all and tailored solutions that support individual needs. In other words, when a group of people all have different health statuses, different strategies for promoting health are required. Overall, critique regarding that acknowledging the diversity among older persons often remain at a tokenistic level—not being seen in the actions—have been raised (e.g. Timonen, 2016). Similarly, also research on ageing and health have been argued to be insufficient in terms of considering the heterogeneity among older persons. For instance, Szabó et al. (2021) stated that many of the existing empirical studies focusing on wellbeing assume that older individuals follow the same pathway or trajectory and promote wellbeing by using one-dimensional measurements. They summarised that one slope may not fit all and advocated for more research exploring for whom and under what conditions wellbeing can be promoted, considering that there might be different trajectories (Szabó et al., 2021). Hence, it is clear that we can do much better in terms of seeing the older persons among the older people in both research and practice. This also applies for this thesis where e.g. gender, ethnicity and cultural factors were not paid particular attention in relation to subjective well-being, health promotion practice and experiences from participatory practices.

## **9.5 The implementation of digital technology in social and health services: It is not just about the digital tools**

The implementation of digital technologies is expected to support the vision of more person-centred and efficient future health and social care systems (Kamp et al., 2019) as well as health promotion (Study III). The potential of digital technology for creating more tailored initiatives is recognised in, for example, policy recommendations outlined in the Finnish ageing programme (Ministry of Social Affairs and Health, 2020) and the report on active and healthy ageing by the Nordic Welfare Centre (2020). However, digital technology and online services were identified as double-edged swords with the potential to both support and challenge ‘seeing the person’ in Study III. For instance, by taking over some of the more technical work tasks, such as documentation and medicine disposal, digital technology could create more flexible work schedules and release time for practitioners to focus on ‘seeing the person’ during their encounters. Digital technology could facilitate routine-based work, which in turn could allow practitioners to focus more on talking and listening to clients. Practitioners have made similar suggestions in previous studies. In a study by Turja et al. (2018), healthcare personnel commented that robots have the potential to assist with, for example, heavy care activities within health-related services. Wachman (2015) has also recognised the potential of digital

technology for creating more flexibility within practice. Kamp (2021) further suggested that when using virtual home care visits, practitioners were less stressed and thereby more present in encounters with older persons. However, the virtual visits did not contain as much informal or small talk as the regular in-person visits and did not allow the practitioners and the clients to go beyond the planned activities as in-person visits do. Thus, in a way, the encounters mediated by digital technology were even more inflexible when it came to responding to the fluctuating needs as the agenda set by the practitioners steered the virtual visits (Kamp, 2021). The implementation of digital technology into care practice targeting older persons has also been suggested to result in more fragmented and less person-centred care (Frennert, 2019). Overall, the potential benefits of using digital technology in social and health services and activities work are generally related to documentation and assisting with routine-based tasks (Rantala et al., 2021). Whereas the role that digital technology could play in tasks that require social and emotional skills is more controversial (Rantala et al., 2021). However, the type of influence that digital technology has—whether it be supporting or hindering ideal health promotion practice—seems to depend on how the technology is used and implemented in practice. Thus, it might not just be a question about the technology itself, but also of how digital technology and related online services are implemented into practice and how it is experienced by the persons using it (Hirvonen et al., 2021).

Currently, digital technology is often implemented as a product, project and/or strategy in municipal eldercare (Frennert, 2020). The implementation is often a top-down process that is performed without mapping if the essential infrastructure and competences are present in the organisation in which the digital technology is to be implemented (Frennert, 2019). In the digital transformation of social and health services, professionals were found to have three roles: as makers, implementers and maintainers (Frennert, 2020). Most commonly, practitioners are maintainers; they use technological products after they have been introduced into practice (Frennert, 2020). When the professionals are involved as developers, their role focuses on evaluating technology, not influencing and developing per se (Frennert, 2020). In a study by Baudin et al. (2020), more men than women practitioners reported being involved in the decision-making about and the procurement of technologies and more seldom, the practitioners working closely with the patients were involved in such processes. Practitioners, especially front-line workers, seem to seldom be actively involved in the implementation, development or procurement processes of digital services (Baudin et al., 2020; Frennert, 2020; Segercrantz & Forss, 2019), meaning that their expertise and contextual knowledge regarding practice are not being captured and utilised. To increase the involvement of practitioners, it has been suggested that implementation should be about more than just embedding technology into current practice (Pekkarinen et al., 2019).

The integration of digital technology has been suggested to alter care (Kamp, 2021) by changing the working climate, care relationships and practitioner–

patient and practitioner-practitioner communication (Tammelin et al., 2021) as well as the body work (Meldgaard Hansen & Lond Grosen, 2021). However, knowledge of how technology influences the work community, management and work processes is still limited (Tammelin et al., 2021). A study by Pekkarinen and Melkas (2019), who viewed the implementation of digital technology into elderly care as a larger socio-technical transition, identified barriers in the relationship between the novel technologies and older technologies, between novel technologies and dominating practice cultures, between older technologies and new service models and between novel service models and the existing practice cultures. The barriers were not only related to the technology but also to the professional roles, responsibilities and lack of training and systematic thinking. Learning different professional and work cultures were identified as potential facilitators for socio-technical transitions (Pekkarinen & Melkas, 2019). Melkas et al. (2020) found that practitioners needed proper orientation related to task division and time usage in addition to orientation about the technology to introduce a care robot into municipal care services targeting older persons in Finland. Moreover, willingness to recreate care practices and good collegial and organisational support are needed to reconsider practice (Konttila et al., 2018).

The arguments presented in the previous chapter regarding that internet use and online activities in general cannot be separated from the other parts of everyday also applies to practice and practitioners as well. Critical voices requests that the digitalization should be about more than barely making the technical transitions - or adopting to and controlling digital technology - it should encompass larger social transitions (Pekkarinen et al., 2019). Hence, changing practice not barley integrating digital technology into the “practice as usual” (Pekkarinen et al., 2019). Thus, there is a tendency to think about technology as separate devices or tools that help us to undertake specific tasks (Schulz, et al. 2015) without considering other fundamental aspects, which might influence or be alternated simultaneously as the digital technology is being implemented into social and health services.

## **9.6 Participatory approaches among older persons: Harnessing the opportunities without overlooking the challenges**

As described earlier, the practitioners in Study III suggested participatory approaches and digital technology as potential means and measures for overcoming the identified barriers for ideal practice related to “seeing the person”. Involving older persons in the planning and realisation of activities, together with offering different types of online services and platforms for creating their own social and leisure activities, is expected to increase the role of older persons in future health promotion initiatives. Indeed, an emphasis on the role of older persons in shaping future sustainable ageing societies can be

seen in current policies related to ageing and health. For instance, healthy ageing policies highlight the meaningful engagement of older persons—enabling older persons to be a part of responding to and changing their situations to decrease inequalities—as an action area (WHO, 2015). The Finnish ageing programme (Ministry of Social Affairs and Health, 2020) includes actions to prolong working careers and enable voluntary work for older persons to increase their participation in society in the future. The ideas related to increased participation and empowerment of older persons can also be seen within a digital context (Endter, 2020). In gerontechnology, participatory approaches are increasingly suggested as means for potentially create and design more need-based and easy-to-operate digital tools that will be used by various groups of older persons (Grates et al., 2019; Fischer et al., 2020; Peine & Neven, 2019; Mannheim et al., 2019). However, a paradox can be identified within the ageing policies (Timonen, 2016). Older persons are simultaneously framed as dependent and vulnerable and at the same time, they are perceived as the solution to some of the identified challenges by being described as potentially being resources—valuable to the design and delivery of services. Timonen (2016) questioned whether it is reasonable to assume that all older persons are capable and/or interested in participating in such activities.

Based on the findings from Study IV, older persons can be considered both interested and capable of participating in designing and developing a social application targeting older persons. From the narratives, it appeared that being a part of the design was perceived as an uplifting experience of high relevance to the participants since contributing to something greater good by sharing their perspectives and experiences felt important. A systematic review exploring the involvement of older users in technology design highlights that several studies reports that older persons have enjoyed and appreciated participation in such activities as they had the opportunity to raise their voices and perspectives (Fisher et al., 2020; Mannheim et al., 2021b). Similar findings regarding older person's interest have also been suggested by previous studies, which have explored the experiences of participating in research projects related to ageing, but not technology. To contribute to making a difference for oneself and other older persons also emerged as motives for participating in a population-based cohort study (Dahlin-Ivanoff, et al. 2019) and being involved in research projects (Berge, et al., 2020; Malm et al., 2021). Additionally, a recent study by Frögren et al. (2022) mapping the interest and awareness of public involvement in research suggest that about 40 per cent of older persons reached by the survey reported that they would like to participate and additionally among 30 per cent would consider participating themselves. Regarding older persons competence in participating in design activities, the application in the making was consequently developed based on the valuable suggestions given by the older participants in the design process. Hence, from the perspective of project team members, the older persons capability to participate was high, however, the data analysis also unfolded that the participants themselves were not so sure about their own



contribution in the process. This was expressed by being afraid of disappointing the project team. In addition to fear of not being a good enough co-designer, disappointment in relation to the own performance with the prototype and digital competence also emerged from the interview data. Feelings related to inadequacy were also experienced by older persons in a study by Barbosa Neves et al., (2019) who were part of developing an accessible iPad-based communication app for enhancing social connectedness among frail older adults living in a retirement home. The participation in developing the application did furthermore also made the older person's more aware of their frailty (Barbosa Neves et al., 2019). Doubting one's own competence of being involved in participatory approaches have also been reported by older persons participating in research projects targeting frail older persons (Berge, et al., 2020; Haak, et al., 2021).

Against the current and previous findings presented in this chapter – older persons can be considered both capable and interested in participating in design activities. However, it is important to consider that all of the older persons might not be interested in participating in design and developing services targeting older persons and in conducting research on ageing and health, due to diversity of interests among the older persons and the older population should not therefore be treated or seen as one group. Additionally, not all of the older persons may have the prerequisites to participate—even if they would be interested. Findings related to Study IV as well as previous studies related to participatory approaches among older persons also report that there are several factors that can be seen as barriers—hindering older persons from participating in participatory activities and processes. Studies have highlighted that the health status also can be a barrier for user involvement (Backhouse et al., 2016; Ocloo et al., 2021). The findings of Study IV similarly address that the own and family members fluctuating health status can be a barrier for participating actively in the design and development of an application. This because of that participatory approaches are often time-extensive processes (von Heimburg & Cluley, 2021), which requires a lot of resources from the participants over a long period of time and participating in test sessions have also been described as cognitively demanding and emotionally stressful (Endter, 2020). Structural elements such as budget restrictions can also challenge applying participatory approaches with a high level of involvement as it might not be feasible to realize in practice within the given frames of a project (Merkel & Kucharski, 2018). The experiences related to that the participation did not fully live up to various expectations set by the older participants in Study IV might also be related to how the participatory approach and the design activities were applied within the project. Previous studies have highlighted that it is common that persons participating in usability tests feel evaluated (Franz & Neves, 2019) and blame oneself for the “mistakes” made instead of the technology. Approaches related to user-centered design have earlier received critique for failing to involving older persons in a proper way and that much focus in paid on improving the fit of the prototype and less on the users (Endtner, 2020). Additionally, previous studies have also

suggested that technology in itself can have such impact on older persons – feeling less competent and old (see Caspi et al., 2019).

Participatory approaches are also being criticised for being based on biased samples and failing to involve older persons who represent today's heterogeneous older population (Grates et al., 2019). Selected older co-designers are more frequently from younger age groups and higher socio-economic status levels and are more often persons who are already more open-minded about technology (Künemund & Tanschus, 2014). Similar characteristics are also ascribed to the older adults who choose to participate in research projects connected to digital health technology (Poli et al., 2019). Recruiting the 'hard-to-reach' groups is a struggle not only for participatory approaches but also for health-related research in general. Attention needs to be paid to whose voices are being heard in participatory approaches. The opportunities to actively engage in participatory approaches are most certainly different for different persons. This means that the persons who are enjoying a better socio-economic status are those who might co-create the future initiatives, whereas the more vulnerable groups might be left out. This in turn might contribute to sustaining the gap between the existing digital technology and the actual interests and needs of older persons in terms of digital technology. In addition, the involvement of unrepresentative persons may lead to the effects of digital technology and digital interventions being exaggerated and misleading (Poli, 2021). Therefore, more research on how to overcome barriers and on how to successfully implement participatory approaches with older persons within gerontechnology are needed. Especially studies capturing different older persons' perspective are keys for unfolding good practice. A person-centred approach (Berge, et al., 2020)—being adherent to the participants' needs and preferences and tailor the activities to these—is seen as one important facilitator for participation.

Being able to participate in one's own terms was likewise perceived as facilitators for participation in Study IV. The participants did not want to commit to participate for a longer period – they preferred to be able to choose if they had the opportunity and interest to participate before each of the design activities. Similar findings related to flexibility as an important facilitator has also been reported in previous studies (Berge et al., 2020; Hakobyan et al., 2015) highlighting the importance of tailoring activities in accordance with the individual circumstances. However, tailored and flexible activities are a challenge to realize in practice, partly because of innovation and development projects often have timetable, budgets and specific goals stipulated beforehand in the project plan and founding application related to the product that is supposed to be designed and developed. It furthermore requires flexibility from the other stakeholders involved (Waycott & Vines, 2019). Additionally, a high level of flexibility can also be a research ethical challenge as an informed consent requires information regarding the project and research activities at forehand (see Berge et al., 2020; Waycott & Vines 2019). Finding a balance between catering for the participants' participation and meaningful engagement and the goals of the project related to design and improving a technology is required in

participatory projects within gerontechnology (see Andréasson, et al., 2019). Liabo et al. (2020) identified that values of inclusivity, partnership, purposeful involvement, transparency and to value different kinds of knowledge characterizes good involvement of public in research based on a literature review. Additionally, participants with experiences of being involved in such processes identified passion and enthusiasm, welcoming meeting spaces and opportunities to share lived experiences as enablers of good public involvement in research (Liabo, et al., 2020).

Overall, ageing and health have been lagging behind when it comes to participatory approaches (Iwarsson, et al., 2019). The present research base on participatory approaches consist to a higher extent of studies conducted with participatory approaches: fewer studies are about participatory approaches (Kylberg, Haak & Iwarsson, 2018). More studies exploring the participatory practice in itself are needed. Studies depicting older persons' experiences of participatory approaches, are important in order to advance practice in future gerontechnology endeavours as they can contribute to recommendations regarding participatory practice by avoiding the challenges and maximising the benefits for the participants involved. These kind of recommendations are particularly important as participatory approaches are highly requested within ageing policies as well as when it comes to research and development funding applications (Jarke, 2019). On the other hand, developing general guidelines regarding participatory approaches with older persons may be a challenge with regards to the diversity of the age group in terms of perquisites and interest of participating (cf. Malm, et al., 2019). Therefore, participatory practice also need to be flexible in order to be able to be adherent to individual needs and preferences. Additionally, the experiences of diverse groups of older individuals participating in participatory approaches for design and development need to be gathered. It is furthermore important to consider that participatory approaches are "messy processes" (Urbaniak & Wanka, 2022) and the participation (experiences of it) does not happen outside the everyday life of the participants or the surrounding world— they take place within lives that already happens (c.f Martela, 2019).

## **10. Methodological strengths and limitations**

The strengths and limitations of the studies included in the thesis have been discussed in more detail within the articles and manuscript associated with this thesis. However, the key remarks needed to be made regarding the studies will be raised in this chapter together with more general strengths and limitations regarding the thesis as a whole.

### **10.1 Opportunities and challenges with multi-method approaches**

Complex health and well-being issues require multiple methods and an interdisciplinary approach (NIH Office of Behavioral and Social Sciences, 2018) in order to acquire a more comprehensive understanding of, in this case the mechanisms related to subjective well-being and health promotion in a digital later life. However, Morse (2003) asks if researchers can expect convergence when exploring a phenomenon from different perspectives, representing different traditional worldviews and if combining different forms of data always enhance the results? Multi-method approaches should not necessarily strive for convergence, rather it is about providing different angles to the overreaching aim in order to reach a more comprehensive picture. Additionally, different forms of data enhance the results if the studies are rigorous and especially if the research areas is of complex essence. The multi-method approach can at the same time also be perceived as a challenge. Especially, when it comes to tying the all-encompassing results from studies that are relatively different from each other together in one thesis. Furthermore, one of the main weaknesses of the thesis as a whole could perhaps be that it is broad not only in terms of methods but also in terms of scope and content. Subjective well-being and internet use was studied both from a more epidemiological perspective, exploring the statistical associations, as well as from a more applied perspective looking at how subjective well-being and internet use is being considered in practice today. Additionally, both older persons and practitioners were included in the sample. The extensiveness of scope and content might have contributed to lack of depth to some extent. On the other hand, the combination of the different perspectives is also one of the main strengths with the thesis and the elements of what makes it unique. There are already a lot of research on the association between subjective well-being and internet use and in order to advance the field of research and make a contribution to wider society, more applied research - exploring what works and what dose not in order to improve practice - is also needed.

## 10.2 Reflections on the study samples of the studies

The question of whom we actually managed to reach in the studies is important to raise and discuss. The dataset used in Study I and II was collected within a larger Nordic research project (the GERDA project). The survey was posted to older persons in the Bothnia region based on their year of birth. Every person born in 1930, 1935, 1940, 1945 and 1950 received a survey in the rural areas and every randomly selected third and second person in the larger cities. About 20 000 selected persons out of approximately 29 975 persons in total in the region were reached by the postal survey. Thus, the whole population aged 65 + in the region did not have the opportunity to participate. The response rate was 61 per cent (Näsman, 2021) and the total sample was 9 386. The survey consisted of 82 questions, which might have challenged the participation of some groups of older persons. For instance, it might be that older adults with more severe health problems did not complete the survey to the same extent as the older adults with better health status might have done. Differences in response rate among the age groups have earlier been highlighted in relation to the GERDA survey (Näsman, 2021), it seems like the older age groups had a lower response rate than the younger ones. Similar observation has also been made in other social surveys (e.g. Wagner et al., 2018). Because of the link found between a better health status and various dimensions of subjective well-being in previous studies (e.g. George, 2010) and the fact that a high self-rated health status increased the odds for perceiving well-being in the studies of this thesis, it might be that larger numbers of older persons being happy, perceiving their lives as meaningful and being satisfied with their lives completed the survey. The same factors have also been related to internet use (e.g. König et al., 2018) and therefore more persons using the internet might have been included in the study sample than what there is among the older population overall. The fact that the survey only could be answered in Swedish and Finnish might also have resulted in that older persons in the region with another first language did not participate in the study and therefore the results might not be representative for older persons with a migration background. The risk of bias due to self-selection sampling in terms of that the more resourceful older persons might have had a higher representation within the sample is important to consider when interpreting the findings regarding the association between subjective well-being and internet use. Additionally, there is also a risk that the diversity among older persons was not either fully represented among the participants in the innovation project and the interviews. Even though some level of diversity when it comes to age groups (58-90) and level of experience and competence in digital technology was achieved – diversity in terms of gender was not achieved, as most of the participants (63 %) were female. Moreover, the study did not include questions regarding the participants' background in terms of health status, need of support at home and related to their education and income level and therefore we know little about the participants and their socio-environmental context. However, the participants were recruited from organizations, associations for

older persons and activity centers for senior citizen who arranged different types of group activities. With the recruitment strategy in mind, the persons who participated in the innovation project and thereby in the interviews regarding the participation were active – they took part of diverse social and leisure activities. There is a risk that the recruitment of participants and the information about the innovation project did not reach older persons with a more limited access to leisure or social activities, creating a risk of bias when it comes to the experiences for participating in co-design and development process. The challenge of recruitment in terms of achieving diversity and equity have been reflected upon in several studies related to actively involving older persons in research projects (Kylberg et al., 2018) and suggests that researchers need to reflect upon whom they want to involve and to what degree representativeness is strived for in the recruitment of participants.

However, the question of representation is not only important in the sampling process – but also when it comes to the reporting of study findings. Researchers have an important role when it comes to communicating research findings related to a complex reality, carefully avoiding to report simplified “truth”. It is also important to be aware of that the results and presentation of the study participants contributes to the broader picture of older persons and practitioners and therefore to reflect upon how the own findings contribute to reducing or sustaining stereotypical pictures and preunderstandings regarding ageing and health. (Pickering & Kara, 2017).

All of the sub-studies included within this thesis are conducted in two different countries—in Finland and Sweden— except for study IV where only the Finnish data was analysed. The fact that the thesis is based on data from two different countries should be considered a strength. However, the aim of the this thesis was not to compare the subjective wellbeing, internet use or health promotion practice between the countries and, therefore, cultural differences within or between the countries were not given any particular attention in the data analyses of this thesis. This can be considered a limitation and future studies should explore cultural differences and also take the multi-ethnicity reality into careful consideration.

### **10.3 Opportunities and challenges with interview studies**

One of the strengths, and at the same time also a limitation, with qualitative study approaches is the interaction between persons that different forms of interviews requires. Thus, the group dynamic and the possibilities that group interviews constitutes for the informants to influence each other’s thoughts and ideas can be viewed as both a benefit and a challenge with the method. Discussing a specific theme together with other persons in a group is often a facilitator for getting a discussion started as the informants can build on to each other thoughts and ideas (Leung & Savithiri 2009). However, some group members can sometimes dominate and take over the discussion, creating an atmosphere where other members may be hesitant to share their actual thoughts and feelings

regarding the topic (Leung & Savithiri 2009). Furthermore, finding a balance between heterogeneity and homogeneity when sampling the participants is a key when it comes to focus group interviews (Kreuger & Casey, 2009) as having something in common with the other participants facilitates the discussion but diversity fosters that different perspectives on the discussed topic will be shared. In Study III, the heterogeneity in terms of the informants' work descriptions, educational levels, and professional backgrounds as well as the fact that the study was conducted in two fairly different regions in two countries can be seen as both a limitation and a strength. The diversity of the sample may have contributed to some lack of depth and that informants might have been hesitant to share their actual experiences if it departed from the experiences of the rest of the group, especially if other group members had higher educational level and a more authoritarian role. On the other hand, the interaction and collaboration between different professions and sectors are essential elements of health promotion (Leppo, et al., 2013), meaning that the practitioners are relatively used to collaborated and discuss with other professions in terms of older persons health.

The interaction and the dynamic between the researcher and the informant is also important to consider in relation to individual interviews, as a power imbalance between the researcher and the informant is present and influences the conversation. The power asymmetry may for instance contribute to that the informant might say things that he or her thinks that the researcher wants to hear, which may not be what he or her actually thinks and experiences. This merit attention when reading the findings from Study III and IV. Duncombe and Jessop (2012) further discusses ethical dilemmas connected to the researcher and the nature of interviews. When conducting interviews, hence interacting with other persons, the social and emotional skills of the researchers' are naturally activated. However, as an informant the purpose of the discussion – which is to persuade the informants to share their experiences and views in order to get new insights and produce scientific reports - can easily be forgotten when engaging in “friendly discussions”. Duncombe and Jessop (2012) outlines that interviews sometimes can evolve into therapeutic conversations, which can challenge the principle of informed consent. In the study 4, the semi-structured interviews in some cases evolved into more of therapeutic nature and thereby deviated from the subject. However, these parts of the interviews were left out from the data set – not even transcribed- as they contained personal information that were not considered to be related to the research questions. In addition, the semi-structured construct of the interviews in Study III and IV can be seen as strengths and weaknesses since the predefined structure ensures that the different topics are covered during the interviews and thereby makes the narratives comparable and similar to each other, which facilitates the analysis. However, the predetermined questions or topics may also steer the discussions and influence the informants. (Wilson, 2014).

## **10.4 Missing the nuances? The limitations related to cross-sectional studies and logistic regression analysis**

The main weaknesses that needs to be addressed when it comes to Study I and II are related to the study designs. First of all, the cross-sectional design did not allow for deciding upon the causal relation between subjective well-being and internet use, which is important to keep in mind. Additionally, the proxies and measurements used within the studies were not optimal. Using secondary data comes with challenges, such as the fact that the researchers have a certain predetermined number of items available for use and they cannot therefore be tailored to the aim of the individual studies. However, using secondary data is also efficient and these kinds of larger survey datasets are often considered to have higher validity compared to smaller ones. Additionally, the of large-scale secondary datasets can also be justified from a research ethical and sustainability perspective as the collection of data requires active participation of its respondents and this can also be experienced as challenging for some older persons.

The instruments for assessing meaningfulness and happiness were based on one-item questions with five answer options, which were dichotomized. The life-satisfaction variable was created from a multiple-item scale with dichotomized answer options. Even though similar one-item proxies for subjective well- have been successfully used and tested in previous studies (e.g., happiness: Abdel-Khalek, 2006; meaningfulness: Lampinen et al., 2006; life satisfaction: Cheung and Lucas, 2014; Jovanovic and Lazic, 2020), the use of one-item proxies for subjective well-being can be considered an additional methodological issue, which might influence the current findings. Subjective well-being is complex and multidimensional and the use of one-item proxies and dichotomized response options might have led to important nuances being lost. However, multiple item scales often contain items that tap into broad areas, which might slightly differ from the way in which respondents might understand the concepts (Abdel-Khalek, 2006). Additionally, some of the multiple scales might contain items that measures both dimensions of subjective well-being as well as factors that can be seen as determinants or influencing factors (George, 2010). For instance, examples of multiple-item scale that has been applied for measuring older person's mental well-being in other studies is The Philadelphia Geriatric Center Morale Scale (Lawton, 1975) and the Warwick-Edinburgh Mental Well-being Scale (Tennant, et al., 2007). The scales include e.g. items related to relations with others, which can be seen as more of an influencing factor and a consequence of subjective well-being rather than subjective well-being in itself. Many of the scales on subjective well-being also include questions regarding depression and loneliness, which is more related to mental health problems than subjective well-being. These challenges does not apply for one-item proxies. Additionally, one item questions might have been more easy to grasp in an otherwise extensive survey.



Moreover, the artificial grouping of the study sample made for the logistic regression analysis (the somewhat rough cut-off points) might have resulted in a loss of nuances of some of the variables during the recoding process. On the other hand, the focus of this study was on categorical variables and not dividing the sample into groups (or using too many groups) could have led to a loss of statistical power (Sperandei, 2014). If the loss of nuances is a limitation with logistic regression analysis, a benefit is that it allows the researcher to study group differences of the variables while controlling for other potential covariates among socio-environmental variables, health status and individual characteristics.

## **10.5 Time: An inevitable challenge within research**

Time was identified as a challenge of participatory approaches in Study IV and can also be viewed as a challenge when it comes to writing a thesis. For example, a search-string combining terms related to older persons and technology in Web of Science database for the year of 2017, when I started the work with the thesis generated 40 147 matches, whereas the same search gives 55 997 matches in 2021. It is a growing field of research where both the technology as well as the studies are advancing rapidly. The studies that were planned to be included in the thesis when the work started in 2017 might have been innovative and novel back then, but now five years later they might be studies among others with the similar scope and methods. Learning how academia and science works takes time and training and it is natural that collecting, analyzing and reporting data takes more time for a novice than a senior researcher. It can therefore be that the field of research have ran away and taken major steps forward in the meantime when the doctoral student is working on drafts of manuscripts. The evolving field of research might also change the direction of the thesis research on the way. Hence, on the other hand, time can also be viewed as a necessary element of research. Carstensen (2021) argues that “with time we can see the blind spots that obscured our search for truth” (p.1188). Chalmers (2014) also suggest that more experienced researchers might see other details of the study results than more novice researchers might do.

Finally, research findings are always a result of interpretations and choices made by the researcher(s). Thus, our knowledge and experiences – our preunderstandings creates potential biases for research. Statistical analysis and numbers are generally being seen as more “solid”, thus, not as easily influenced by interpretations as qualitative research. However the reality is that they too are results of human actions (Best, 2004). Even though statistical software programs such as the SPSS used within Study I and II are useful tools for conducting analysis, the researcher chooses the research questions, the scales and analysis based on previous knowledge and expectations related to the findings (Best, 2004). Additionally, the researcher also chooses how the numbers are presented to the research audience and the same also goes with the qualitative study results. The educational background as well as former work

experiences from community-level health promotion work with older persons were probably brought to the studies, which creates potential biases for the thesis that cannot be overlooked. Moreover, when exploring data there is a tendency to look for the elements that supports our preunderstandings and expected results and it might be that important aspects that conflicts with our preunderstandings are missed (Carstensen, 2021). However, a continuous collaboration with researchers representing other scientific backgrounds in all of the included studies might have counterbalanced the impact of author's preunderstandings on the analysis conducted. The data collection and the data analysis have additionally been described carefully in order to maintain transparency and conformability. Illustrations and quotations from the interviews were included in the qualitative studies and the numbers from the statistical analysis in the quantitative studies were presented in tables and text.

## 11. Conclusions and implications

In this chapter, a summary of the key findings will be described together with suggestions regarding how the findings and knowledge gathered in this thesis can matter for practice related to health promotion and what is still needed in future research endeavors.

First of all, in order to promote well-being among older persons – there is a need to gather knowledge regarding older persons' experiences of well-being in later life in addition to the existing research focusing on health problems of various kinds. This kind of knowledge make an important foundation for deciding upon where (mental) health promotion initiatives should put emphasis. Initiatives that promote health can furthermore also prevent health problems as health and illness are suggested in previous research and theories to be distinct dimension but cut across each other.

Similarly as in other age groups – online activities need to be considered as a part of the everyday life of older persons'. There are many older persons who are online and therefore studies need to move beyond studying technology acceptance and competence and also study the association to subjective well-being and mental health.

Furthermore, internet use need to be addressed within research regarding older person's subjective well-being – however, a more nuanced approach regarding internet use and what it entails is required taking various internet activities into account in the analysis. Further research endeavours applying various, and preferably mixed methods, should be conducted, simultaneously examining the everyday life both online and offline in later life. This in order to depict if internet per se actually is the driving component affecting experienced well-being in later life - or if internet is merely a key component of an already rich everyday life. Studies exploring for whom and under what circumstances internet use and related online activities can promote subjective well-being are important.

Additionally, the complexity and multidimensionality of subjective well-being should also be increasingly addressed in relation to internet use. Thus, paying attention towards how subjective well-being is conceptualized and measured is important and can potentially explain some inconclusiveness of study outcomes. By not considering the nuances and complexity, improper conclusions regarding the impact of digital technology can be made, which further can influence health promotion initiatives and interventions. However, the plethora of different terms and measurements complicates the exploration of subjective well-being and measurements focusing on the multi-dimensional positive subjective well-being of older persons are lacking.

Based on the study findings, digital inclusion initiatives must encompass more than just instrumental and informational online activities, such as health services, online banking and newspapers. Also, online services and activities related to leisure and entertainment, as well as social contact and support, should be included as they are associated with subjective well-being (or at least

some dimensions of it). More tailored technology focusing on enrichen everyday later life—not only technology for coping with the “problems of ageing”—are needed.

However, there is a risk that the existing health inequalities will increase with the rapid digitalization. Combating inequalities must therefore be prioritized and health promotion work need to make sure that various types of online services, innovation and interventions also reaches the more “hard-to-reach-groups”.

In the light of the findings and review of previous research studies, one can conclude that the digitalization is not only about the technology. In relation to subjective well-being among older persons there are many other factors within the whole everyday life context that influences the association and needs to be considered. When it comes to implementing digital tools into health and social services, the practice as a whole needs to be reconsidered. Thus, paying attention to e.g. division of work tasks and the collaboration between colleagues simultaneously as the technology is integrated into practice. Also the practitioners’ expertise and contextual knowledge should increasingly be heard in both the design and implementation process. Overall, the implementation of digital technology need to be increasingly addressed and explored from an organizational perspective.

In both design and implementation of technology, the process could entail more value and be facilitated if the user groups (which can be both older persons and practitioners) are actively participating. Participating in the design and development of an application can be a worthwhile experience, making a difference for oneself and other older persons and gaining new insights regarding oneself and technology for the participants. However, participatory approaches are uncertain and dynamic processes that requires resources (time, money, effort) and can be facilitated by flexibility and tailored approaches. Additionally, the methods for participatory technology design need to be advanced and more studies exploring participatory approaches with diverse groups of older persons (especially more vulnerable groups) are needed. Studies looking into the barriers and facilitators and means for best practice as well as evaluating participatory approaches from the older persons perspectives are also warranted since their experience are keys for designing good practice. However, it is important to pay attention especially to who is involved and how, when and why in order to understand participatory approaches.

Finally, it is altogether important to remember to not generalize when it comes to subjective well-being, internet use and health promotion in later life. Older people consist of older persons – it is important to consider that there is groups within the group, between group differences as well as within group variance. We all have different staring points of health and therefore also different strategies for promoting health are required. Research and practice need to pay attention to the heterogeneity of older persons and that one size might not fit all. Additionally, all should avoid spreading stereotypical pictures of older persons and reflect upon how our contributions (research articles and other outputs as well as activities and material) frame the older population.

## 12. Sammanfattning

### 12.1 Introduktion och bakgrund

Digitaliseringen av tjänster är en av de mest tongivande megatrender och ses som en av de viktigaste lösningarna för att göra de omställningar som krävs för att möta många av framtidens samhällsutmaningar. Utmaningar som ofta nämns i detta sammanhang är den åldrande befolkningen och förändringar i befolkningsstrukturen som förväntas medföra stigande kostnader för offentlig social-och hälsovård. Digitala verktyg och tjänster ses som lösningar eftersom att de har potential att stöda äldres hälsa och funktionsförmåga, samtidigt som de också kan förbättra arbetsmiljön för personal inom social-och hälsovården (Schulz et al., 2015). Samtidigt som digitala verktyg anses vara en naturlig och nödvändig del av framtidens social-och hälsotjänster riktade till äldre, riskerar en del grupper i samhället att stå utanför det digitala samhället – däribland en del äldre personer. Emedan en del äldre personer inte använder sig av digitala tjänster (34% av personer födda år 1940 och 60% av de som är 90 år och äldre i Sverige använder inte internet dagligen, Internetstiftelsen, 2021), finns det också en hel del vars vardag innehåller olika digitala verktyg och tjänster (89% av de som är födda år 1950 använder internet dagligen, Internetstiftelsen, 2021). Den digitala vardagens positiva och negativa inverkan på barn och ungas välbefinnande har under en längre tid väckt intresse hos såväl allmänheten som forskare medan kopplingen mellan äldres välbefinnande och internetanvändning inte diskuterats eller studerats i samma utsträckning. Följaktligen bör också äldres välbefinnande undersökas i den digitala vardagskontexten.

Denna avhandling tar avstamp i humanistiska hälsoteorier som förespråkar en mångdimensionell syn på hälsa. Vidare betonar detta perspektiv också subjektiva perspektiv, det vill säga individens egna upplevelser och erfarenheter samt existentiella frågor i relation till hälsa. I denna avhandling studeras äldres subjektiva välbefinnande, vilket syftar på individens egen uppfattning om sitt välbefinnande (Ferring & Boll, 2010) och sin livssituation. Inom litteraturen används många olika termer och begrepp för att beskriva denna positiva, resursfokuserade, hälsodimension (Dodge, et al., 2012) och det finns också många olika synsätt på vad som bidrar till upplevelsen av välbefinnande (Huta & Waterman, 2014).

Tidigare kartläggningar visar på att de allra flesta äldre personer upplever välbefinnande. Statistik insamlat av Eurostat (2018) visar att bland 64–74 åringar bosatta i Finland upplever 80% välbefinnande medan andelen bland personer över 75 år ligger på ungefär 70. Liknande siffror har också rapporterats angående äldre personer bosatta i Sveriges välbefinnande (Eurostat, 2018). Subjektivt välbefinnande och hälsa verkar dock inte vara jämnt fördelat mellan olika äldre grupper i samhället (Marmot, 2006). Till exempel har etnicitet, hälsostatus och familjeförhållanden (civilstånd, kontakt med barn, familj och

vänner) visat sig ha ett samband till subjektivt välbefinnande bland äldre, medan utbildnings- och inkomstnivåns koppling till äldres subjektiva välbefinnande verkar vara mera oklar (George, 2010). Äldre har i kvalitativa studier framfört att den fysiska hälsan och funktionsförmågan, sociala aktiviteter och relationer samt att kunna engagera sig i aktiviteter som känns meningsfulla bidrar till välbefinnande (Douma et al., 2017; Lara et al. , 2019; Nordmyr, et al., 2020; Söderbacka et al., 2017). Att uppleva tillvaron som meningsfull (t.ex. Carstensen, 1993/2021; Shabahangi, 2014; Tornstam, 2005) och en aktiv livsstil (Havighurst & Albrecht, 1953; Atchley, 1999) har också lyfts fram som viktiga element för att uppleva välbefinnande i gerontologiska teorier och modeller.

Tidigare studier som undersökt äldres psykiska hälsa och internetanvändning visar på att internetanvändning kan kopplas till både psykiskt välbefinnande och psykisk ohälsa bland äldre. Till exempel visar en befolkningsbaserad tvärsnittsstudie att äldre internetanvändare upplevde lägre nivåer av ensamhet och högre nivåer av autonomi än de äldre personer som inte använde internet (Scholmann, et.al., 2020). Äldre som dagligen använder sig av sociala medier så som Facebook verkar uppleva mindre social isolering (Hajek & Köning, 2020) och mer samhörighetskänslor än vad personer som sällan eller inte alls använder sociala medier (Clark & Moloney, 2020; Sinclair & Grieve, 2016;). Studier som undersökt internetanvändningens påverkan på äldres psykiska hälsa under en längre tid menar också att internetanvändning ökar upplevd tillfredsställelse med livet (Lissitsa & Chachashvili-Bolotin, 2016) samt minskar symptom på depression (Lam, et al., 2020). Liknande resultat har också rapporterats från digitala interventionsstudier (Forsman, et al. , 2017; Larsson, et al. , 2016) och RCT-studier med skräddarsydda digitala verktyg (Czaja, et al., 2018). Trots att forskning visar på att internetanvändning kan ha positiva influenser på välbefinnandet hos äldre, finns det också studier som visar på det motsatta, det vill säga att internetanvändare uppvisar högre nivåer av depression och ångest (Choi & DiNitto, 2013; Wu & Chiou, 2020; Xie et al., 2021) eller att internetanvändning inte har någon effekt på den psykiska hälsan (Lam, et al., 2020). Det verkar som om kopplingen mellan psykisk hälsa och internetanvändning påverkas av andra faktorer (van Ingen, et al., 2017). Det spelar alltså roll hur internet används eller vilka program eller applikationer som brukas (Szabo et al., 2019), samt vilken dimension av subjektivt välbefinnande eller hälsa som studeras (Quintana, et al., 2018). Med andra ord visar tidigare studier att sambandet mellan internetanvändning och äldres subjektiva välbefinnande är komplext.

Denna avhandling har förutom sambandet mellan subjektivt välbefinnande och internetanvändning också undersökt hälsofrämjande arbete riktat till äldre personer och samskapande arbetssätt kopplat till digitala tjänster. Detta för att också kunna bidra med forskningsevidens för att utveckla verksamheter riktade till äldre personer. Hälsofrämjande arbete syftar på olika typer av aktiviteter som avser att främja personers möjlighet till att själva ta kontroll över och förbättra sin hälsa i varierande kontexter och på olika nivåer (WHO, 2021a). Hälsofrämjande arbetssätt och aktiviteter ska stärka de involverade

personernas inflytande (eng. empowerment) och deltagande, ha en mångdimensionell syn på hälsa, uppmuntra till tvärssektoriellt samarbete, stå för rättvisa och hållbarhet samt kombinera många olika strategier för att uppnå målsättningarna (Rootman, et al., 2001). I Finland har det hälsofrämjande arbetet varit en viktig del av arbetet för olika professioner inom social- och hälsovårds-, samt utbildningssektorn. I det hälsofrämjande arbetet riktat till äldre personer betonas ett hälsosamt åldrande som utvecklar och upprätthåller funktionsförmågan och som möjliggör välbefinnande i internationella riktlinjer och tongivande dokument (WHO, 2021b). För att möjliggöra ett hälsosamt åldrande för alla behövs personcentrerade strategier som fokuserar på äldres egna behov och önskemål, ökat samarbete mellan olika sektorer samt att äldre själva på ett meningsfullt sätt engageras och involveras i utvecklandet av strategier och beslutsfattande som berör dem (WHO, 2021b).

I en kartläggning om initiativ för att främja aktivt och hälsosamt åldrande i Norden av Nordiska välfärdscentret (2020) framkommer att de flesta pågående projekt berör hälso- och välfärdsteknologi på ett eller annat sätt. I det finska nationella programmet för den åldrande befolkningen som instiftats av den nuvarande regeringen (Marin) beskrivs också åtgärder för att utveckla och nyttja finländsk teknologi riktat till äldre personer (Social- och hälsovårdsministeriet, 2020b). Social- och hälsovårdspersonal inom primärvården, och speciellt inom hemservice, har under de senaste åren integrerat en hel del olika teknologiska lösningar i sin arbetsvardag (Lupiáñez-Villanueva et al., 2018; Randall et al., 2020; Rantala et al., 2021). Personal som arbetar inom äldreomsorgen verkar generellt vara positivt inställda till nya teknologiska lösningar (Baudin et al., 2020) men studier visar också på att det finns en oro bland vårdpersonal att en allt mer teknologi-baserad vård kommer att leda till mindre utrymme för det medmänskliga mötet (Pekkarinen et al., 2020/2019; Frennert & Baudin, 2019; Segercrantz & Forss, 2019). Dessutom visar studier att digitala verktyg inte alltid underlättar arbetsbördan så som planerat och kan istället bidra till att vårdpersonal känner sig överbelastade eftersom det krävs resurser som inte alltid finns för att lära sig att använda nya program (Frennert, 2020). Likväl kan digitala verktyg underlätta vårdpersonalens arbete genom att assistera med tyngre arbetsuppgifter så som t.ex. lyft (Pekkarinen, et al., 2019).

Ett sätt öka äldres inflytande i det digitala samhället och göra deras röster kring digitala tjänster hörda är att involvera dem i design och utvecklingen av digitala verktyg och tjänster. Participatoriska tillvägagångssätt är ett paraplybegrepp som inbegriper olika samskapande metoder och innebär att användare av social- och hälso-tjänster tas med som "aktiva partners som medverkar i diskussioner och beslut, delar med sig av sin unika kunskap, expertis och sitt perspektiv" (Iwarsson & Jönson, 2021, s. 39). Inom geronteknologin – ett interdisciplinärt forskningsområde där gerontologin och teknologin möts – har olika samskapande metoder förespråkats eftersom de anses kunna skapa skräddarsydda och användarvänliga digitala verktyg som är i linje med målgruppens behov och önskemål (Fischer, et al., 2020; Grates et al., 2019; Mannheim et al., 2019; Peine & Neven, 2019). Dessutom visar forskning

på att samskapande metoder kan öka kunskapen om teknologianvändning bland äldre deltagare samt fördjupa förståelsen för äldre och deras vardag bland utvecklare och forskare. Vidare har också en ökad upplevelse av tillhörighet och delaktighet i samhället rapporterats bland äldre som deltagit i design-och utveckling av digitala verktyg och tjänster. (Fisher et al., 2020).

## 12.2 Syfte

Det övergripande syftet var att undersöka det mångdimensionella subjektiva välbefinnandet bland äldre och att fördjupa kunskapen om hälsofrämjande arbete och samskapande arbetssätt med äldre personer i en alltmer digital vardag. Avhandlingen består av fyra olika delstudier varav de två första fokuserar på att beskriva subjektivt välbefinnande bland äldre och kopplingen till internetanvändning och digitala tjänster, medan den två sista delstudierna är mera praktiskt inriktade och studerar hälsofrämjande arbete och samskapande metoder tillsammans med äldre.

Delstudiernas syften presenteras nedan:

Studie I: Att undersöka sambandet mellan internetanvändning, digitala tjänster och upplevd meningsfullhet bland äldre personer i två regioner i Finland och Sverige.

Studie II: Att undersöka samband mellan olika dimensioner av subjektivt välbefinnande (tre olika sätt att mäta subjektivt välbefinnande), internetanvändning och digitala tjänster bland äldre personer i två regioner i Finland och Sverige.

Studie III: Att undersöka erfarenheter och upplevelser av hälsofrämjande arbete bland äldre personer i kommuner i Sverige och Finland från personalens perspektiv.

Studie IV: Att undersöka äldre deltagares upplevelser och erfarenheter av att delta i ett innovationsprojekt och utveckla en applikation för äldre personer.

## 12.3 Metodologi och metoder

Inom vårdvetenskapen är människa, miljö, hälsa och vårdande av särskilt intresse (Fagerström, 2021, Fawcett, 1984). Denna avhandling grundar sig på antaganden om att vår vardagskontext är komplex och att olika synvinklar och metoder behövs för att undersöka den (Koshy et al. , 2011; Martela, 2019). Olika metoder har därför använts i delstudierna och avhandlingen kan därför anses ha en multi-metoddesign. Varje delstudie har ett eget syfte och har alltså genomförts som separata studier. De två första delstudierna har en kvantitativ forskningsansats vilket möjliggjorde att förekomsten av subjektivt välbefinnande och samband till internetanvändning och digitala tjänster kunde undersökas bland äldre i två regioner i Finland och en i Sverige kan undersökas (NIH Office of Behavioral and Social Sciences, 2018). De två senare delstudierna har en kvalitativ ansats och fångar individers upplevelser och erfarenheter (Maxwell, 2010; NIH Office of Behavioral and Social Sciences, 2018).



I Tabell 1 beskrivs de olika delstudierna och dess deltagare samt metoder för datainsamling och dataanalys. Studiernas deltagare är både hemmaboende äldre personer och representanter för olika personalgrupper som arbetar med hälsofrämjande verksamhet riktad till äldre personer.

**Tabell 1.** Avhandlingens delstudier.

<b>Del-studie</b>	<b>Deltagare</b>	<b>Datainsamling</b>	<b>Dataanalys</b>
I Nordisk befolkningsbaserad studie om internetanvändning och upplevd meningsfullhet bland äldre: Hur är de sammankopplade och varför har det en betydelse?	9386 (svarsprocent 61 %) personer födda år 1930, 1935, 1940, 1945 och 1950. Beroende på boplatssortens storlek skickades enkäten ut till alla eller varannan eller var tredje person, födda de ovannämnda årtalen. Uppgifterna hämtades från befolkningsregister.	Datainsamlingen utfördes inom projektet Gerontologisk Databas och Resurscentrum (GERDA) år 2016 i regionerna Västerbotten, Österbotten och Södra Österbotten. Studien baserar sig på en befolkningsbaserad enkät- och tvärsnittsstudie.	Logistiska regressionsanalyser gjordes där oddsförhållanden (eng. odds ratios) räknades ut på 95 procentiga konfidensintervall för upplevd meningsfullhet. I analyserna kontrollerades det samtidigt för sociodemografiska variabler och självskattad hälsa.
II Nyanserade perspektiv på sambandet mellan internetanvändning och subjektivt välbefinnande bland äldre: En nordisk befolkningsbaserad studie	9386 (svarsprocent 61 %) personer födda år 1930, 1935, 1940, 1945 och 1950. Beroende på boplatssortens storlek skickades enkäten ut till alla eller varannan eller var tredje person, födda de ovannämnda årtalen. Uppgifterna hämtades från befolkningsregister.	Datainsamlingen utfördes inom projektet Gerontologisk Databas och Resurscentrum (GERDA) år 2016 i regionerna Västerbotten, Österbotten och Södra Österbotten. Studien baserar sig på en befolkningsbaserad enkät- och tvärsnittsstudie.	Logistiska regressionsanalyser gjordes där oddsförhållanden (eng. odds ratios) räknades ut på 95 procentiga konfidensintervall för tre dimensioner av subjektivt välbefinnande (upplevd meningsfullhet, upplevd lycka och livstillfredsställelse). I analyserna kontrollerades det samtidigt för sociodemografiska variabler och självskattad hälsa.
III Hälsofrämjande arbete riktad till äldre personer: En nordisk studie som undersöker	34 deltagare från olika personalgrupper som arbetar med hälsofrämjande arbete riktad till	Data insamlades med hjälp av fokusgruppintervjuer. Sammanlagt hölls 9 fokusgrupper som varade mellan en till	Fokusgruppintervjuerna analyserades med hjälp av kvalitativ innehållsanalys så som den beskrivs av Kyngäs (2020).

<b>Del-studie</b>	<b>Deltagare</b>	<b>Datainsamling</b>	<b>Dataanalys</b>
olika personalgruppers uppfattningar om hälsofrämjande arbete och dess implementering i praktiken	äldre deltog. Informanterna representerade olika yrken och organisationer (offentlig och tredje sektorn). En majoritet av deltagarna var kvinnor och de flesta (70,6 %) arbetade inom offentliga sektorns verksamhet. I studien deltog t.ex. koordinators, fysioterapeuter, närvårdare och rådgivare. Informanterna var verksamma i Österbotten och Västra Götaland.	två timmar, beroende på antalet deltagare.	
IV Fördelar och utmaningar med participatoriska tillvägagångssätt: En studie om äldres egna upplevelser av att delta i att utveckla en applikation	38 hemmaboende äldre personer som inte hade omfattande vårdbehov deltog i innovationsprojektet @geing online som studien baserar sig på. Inom ramarna för projektet deltog äldre i utvecklandet av en avancerad prototyp av en applikation för surfplattor. Applikationens målsättning var att främja tillgången till meningsfulla sociala aktiviteter bland äldre i Botnia regionen.  Några av deltagarna (4) deltog i flera tillfällen, medan de flesta deltog en	43 halvstrukturerade intervjuer utfördes i samband med designaktiviteterna inom projektet. Intervjuerna varade från 30 minuter upp till en timme.	De transkriberade halvstrukturerade intervjuerna analyserades med hjälp av tematisk analys enligt Braun och Clarke (2006).

Del-studie	Deltagare	Datainsamling	Dataanalys
	gång. En majoritet av deltagarna var kvinnor (24) och medelåldern var 79,7 år.		

## 12.4 Resultat och diskussion

Från delstudie I och II framkom att över 80 procent av äldre personer bosatta i Botnia regionen (Finland och Sverige) upplever sin tillvaro som meningsfull, 79 procent skattade sig som lyckliga och 95 procent upplevde att de var tillfreds med sina liv just nu. Från analyserna framkom också att det finns statistiskt signifikanta skillnader för upplevd meningsfullhet mellan internetanvändande äldre (använder nätet självständigt eller tillsammans med någon annan) och de personer som inte använder internet alls. Fler personer som använder internet för praktiska ärenden (bank, hälso-och myndighetstjänster, resor osv.), för att samla information (tidningar, sökningar), för att hålla kontakt med andra, ta del av underhållning och aktiviteter relaterade till fritidsintressen och andra ändamål upplever sina liv som meningsfulla. Analyserna visar att det finns statistiskt signifikanta samband mellan upplevd meningsfullhet och internetanvändning och att dessa samband också kvarstår efter att variabler som mäter sociodemografiska faktorer (så som inkomstnivå, civilstånd, utbildningsnivå) och självskattad hälsa adderats till analyserna (OR: 2.083 95% CI: 1.667–2.603 och OR: 2.674, CI: 2.392–2.990). Dock pekar resultaten mot att sambandet till upplevd meningsfullhet inte gäller alla digitala tjänster då enbart internetanvändning för att ta del av underhållning och aktiviteter relaterade till fritidsintressen visar statistisk signifikans (OR: 1.192, 95% CI: 1.015–1.401). Internetanvändning för att hålla kontakt till andra låg också nära nivåerna för statistisk signifikans (OR: 1.173, 95% CI: 0.996–1.383). Den andra delstudien visar på liknande resultat, men belyser ytterligare att sambandet mellan subjektivt välbefinnande och internetanvändning också verkar variera enligt vilken dimension av välbefinnande som man undersöker. Till exempel hittades inga statistiskt signifikanta samband mellan upplevd lycka, livstillfredsställelse och internetanvändning när man adderat samma variabler för socio-demografi och självskattad hälsa som i Studie I. Däremot hittades statistisk signifikanta samband mellan upplevd lycka och digitala tjänster kopplade till underhållning och fritidsintressen efter att man kontrollerat för socio-demografiska faktorer och självskattad hälsa (OR: 1.171, 95% CI: 1.007–1.361). Dessa resultat är i linje med vad som presenterats i tidigare studier, det vill säga att det är viktigt att utforska vad man gör på internet (vilken typ av digitala tjänster som används) och hur man definierar och mäter subjektivt välbefinnande när man studerar kopplingen mellan dessa två fenomen (Lifshitz, et al., 2018; Nordmyr & Forsman, 2016; Quintana, et al., 2018). I dagsläget är det emellertid få studier om internetanvändning bland äldre som applicerat ett mångdimensionellt synsätt på både subjektivt välbefinnande och

internetanvändning. Det är dock värt att notera att deltagarna i Studie I och II troligen indikerade i enkäten att de använder flera digitala tjänster och att en kombination av dessa förmodligen påverkar sambandet till subjektivt välbefinnande och inte endast enskilda digitala tjänster. Det är viktigt att komma ihåg att resultaten från de två första delstudierna inte kan säga något om sambandets riktning – det vill säga om internetanvändningen bidrar till upplevt välbefinnande eller om personer med höga nivåer av subjektivt välbefinnande är mer sannolikt internetanvändare. Resultaten från Studie I och II visar också på att sociala omständigheter troligen spelar roll och att det finns statistiskt signifikanta samband mellan till exempel inkomstnivå, civilstånd, hälsostatus och subjektivt välbefinnande. Exempelvis var oddsen för att uppleva livet som meningsfullt fem gånger så hög bland de som skattat sin hälsa som mycket god jämfört med de som rapporterade en dålig eller måttlig hälsa. Även tidigare studier visar på att internetanvändning inte är jämnt fördelad mellan olika grupper av äldre i samhället (König, et al., 2018). Äldre personer som identifierar sig som män och har en yngre kronologisk ålder, en högre utbildnings- och inkomstnivå och en god hälsa är i högre grad representerade bland äldre internetanvändare. Hur man använder internet tycks också kunna variera enligt socio-ekonomisk position i samhället (Olsson et al., 2018; Gallistl & Nimrod, 2020). Det är alltså troligt att äldre personer som redan upplever välbefinnande är internetanvändare till en högre grad än de personer som inte gör det. Eftersom studier som undersökt sambandet mellan subjektivt välbefinnande och internetanvändning under en längre tid (t.ex. Lam, et al., 2020; Lissitsa & Chachashvili-Bolotin, 2016) pekar mot att internet i viss mån också kan bidra till subjektivt välbefinnande finns det en risk för att digitaliseringen kommer att leda till ökade klyftor beträffande välbefinnande bland äldre (Lupton, 2015).

Resultatet från delstudie III belyser vikten av att "se de äldre personerna", vara lyhörd för individuella behov och önskemål samt att skraddarsy och anpassa hälsofrämjande arbete enligt dessa. Det ideala hälsofrämjande arbetet är linje med det som förespråkats i både internationella och nationella strategier för främjande av aktivt och hälsosamt åldrande (FN, 2020; Social- och hälsovårdsministeriet, 2020). Det framkom också från resultatet att representanterna för olika personalgrupper, verksamma inom hälsofrämjande arbete, inte alltid kan omsätta dessa ideal i praktiken i nuläget. Både personal och äldre klienter inom hemtjänst (Dunér, et al., 2019) verkar dela bilden om att äldres egna preferenser inte beaktas till den grad som de borde inom primärvården. Informanterna upplevde flera faktorer som hindrade dem från att "se de äldre personerna" och anpassa aktiviteter enligt individuella behov. Sådana hinder var till exempel strikta riktlinjer och arbetsscheman, vilket är hinder som också omnämnts i tidigare studier (t.ex. Moore, et al., 2017; Olsen et al., 2019). Det ökade kravet på digital dokumentation var ett element i arbetsvardagen som informanterna upplevde att tog tid ifrån mötet med den äldre personen. Dessutom upplevde informanterna att deras förförståelse som var förknippad med den professionella rollen ibland hindrade dem från att skilja mellan vad som är den äldre personens faktiska behov och vad som är

personalens uppfattning om vad som är hälsofrämjande för den personen. Däremot ansåg informanterna att en ökad användning av digitala tjänster samt att i högre grad involvera äldre i planerandet och genomförandet av hälsofrämjande verksamhet kan möjliggöra skraddarsydda tjänster i framtiden.

Från delstudie IV framgick att äldre personer som var delaktiga i att utveckla en applikation för äldre personer upplevde innovationsprojektet som upplyftande. Ett element som bidrog till att deltagandet kändes upplyftande verkade vara att deltagarna lärde sig nya saker om teknologi och sig själva som teknikanvändare. Flera av deltagarna var nyfikna på digitala verktyg och fick i och med sin medverkan bekanta sig med sådana. En del upplevde att surfplattan och prototyperna under utveckling var lättare att använda än vad deltagarna hade förväntat. Många av deltagarna beskrev teknologi som komplicerat och skrämmande och upplevde att speciellt äldre personer har problem med att använda digitala verktyg. Efter att deltagarna hade bekantat sig med surfplattan och prototyperna förändrades bilden och för vissa gav deltagandet mersmak för digitala verktyg såsom surfplattor. Samarbetet med universiteten och möjligheten till att bekanta sig med forskningsverksamhet bidrog också till att deltagandet i innovationsprojektet upplevdes som positiv. Framförallt kändes deltagandet meningsfullt eftersom att man kunde bidra till att utveckla tjänster för äldre personer. Deltagarna verkade uppleva att deras medverkan i projektet var betydelsefull även om de allra flesta saknade tidigare erfarenhet inom teknikutveckling. Deltagarna ansåg att deras erfarenheter och upplevelser från att vara äldre i dagens samhälle behövs för att skapa tjänster som riktar sig till äldre personer och därför är det viktigt att ställa upp och bidra om man har och får den möjligheten. I tidigare studier har det framkommit att den samskapade produkten (t.ex. interventionsprogram, digital tjänst) inte alltid är viktigast för deltagarna, utan snarare att få dela med sig av sina erfarenheter (Andréasson et al., 2019) och träffa andra äldre personer (Hanson, et al., 2007). Emellertid framkom det i Studie IV att samskapande design-och utvecklingsarbetet inte är linjära processer, utan snarare omständliga och kan väcka olika känslor bland deltagarna. En del av deltagarna kände sig besvikna – på sig själva för att de inte lyckades navigera i applikationen och surfplattan på ett önskat vis och på projektet för att projektaktiviteterna inte genererade den kunskap om digitala verktyg i den grad man hade hoppats på. Dessutom framkom det i intervjuerna att en del deltagare var rädd för att inte kunna leva upp till projektgruppens förväntningar. Förändringar i privatlivet och i det egna hälsotillståndet gjorde också att vissa deltagare inte kunde delta i den utsträckning som de kanske hade velat. Under projektperioden förändrades både deltagarna och världen (pandemin), vilket utmanade deltagandet i sig självt, men också förändrade ens intressen och perspektiv. Att kunna delta på sina egna villkor, flexibilitet, föreslogs kunna underlätta deltagandet i innovationsprojekt som tillämpar samskapande metoder och som pågår under en längre tid (jfr. Andréasson et al., 2019; Berge et al., 2020; Hakobyan et al., 2015).

## 12.5 Slutsatser

Resultaten från delstudierna i denna avhandling belyser vikten av att beakta också andra faktorer än enbart digitala verktyg i samband med digitaliseringen. Det verkar som om det är många olika faktorer som påverkar sambandet mellan subjektivt välbefinnande och internetanvändning bland äldre – bland annat vilka digitala tjänster som används samt vilka dimensioner av subjektivt välbefinnande som studeras. Personernas sociala omständigheter och vardagsliv verkar också påverka utfallet. Det är därmed viktigt att inte bara fokusera på om och vilka äldre som använder digitala verktyg och tjänster, utan att också studera hur internet används bland äldre. I fortsättningen behöver studier som undersöker äldres hälsa och välbefinnande i en vardagskontext beakta både så kallade "offline" och "online"-aktiviteter samtidigt, eftersom båda sker parallellt och inte är isolerade från varandra. Att förstå det komplexa förhållandet mellan subjektivt välbefinnande och internetanvändning är viktigt eftersom denna typ av kunskap kan vara till nytta för att stöda det hälsofrämjande arbetet bland äldre och säkerställa att insatser gällande digital inkludering riktas rätt. Till exempel behöver initiativ som syftar till att öka digital kompetens bland äldre också innefatta digitala tjänster kopplade till hobbyn, underhållning samt sociala nätverk och inte enbart fokusera på informationssökning, bank- och e-hälsotjänster.

Det är viktigt att hälsofrämjande initiativ och nya digitala tjänster riktade till äldre personer når ut till olika grupper inom den äldre befolkningen – även till de som av olika orsaker är utmanade att nå. Detta för att förebygga att redan existerande hälsoskillnader inte ökar ytterligare. Digitalt utanförskap behöver också ses som en del av sociala och hälsomässiga orättvisor och inte som något som endast är åldersrelaterat. För att digitala tjänster överhuvudtaget skall kunna komma målgrupperna till nytta (i denna avhandling både äldre eller personal inom social-och hälsovård) behöver de implementeras i verksamheter där målgrupperna finns. Införandet av digitala verktyg i social-och hälsovårdssektorn innefattar långt mer än själva ibruktagandet av den teknologiska produkten. Införandet innebär nya sätt att arbeta vilket i sin tur också borde resultera i att hela verksamheten och arbetsbilden ses över, som till exempel arbetsfördelningen och samarbetet mellan människor och digitala verktyg. Att aktivt involvera personalgrupper som arbetar i en kontext där digitala verktyg ska tas i bruk kan underlätta implementeringen eftersom de sitter på ovärderlig sakkunskap kring kontexten och klienterna. Resultaten från delstudierna pekar på att det finns många fördelar med att jobba tillsammans med målgruppen också inom teknologiutveckling samtidigt som det också finns utmaningar med samskapande metoder. Det behövs därför mer forskning om samskapande metoder inom utveckling och forskning. Denna typ av information är värdefull för att kunna utveckla metoder som beaktar upplevda hinder och möjliggörande faktorer för att kunna underlätta deltagande i samskapande innovationsprojekt i framtiden.

Denna doktorsavhandling bidrar alltså med kunskap om äldres välbefinnande i allt mer digital vardag. Med avhandlingen önskar jag också belysa vikten av att äldres idéer efterfrågas och att de själva inkluderas då framtidens tjänster inom social-och hälsovården utvecklas. Äldre beskrivs ofta som en grupp som är tacksamma för det lilla och inte kräver så mycket. Äldre har i hög grad både intresse för samhällsutveckling och åsikter om meningsfulla sociala aktiviteter – också digitala sådana – och därför behöver vi förändra detta tankesätt. Det är viktigt att komma ihåg att bakom epitetet "äldre" gömmer sig en mångfald av individer och att också denna befolkningsgrupp förändras och åldras i samtiden.

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# Appendix

Description of the division of work within the sub-studies between the main author and co-authors according to the guidelines of authorship by Åbo Akademi University.

<b>Contribution</b>	<b>Study I</b>	<b>Study II</b>	<b>Study III</b>	<b>Study IV</b>
Conception	EWEV + AKF, IN	EWEV + AKF	EWEV + AKF, JN, GHK	EWEV + AF, IN
Design	EWEV + AKF	EWEV	EWEV + AKF, JN, GHK	EWEV + AKF
Acquisition of material	GERDA project members	GERDA project members	EV +AF, GHK	EWEV + @geing Online project members
Analysis of material	EWEV + AKF	EWEV	EWEV	EWEV
Interpretation of material	EWEV + AKF	EWEV + AKF	EWEV + AKF, JN, GHK	EWEV + AKF, IN, LN, SH
Drafting of the article	EWEV	EWEV	EWEV	EWEV
Revising the article	EWEV + AKF, IN	EWEV + AKF	EWEV + AKF, JN, GHK	EWEV + AKF, IN, LN, SH
Final approval (all)	EWEV + AKF, IN	EWEV + AKF	EWEV + AKF, JN, GHK	EWEV +AKF, IN, LN, SH



