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How Social Well-Being Is Affected by Digital Inequalities

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Digital inequalities have real consequences for individuals' everyday lives—this basic assumption drives digital inequality research. Recent efforts have focused on tangible benefits of online engagement, yet subjective quality of life measures also matter as Internet outcomes. This article contributes to closing this gap. First, it theoretically introduces subjective social well-being—the appraisal of one's functioning in society—as a consequence of digital participation, potential, and perception differences. Second, it tests the dependence of social well-being on these three dimensions using structural equation modeling with nationally representative survey data. Results reveal that the perception of digital belongingness directly increases social well-being, and Internet skills as digital potential do so indirectly. The net effect of digital participation is insignificant. These findings lead to recommendations for policies targeting digital inequalities and future research directions.

Keywords: digital inequality, digital divide, Internet use, skills, well-being, information society, Internet outcomes, social inequality

With the diffusion of the Internet in modern societies came a plethora of research on differences in Internet access and use. Although much research has been conducted on sociodemographic differences concerning Internet access, digital skills, and specific uses of the Internet (e.g., Robinson et al., 2015), the societal consequences of these digital inequalities have been much less explored. The significance of digital inequality research lies in the often implicit assumption that participation in the information society requires effective Internet use and yields personal, social, and economic advantages. Even if everyone used the Internet, differences in achieving individually meaningful positive outcomes would remain as a social problem (Newman & Gurstein, 2016; Siefer, 2016). This results in the essential challenge of identifying relevant outcomes of socially differentiated Internet use in everyday life. This article argues for the inclusion of subjective well-being as a key outcome, not least because it contains potential as an object and basis of public policies.

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The study makes three main contributions to the research on the consequences of digital inequalities. First, it theoretically develops subjective (social) well-being as an addition to existing, predominantly tangible digital inequality outcome measures. Second, its empirical results allow reliable and nationally generalizable statements. They also have value for other social democracies where the Internet is crucial for everyday functioning. The data used for the empirical analysis are representative for Switzerland, a country with high Internet penetration, and include nonusers of the Internet as a baseline. So far, research on the effects of the Internet on subjective well-being has lacked studies that are based on population-level data and include validated measures. Third, the model includes users' Internet skills, which is essential because insufficient skills seem to prevent users from engaging in beneficial online activities (e.g., Büchi, Just, & Latzer, 2017; Hargittai, 2010; Hargittai & Shaw, 2013; Nimrod, 2013, 2014).

This study's contributions are equally theoretical and empirical: A relevant outcome measure for digital inequality scholarship is developed by combining subjective well-being theory with digital inequality and Internet use research, and we provide a first empirical assessment of the relationship between variables related to digital inequality and social well-being as an outcome. Results show that Internet skills as a measure of the potential to participate in the information society positively influence both actual Internet use and belongingness to the information society. The perception of digital belongingness increases social well-being.

This article first introduces the concept of digital inequality and its consequences in information societies. Then, social well-being is defined and introduced as an addition to existing measures of digital inequality outcomes. The presumed effects of digital participation, potential, and perception on social well-being are theoretically developed. The empirical section then presents the methods and results before discussing the implications of the findings.

Theoretical Considerations for the Integration of Subjective Well-Being Into Digital Inequality Research

Digital Inequalities and Their Consequences in Information Societies

The diffusion of the Internet has given rise to questions of digital inequality. This line of research has predominantly addressed how socioeconomic characteristics like gender, age, level of education, employment, and income are related to Internet use and non-use (DiMaggio, Hargittai, Celeste, & Shafer, 2004; Robinson et al., 2015; Zillien & Hargittai, 2009). Although Internet access and Internet usage inequalities have been extensively researched, including in multicountry comparative studies (e.g., Büchi, Just, & Latzer, 2016; Galperin, 2017; Ono & Zavodny, 2007), the consequences of these existing digital inequalities for individuals' subjective well-being remain largely unclear. The assumption of digital inequality research that Internet use is beneficial overall serves as a starting point for this study.

Research on the consequences of digital inequalities assumes that even if access to the Internet and sufficient usage skills are given, people differ in their abilities to convert their digital resources into specific (offline) objectives. Furthermore, it can be expected that Internet users who are able to continuously achieve high offline returns through their Internet use additionally benefit from feedback effects: Higher

economic, cultural, and social capital allows them to further improve their Internet skills, which in turn are likely to have a positive effect on their future offline outcomes (Van Deursen, Helsper, Eynon, & van Dijk, 2017). Although studies on divides in terms of access and use are clearly relevant, it is especially these digital inequality outcomes that ultimately affect life chances and reveal how individuals' Internet use relates to their social functioning (Lissitsa & Chachashvili-Bolotin, 2016).

So far, digital inequality outcomes have mainly been understood as manifest outcomes in economic, social, political, institutional, or educational life domains (Blank & Lutz, 2018; Van Deursen & Helsper, 2018). General findings show that individuals with lower social status seem to gain fewer advantages from digital engagement, indicating an exacerbation of existing inequalities. Although Internet outcomes like finding a job or making new friends online are clearly relevant, we argue that additional, more latent and subjective outcomes of Internet use also matter: How does individuals' Internet use or nonuse make them feel about themselves as a part of the larger society, and how does this ultimately affect their mental health? Nonusers of the Internet may feel left out and stigmatized while explaining their Internet avoidance with a perceived lack of usefulness of the Internet (Reisdorf, Axelsson, & Söderholm, 2012). We argue for subjective well-being in general as an important and necessary addition to existing outcome measures in digital inequality research. So far, *social* well-being has been the least studied component of subjective well-being (Keyes, 2014), although it is precisely this concept that seems highly relevant in relation to the Internet because it focuses on the individual's functioning in society. Information and communication opportunities for social orientation and a high level of interactivity are key affordances of the Internet. This study therefore develops social well-being as a consequence of digital inequalities.

The Internet affects subjective well-being through its growing role in virtually all domains of everyday life. It is clear, however, that there are also more salient predictors of general well-being, such as physical health (e.g., Helliwell & Putnam, 2004; Lissitsa & Chachashvili-Bolotin, 2016). The societal importance of the Internet, however, is still growing, and if there are already significant overall effects in a general population sample, this outcome measure requires increased attention. The main research question this study seeks to answer is, therefore, *How is social well-being affected by digital inequalities?*

Subjective Social Well-Being as a Consequence of Digital Inequalities

Various indicators aim at measuring quality of life or well-being at the individual or societal level, ultimately all dealing with the pursuit of a "good life" (Ryan & Deci, 2001). Figure 1 shows an overview of prominent quality of life indicators identified in the literature. These indicators represent approaches to measuring quality of life and are conceptually distinct, yet empirically interrelated. The focus of the present study is on social well-being as a consequence of digital inequalities. In the past, the focus of both academia and policy makers has been mostly on economic indicators like gross domestic product (Organisation for Economic Co-operation and Development [OECD], 2013). Other macro conditions, like safety, access to education, or legal and political factors, can also serve as indicators of well-being. Although such measures provide important indications at the population level, inferring an individual's mental state is inaccurate (Keyes & Shapiro, 2004).

An individual's physical and mental health in a clinical sense also play an important role in this context. The desire to measure mental health more generally has given rise to an interdisciplinary research tradition concerned with conceptions of well-being going beyond economic or medical definitions. Subjective well-being can be understood as an approach to measuring mental health as a part of quality of life at the individual level (Diener, Oishi, & Tay, 2018). Contrary to clinical diagnosis, for example, it is a self-assessment of an individual's well-being in various life domains (Keyes, 2014). Two dominant research branches can be distinguished, which differ with regard to their underlying philosophical assumptions (see Figure 1). The *hedonic* definition of subjective well-being focuses on a balance between positive and negative affect and mainly regards pleasure and life satisfaction as constituents of a happy life (Bradburn, 1969; Diener, 1984; Kahneman, Diener, & Schwarz, 2003). Whereas hedonic approaches generally define subjective well-being in terms of the absence of negative mood or mental illness (Ryan & Deci, 2001), the *eudaimonic* approach argues that subjective well-being is reflected not only in the absence of negative factors (e.g., pain) but also in the presence of positive functioning. Individuals who do not suffer from mental health problems or disease do not automatically experience high subjective well-being. Accordingly, positive affect is not the opposite of negative affect (Keyes & Shapiro, 2004; Ryan & Deci, 2001; Ryff & Keyes, 1995). Therefore, the eudaimonic definition of subjective well-being does not rely on happiness as the single decisive factor for well-being. Rather, it includes indicators like purpose in life, personal growth, or self-acceptance (Jahoda, 1958).

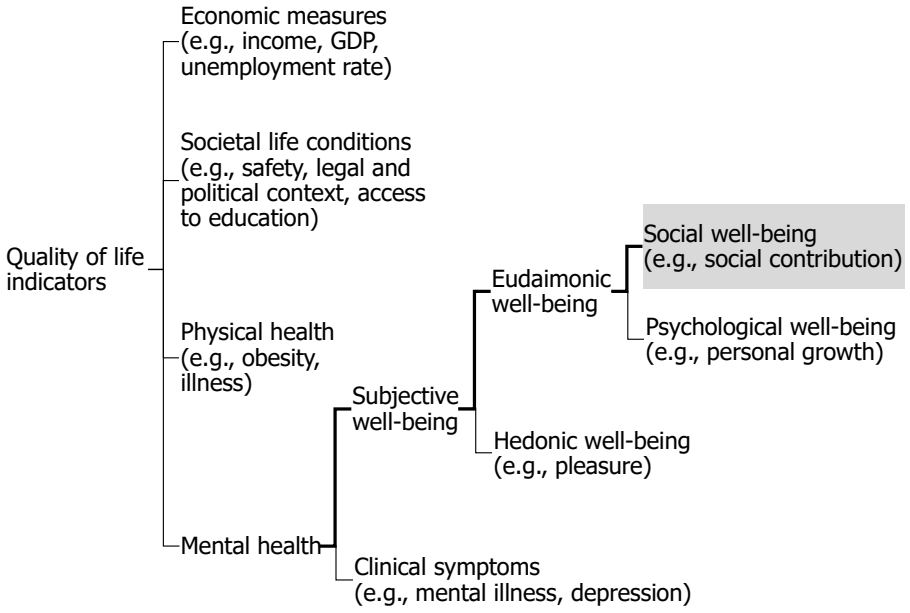

Figure 1. Social well-being as a quality of life indicator.

The eudaimonic definition of subjective well-being can be subdivided into psychological well-being and social well-being. The former deals with self-acceptance, purpose in life, environmental mastery, positive relationships, autonomy, and personal growth (Ryff, 1995). *Psychological* well-being is the aspect of an individual's subjective well-being that relates to private life. *Social* well-being, on the other hand, is a primarily public phenomenon, which is concerned with the challenges an individual faces while being embedded in social structures and communities (Keyes, 2014).

Keyes (1998) defined social well-being as "the appraisal of one's circumstance and functioning in society" (p. 122). The concept deals with the quality of people's relations to society as well as their individual functioning in society and other social groups, and reflects "positive social health" (Keyes, 1998); therefore, it is an important measure of quality of life overall (Keyes & Shapiro, 2004). To date, the health of individuals reflected in their ability to function within society and social groups has only been sparsely researched (Keyes, 2014) even though humans primarily satisfy their needs through the fulfillment of social roles. Also, the functioning of individuals in society is necessary for the functioning of society as a whole.

Social well-being is a multidimensional concept, comprising five social challenges that individuals face in their everyday lives (Keyes, 1998). *Social integration* corresponds to the assessment of the quality of one's relationships to society and other communities like neighborhoods, families, or friend groups. *Social contribution* is the self-report of one's social value and includes the feeling of having something to give to society and being an important member thereof. *Social actualization* is concerned with the assessment of the potential and progress of society as a whole. *Social coherence* deals with the perception of the quality, organization, and functioning of the social world and includes interest in knowledge about the world. *Social acceptance*, finally, measures the perception of society through the character and the qualities of other people as a general category (Keyes, 1998).

Overall, high social well-being means that an individual can successfully deal with the social challenges in his or her life. According to Keyes (1998), education is particularly predictive of resources and self-conceptions, and therefore social well-being; higher education positively influences one's income, quality of housing, and neighborhood. Lower socioeconomic status, however, is associated with lower physical and mental health. The effect of age on social well-being is inconsistent (Keyes, 1998). As a general sociological concept, social well-being measurement does not refer to the information society; it is predominantly predicted by other offline measures. In this study of digital inequalities, the overall effects are therefore presumably small, but relevant nonetheless. These digital inequalities are assessed in three dimensions: digital participation, potential, and perception.

Digital Influences on Social Well-Being

This article views Internet use (digital participation), Internet skills (digital potential), and a feeling of belongingness to the information society (digital perception) as potential digital-inequality-related influences on social well-being. Existing research in the field has mostly considered other measures for quality of life, like psychological well-being and life satisfaction, or related concepts like social capital and social cohesion. In this context, it is important to note that different dimensions of subjective well-being are understood as complementary rather than competing functions (Huta, 2015; Ryan & Deci, 2001). The

following sections build on existing findings and theoretical considerations to expand the understanding of the consequences of the Internet for mental health by focusing on the distinctly social aspects of well-being.

Digital Participation: Internet Use. The Internet constitutes a key infrastructure of information societies. Using the Internet frequently for everyday tasks of communication and information-seeking thus corresponds with being an active part of the information society. Internet use is a prominent dimension of digital inequality, with research showing clear socioeconomic differences (e.g., Büchi et al., 2016; Zillien & Hargittai, 2009). Early studies already saw that media like television or telephones allow people to participate in the broader social and cultural world practically and symbolically (e.g., Haddon, 2000; Tubella, 2005). Compared with traditional media, the Internet is characterized by manifold individual opportunities for use, which makes the examination of its effects more complex.

To the best of our knowledge, the only study so far that has directly considered the impact of Internet use on *social* well-being as proposed by Keyes (1998) examined how well-being changed in a sample of psychology students after participants began using the Internet (Contarello & Sarrica, 2007). The results showed that adoption of the Internet made the students feel that they were more integrated into communities, that they had more to contribute to society, and that it was easier to understand how society works. Since the second half of the 1990s, research on the relationship between Internet use and well-being in general has intensified. Initial utopic scenarios predicted that the Internet would decrease social inequalities by empowering socially disadvantaged groups. Already in 2002, a study in three Chinese cities revealed the Internet as the most important medium for improving quality of life (P. Lee, Leung, Lo, & Xiong, 2008).

In an online survey of 1,210 Dutch teenagers, Valkenburg and Peter (2007a) found Internet use to positively affect quality of life by increasing the time spent with existing friends. Further, online communication had a positive effect on life satisfaction by promoting the feeling of closeness to friends (Valkenburg & Peter, 2007b). Internet use thus promotes social relationships—or in Keyes' (1998) theory, social integration—and thereby has a positive effect on well-being. A major subset of studies that suggest a positive effect of Internet use on subjective well-being focuses on older adults, for whom Internet use can be instrumental in maintaining or establishing social connections (e.g., Choi, Kong, & Jung, 2012; Cotten, Anderson, & McCullough, 2013; Szabo, Allen, Stephens, & Alpass, 2018).

Although there is a lack of research on social well-being as a consequence of digital inequalities, the related concept of social capital has been more intensely studied in relation to the Internet. The pioneer study "Netville" (Hampton & Wellman, 2003) found that online interactions supplemented offline forms, and a general routinization of Internet use in everyday life leads to many positive and negative effects occurring simultaneously (Wellman, Quan-Haase, Witte, & Hampton, 2001). In a survey of heavy Internet users in 100 households, those with a larger number of bridging social ties showed stronger social engagement and used the Internet more frequently for social purposes, which increased their subjective quality of life (Kavanaugh, Reese, Caroll, & Rosson, 2005). A positive relationship between social capital and mental well-being was found in a meta-study for adults over the age of 50, drawing on 11 studies with large samples (Nyqvist, Forsman, Giuntoli, & Cattan, 2013). Internet use has also been shown to improve one's self-image and self-confidence in qualitative (Fokkema & Knipscheer, 2007) and quantitative research (Valkenburg,

Peter, & Schouten, 2006). It enables users to communicate anonymously and control interactions to a large extent (Amichai-Hamburger & Furnham, 2007). Nimrod's (2013) results from a survey of 631 users of online depression communities showed that heavy participation in such communities increased benefits like emotional support and led to offline improvements. Connecting with like-minded people and having the opportunity to choose interactions is likely to improve the way in which other people are perceived. More generally, Internet-enabled selective communication offers a plethora of opportunities to connect and socially interact with people who have similar interests or attitudes across time and space.

Although the Internet's potential to increase sociability is well established, research has also pointed to specific negative effects. In a study by Caplan (2003), valuing online social interaction more than face-to-face interaction was more likely among lonely users, which in turn led to more negative outcomes. Recent research has also proposed that positive and negative consequences of Internet use occur simultaneously; the balance for an individual user is affected by factors such as amount of use, skills, and attitudes (Blank & Lutz, 2018; Büchi, Festic, Just, & Latzer, 2018; Van Deursen & Helsper, 2018). Taken together, these various mechanisms nonetheless suggest a positive effect of more frequent Internet use for information and communication on overall social well-being.

Digital Potential: Internet Skills. In the literature on digital inequality, Internet skills play an important role (see Litt, 2013) because information and communication technology (ICT) innovations pose a threat for those who do not have the abilities to cope with the digitization of various life domains (e.g., Helsper, 2008). Even for young people, the development of Internet skills is highly dependent on existing resources rather than a matter of course (Eynon & Geniets, 2016; Robinson, 2009). However, basic Internet skills are a prerequisite for the meaningful use of various online applications enmeshed in everyday communication (Katz & Gonzalez, 2016). Digital potential and the ability to use digital media in an autonomous, deliberate, and strategic way therefore become increasingly important to enable citizens to participate in the information society (Büchi & Vogler, 2017; Hargittai & Shaw, 2013; Helsper & Eynon, 2013).

In addition to a lack of time resources and formal education, insufficient skills are a factor that keeps people from maximizing the benefits of their Internet use (B. Lee, Chen, & Hewitt, 2011) or keeps them offline entirely (Reisdorf et al., 2012). The Internet can only be leveraged in an informed and selective way, and thereby increase personal well-being, if users possess the necessary Internet skills (Leist, 2013). In comparison with other media, this especially applies to the Internet because it requires users to control, filter, and autonomously acquire content (Park, 2012). Theoretical considerations on how Internet use can promote (social) well-being are therefore conditioned on users possessing relevant skills. For example, an individual can only maintain contact to other people via online communication and foster social integration when he or she is able to use such services—on a technical level but also strategically in the sense that use is consistent with personal goals.

The promotion of Internet skills that enable people to take part in society is a key factor in preventing social exclusion (Facer & Furlong, 2001). In contemporary information society, Internet skills represent such abilities (also see Duff, 2011; Gurstein, 2015), which are particularly relevant for older adults who can compensate for potential declines in well-being when ageing. Internet skills are thus an important

source of social integration in the information society. Abilities or potential can also influence individual well-being independent of concrete Internet uses: The attainment of new abilities and the command of new technologies can increase the feeling of being able to act, of personal growth and autonomy, and of purpose in life (Nimrod, 2014). The acquisition and possession of Internet skills has an empowering effect (Fuglsang, 2005), increases the feeling of independence (Haddon, 2000), and therefore supports a feeling of social value or contribution.

In a nationally representative survey (Büchi et al., 2017), Internet skills were the strongest predictor of self-help measures against harmful online outcomes, in this case privacy infringements. Experiencing privacy breaches or other negative consequences on the Internet may lead to a perception that other people are malicious. On the flip side, Internet skills that help prevent negative experiences can improve how Internet users see other people and thereby promote social acceptance. Internet skills can also enable individuals to play an active part in how they are affected by communication (Potter, 2010).

Digital Perception: Belongingness. Belongingness, finally, is an individual's perception and feeling of being part of the information society. This is a related but separate dimension of digital inequality, because even without extensive and skilled Internet use, it is possible to feel belongingness. Alongside such digital potential and participation, perceptions also matter. That is, it may be relevant for well-being not only how individuals can and do use the Internet, but also how they perceive their belonging to modern society.

There is a strong relationship between the feeling of societal belongingness and the physical and mental health of individuals (Baumeister & Leary, 1995). Digital belongingness reflects collective identity and taps into the sense of oneself as a member not of a specific community or a society in general, but specifically of the modern, networked information society (see Tubella, 2005). Turkle (1995) noted that "people look at technology and see beyond it to a constellation of cultural associations" (p. 61). This article thus proposes that people have a relatively unconscious sense of how strongly they are part of modern societal developments characterized by an ever-increasing role of information and communication technologies in social, political, and economic processes.

Ahn and Shin (2013) showed that the need for (social) relatedness partly mediated the positive relationship between the use of social networking sites and subjective well-being. The innate human need for relatedness also influenced how individuals used Facebook for social interaction purposes to fulfill this need and thereby increased their subjective well-being (Lin, 2015). More generally, salient features of the societal environment such as an increasing reliance on and relevance of ICTs impact social identity; in cases where such social change aligns well with one's existing identity, belongingness is increased and tends to have positive consequences for well-being (see Haslam, Jetten, Postmes, & Haslam, 2009). The extent to which someone feels that they belong to the information society thus is likely to affect aspects of subjective well-being concerned with the appraisal of one's functioning in a larger collective, that is, social well-being.

Combining the theoretical considerations and existing empirical studies presented earlier, this article seeks to test the effect of different dimensions of digital inequality on social well-being as a measure of quality of life. In summary, Internet skills are expected to affect both Internet use, a relatively objective

measure of participation in the information society, and belongingness, a subjective measure of participation in the information society. Internet skills are theoretically interpreted as the potential to benefit from digital communication in the information society. They represent a necessary but not sufficient condition to use the Internet in functional ways and to feel a sense of belonging to the information society. Skills as the ability to act influence both what is actually done and how one feels.

Empirical Assessment of Digital Inequality Effects on Social Well-Being

Procedure and Participants

To our knowledge, Contarello and Sarrica (2007) is the only study to use Keyes' (1998) measure of social well-being in conjunction with Internet use. An important limitation of that study, however, is that respondents were asked to judge the impact of their Internet use on their well-being themselves. Here, we aim to statistically establish the relationship between dimensions of digital inequality and social well-being to strengthen the empirical basis of theoretical explanations. For this study, survey data representative for Switzerland (N = 1,060) were collected in 2015 through an independent market research institute. Participants were interviewed via landline and cell phones (computer-assisted telephone interviews) to reach a representative sample that also included nonusers of the Internet as a comparison group when investigating ICT use and perceptions. A total of 86% of the sample were Internet users (n = 910), and 14% reported not using the Internet (n = 150); 50.8% were female, and the mean age was 49.09 (SD = 17.46), ranging from 18 to 84.

Data Analysis

To first test the effect of Internet use versus nonuse on social well-being, we employed multivariate regression analysis drawing on the full sample. Second, we relied on structural equation modeling (SEM) to empirically address the question of how Internet-related variables predict social well-being. For this part of the analysis, we relied solely on adult users of the Internet. The SEM approach makes it possible to combine latent variable measurement and structural path analysis in a single modeling framework and global fit assessment (see Bagozzi & Yi, 2012). We employed SEM with the *lavaan* package in *R* (Rosseel, 2012) using maximum likelihood estimation, robust Huber–White standard errors, and full-information maximum likelihood estimation for missing values (all variables had less than 5% missing values). Indirect paths—that is, mediated effects—were also estimated in *lavaan*. The fit between the model-implied relationships between variables and their empirical covariances was evaluated based on two types of fit indices (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Müller, 2003): the comparative fit index (*CFI*) and Tucker–Lewis index (*TLI*) where 1 indicates a perfect fit, and two estimates where 0 indicates a perfect fit, the root mean square error of approximation (*RMSEA*) and the standardized root mean square residual (*SRMR*). Robust estimates of the respective measures are reported. For the measurement models, confirmatory factor analysis (CFA) was conducted in *lavaan*.

Measures

Social well-being. To assess individuals' subjective social well-being, we adopted Keyes' (2009) short-form measure consisting of five items. Respondents were asked to rate their agreement on a 5-point

Likert scale with the statements that they belong to a community (social integration), that they have something valuable to give to the world (social contribution), that the way our world works makes sense to them (social coherence), that the world is becoming a better place (social actualization), and that people are basically good (social acceptance). The first item was responsible for a poor CFA fit and did not load substantively onto the social well-being factor. Thus, excluding the social integration item drastically improved the model fit to $\chi^2(2, N = 910) = 3.03$ ($p = .220$), $\chi^2 / df = 1.52$, *CFI* = .996, *TLI* = .988, *RMSEA* = .024, *SRMR* = .014, indicating a very close fit. The analysis of the structural paths that follow therefore used this four-item latent factor for social well-being. Standardized factor loadings ranged from .37 to .71 (all $p < .001$).

Internet use (digital participation). Internet use as a measure of actually participating in the information society was also modeled as a latent variable. That is, rather than conceptualizing use as a binary measure, or using total usage time, we propose that the most popular online activities reflect a relevant Internet use factor. From a number of activities included in the survey (Latzer, Büchi, & Just, 2015), the top activities were selected: Respondents reported their frequency of checking e-mails, using search engines, looking for news online, and using online encyclopedias on a 6-point scale ranging from 0 = *never* to 5 = *multiple times per day*. Looking up a term online was also among the most popular online uses but did not fit the proposed usage factor. The four other items had factor loadings between .52 and .82 (all $p < .001$) and reflected a very well-fitting Internet use factor: $\chi^2(2, N = 910) = 3.02$ ($p = .220$), $\chi^2 / df = 1.51$, *CFI* = .998, *TLI* = .994, *RMSEA* = .025, *SRMR* = .011.

Internet skills (digital potential). The measurement of general Internet skills as the potential to participate in the information society relied on a validated survey instrument for general populations (Van Deursen, Helsper, & Eynon, 2016). Respondents were asked to rate their agreement with five statements on a 5-point Likert scale about being able to perform five Internet-use related tasks (open downloaded files, find suitable search terms, change sharing settings, create and upload content, and install mobile applications). CFA of the model for a one-factor latent Internet skills measurement indicated that the item on social skill (change sharing settings) and the item on creative skill (create and upload content) were correlated beyond their common variance accounted for by the Internet skills factor. The measurement model with this covariance freely estimated instead of constraining it to zero subsequently fit the data well: $\chi^2(4, N = 910) = 20.35$ ($p < .001$), $\chi^2 / df = 5.09$, *CFI* = .982, *TLI* = .954, *RMSEA* = .067, *SRMR* = .023. Standardized factor loadings ranged from .57 to .67 (all $p < .001$).

Belongingness (digital perception). The personal perception of belongingness was assessed with a single question. Toward the end of the survey, respondents were asked, "You have answered many questions about media, the Internet and new communication technologies—do you feel you belong to this new information society?" The item was measured on a 5-point Likert scale ranging from 1 = *not at all* to 5 = *strongly* ($M = 3.51$, $SD = 1.16$).

Results

A first test of the basic question of whether digital inequalities impact social well-being compared users of the Internet with nonusers; all five dimensions of social well-being were predicted in multiple

regressions with age, education, gender, and a dummy variable indicating whether a respondent used the Internet or not. For three of the well-being items, Internet use had no significant effect, and for two items, it had very small and opposite effects (see Table 1). In sum, users and nonusers of the Internet did not differ systematically in their social well-being. That is, at least cross-sectionally, the mere fact of having bridged the access divide does not have a positive or negative outcome at the subjective level of well-being. However, in an analogous regression model, digital belongingness was affected by being an Internet user (b = .69, β = .20, p < .001, R^2 = .14). We then tested the effects of further dimensions of digital inequalities on well-being in more complex models. How do the participation in, the potential for, and the perception of Internet use influence social well-being?

Table 1. The Effect of Using the Internet on the Five Dimensions of Social Well-Being.

	Effect of Internet use (binary)		
Social well-being dimension	*b*	*SE*	β
Social integration	.42 (p = .006)	.16	.09
$F(4, 1034) = 7.56$, $p < .001$, $R^2 = .02$			
Social contribution	.21 (p = .092)	.12	.06
$F(4, 1024) = 1.88$, $p = .111$, $R^2 = .003$			
Social coherence	.04 (p = .726)	.11	.01
$F(4, 1007) = 4.18$, $p = .002$, $R^2 = .01$			
Social actualization	-.32 (p = .004)	.11	-.10
$F(4, 1000) = 2.26$, $p = .061$, $R^2 = .005$			
Social acceptance	.02 (p = .862)	.11	.01
$F(4, 1027) = .37$, $p = .828$, R^2 =- .002			

Note. A series of multivariate regression models estimated the effect of using versus not using the Internet on dimensions of well-being. The models predicted dimensions of social well-being with Internet use while controlling for gender, age, and education.

Latent variable structural equation models tested the effects of Internet use, Internet skills, and the feeling of belongingness to the information society on social well-being in the sample of Internet users. First, a model controlling for sociodemographic variables was estimated: Model 1: $\chi^2(106, N = 910) = 286.84$ (p < .001), χ^2 / df = 2.71, *CFI* = .940, *TLI* = .925, *RMSEA* = .043, *SRMR* = .034. The model fit was relatively low regarding *CFI* and TLI. Model 2 was then specified more parsimoniously, retaining only the variables of theoretical interest (i.e., excluding control variables) and fit the data very well: $\chi^2(71, N = 910) = 127.07$ (p < .001), χ^2 / df = 1.79, *CFI* = .979, *TLI* = .973, *RMSEA* = .029, *SRMR* = .026 (see the appendix for the latent variable measures). A comparison of the structural path estimates of the controlled model with those of the simpler second model showed no substantive differences (see Table 2). This indicated that sociodemographic variables, although they may affect the level of the other variables, did not influence the relationships among the theoretical constructs relevant to the research question. In the interest of model parsimony and closer fit to the data (Kline, 2011), we report the results of this second model. In Figure 2, standardized estimates are reported: *ns*: non-significant (p > .05); * denotes p < .001 (see Table 2 for unstandardized estimates).

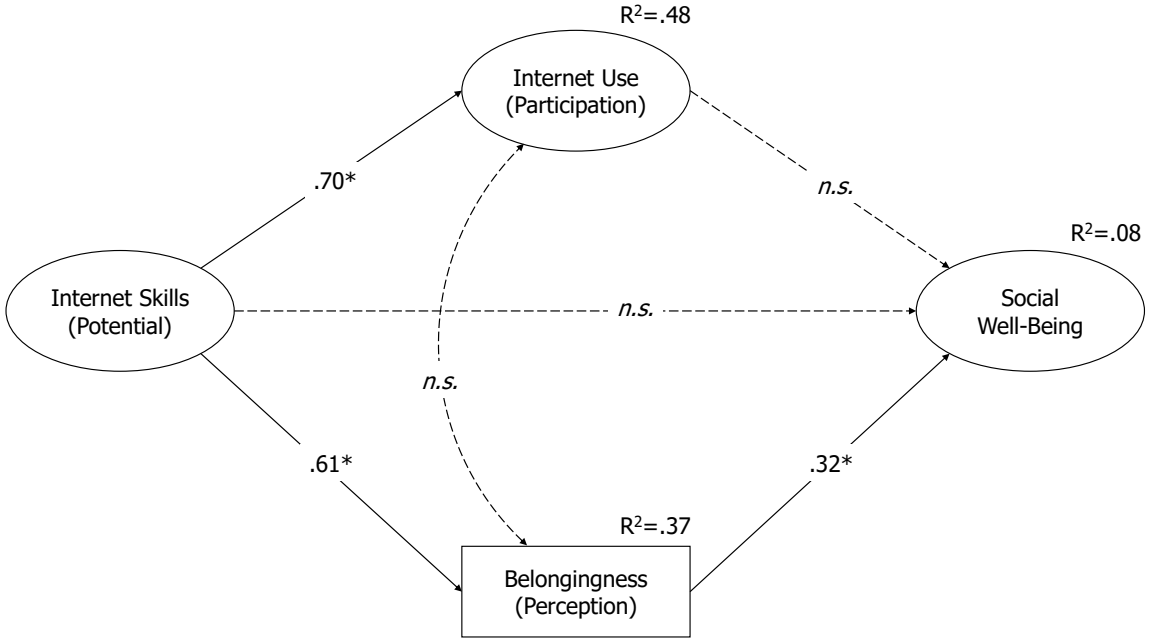

Figure 2. Structural equation modeling results (Model 2).

Table 2. Structural Equation Model Unstandardized Path Estimates.

Structural paths	Model 1	Model 2
Internet use ← Internet skills	.91*	.92*
Belongingness ← Internet skills	1.12*	.99*
Internet use ↔ Belongingness	.06 (p = .077, *ns*)	.06 (p = .092, *ns*)
Social well-being ← Internet skills	.07 (p = .558, *ns*)	-.03 (p = .753, *ns*)
Social well-being ← Internet use	-.05 (p = .412, *ns*)	-.04 (p = .583, *ns*)
Social well-being ← Belongingness	.20*	.22*

As noted, two structural equation models were estimated. Model 1 included control variables (only their significant relationships were ultimately retained in the model). Age, gender, and education were entered as controls. Model 2 included no control variables. Single-headed arrows indicate regression effects, and double-headed arrows indicate covariances. Comparing Model 1 and Model 2 shows that there are no substantive effect differences. The more parsimonious and thus better fitting Model 2 is therefore retained.

Participating in the information society through engaging with the most common online activities did not affect social well-being positively or negatively (see Figure 2 and Table 2). Respondents' digital potential in the form of Internet skills did not directly influence social well-being either. However, Internet skills very strongly and positively predicted Internet use and belongingness. This perception of belonging to the information society in turn positively and substantively affected social well-being. The standardized estimate for the indirect effect of Internet skills on social well-being via belongingness was .19 (p < .001), meaning that skills positively affect well-being by promoting belongingness to the information society. This

model, comprising three digital inequality-related predictors, accounts for 8% of the variance in general social well-being.

Discussion

The results show that *perceptions*—how people feel they belong to the contemporary information society and assess their own digital skills—influence social well-being much more than *behavior* in the sense of manifest digital participation. Overall, at a population level, general Internet effects on social well-being were expectedly small. Nonetheless, the results point to consequences of digital inequalities for social well-being in the form of positive effects of digital potential (Internet skills) and perception (belongingness to information society; see Figure 2). A main insight of this study is therefore that belongingness, the personal perception of being part of modern developments and societal change characterized by the ubiquitous relevance of ICTs, is a key resource of social well-being. This feeling of belongingness, in turn, depends strongly on one's digital potential in the form of general Internet skills, a major dimension of digital inequality. Internet skills had a strong indirect effect on general offline well-being. Such skills have been shown to align with existing social inequalities, meaning that advantaged population groups possess higher skills (e.g., Hargittai, 2010).

We found that overall, existing digital inequalities translated to relevant outcome measures of quality of life. Users, as compared with nonusers, and especially those with ample online experience, are more likely to feel a sense of belonging to the information society, which then contributes to general social well-being. It is important to emphasize that Keyes' (2009) measure of social well-being is conceptually not related to a notion of information society or the role of the Internet, which strengthens the theoretical significance of the relationship found between digital potential and social well-being. This is the first study that demonstrates consequences of digital inequalities for social well-being; future research could also integrate hedonic and psychological well-being toward a model of "digital flourishing" (see Figure 1; see Keyes, 2014). While this article introduced the concept of social well-being into research on digital inequalities and their consequences, an expansion to other branches of quality of life indicators (see Figure 1) in relation to the Internet is desirable to produce a broader picture of the interplay between digital inequalities and individuals' well-being.

In future research, the role of Internet skills, use, and belongingness may also be investigated for different age groups. It seems plausible to assume that different mechanisms are in play in distinct life stages; positive effects of Internet-related variables may dominate in one group, whereas negative outcomes may be more prevalent in others, ultimately changing the total effect on subjective well-being. Furthermore, the benefits attainable through different Internet uses may vary according to one's personal needs, motivations, and attitudes. In the model presented, the direct path between Internet use (digital participation) and social well-being was not significant. Rather than concluding that participation in the information society is in fact irrelevant for well-being, it appears plausible that the zero net effect of Internet use (see Figure 2 and Table 2) is the result of competing mechanisms. To better understand the effect of Internet use on the appraisal of functioning in society, positive and negative effects should be studied in more detail in future research. While the theoretical background for this study suggested that Internet use connects individuals to information and communication relevant for their social lives with minimal

transaction costs and thus impacts one's social well-being positively, recent research has also described digital overuse (Gui, Fasoli, & Carradore, 2017) and perceptions of feeling overwhelmed (Stephens et al., 2017) as an emerging social phenomenon. Gui et al. (2017) argued that the overabundance of information and social relationships in everyday life, combined with the social pressure to function digitally, can impair well-being. This means that our model may be moderated by specific digital well-being skills distinct from general Internet skills: Only under the condition that individuals have specialized capacities to manage the potential negative side effects of their digital participation, and thus avoid feeling overburdened, could their use be considered functional or beneficial for well-being. A further investigation of this possibility seems highly relevant to digital inequality research because overuse and its related concepts (specific coping skills and social pressure) are likely to be unequally distributed along socioeconomic fault lines.

This article is also relevant to the current academic debate on subjective well-being because it focuses on its social component, which has been neglected thus far. As indicated, there are strong theoretical arguments for a relationship between Internet-related variables and social integration. However, we had to exclude that very item from our model because of low factor loading and an unsatisfactory model fit. We assume that this measurement problem stems from the wording of the social integration item that concerned a feeling of integration in communities like neighborhoods (Keyes, 1998). In the country of study, family or friend groups seem to be more relevant communities in which people attain a sense of integration. Based on this limitation, the operationalization of social well-being may need to be updated and adjusted to the specific sociocultural contexts in future research.

Nonetheless, the results of this study not only illustrate the consequences of existing digital inequalities, but also have policy implications because they contribute to the empirical basis of evidence-based policy making regarding the promotion of Internet use and skills development. Public policies are often geared toward promoting adoption of new technologies but rarely assess longer term impacts of integrating them into everyday life, particularly on the level of subjective quality of life indicators. Underlining previous research (Büchi et al., 2017; Hargittai, 2008; Helsper & Eynon, 2013), the conclusion is that general, transferable digital skills represent a worthwhile target for digital inclusion policy and that a new category of digital well-being skills needs attention. Although the OECD (2017), for example, shows continued effort to measure well-being in information societies as a basis for policy, the roles of digital skills, participation, and perception remain underappreciated. Overall, we argue for the continued consideration of subjective aspects of well-being in the study of digital inequalities and the consequences of ICTs for quality of life more generally.

References

Ahn, D., & Shin, D. (2013). Is the social use of media for seeking connectedness or for avoiding social isolation? Mechanisms underlying media use and subjective well-being. *Computers in Human Behavior, 29*(6), 2453–2462. https://doi.org/10.1016/j.chb.2012.12.022

Amichai-Hamburger, Y., & Furnham, A. (2007). The positive net. *Computers in Human Behavior, 23*(2), 1033–1045. https://doi.org/10.1016/j.chb.2005.08.008

Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science, 40*(1), 8–34. https://doi.org/10.1007/s11747-011-0278-x

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 11*(3), 497–529.

Blank, G., & Lutz, C. (2018). Benefits and harms from Internet use: A differentiated analysis of Great Britain. *New Media & Society, 20*(2), 618–640. https://doi.org/10.1177/1461444816667135

Bradburn, N. M. (1969). *The structure of psychological well-being*. Chicago, IL: Aldine.

Büchi, M., Festic, N., Just, N., & Latzer, M. (2018, October). *Inequality in online privacy: Direct and indirect sociodemographic effects on self-protection*. Paper presented at the Amsterdam Privacy Conference 2018, Amsterdam, Netherlands.

Büchi, M., Just, N., & Latzer, M. (2016). Modeling the second-level digital divide: A five-country study of social differences in Internet use. *New Media & Society*, *18*(11), 2703–2722. https://doi.org/10.1177/1461444815604154

Büchi, M., Just, N., & Latzer, M. (2017). Caring is not enough: The importance of Internet skills for online privacy protection. *Information, Communication & Society*, *20*(8), 1261–1278. https://doi.org/10.1080/1369118X.2016.1229001

Büchi, M., & Vogler, F. (2017). Testing a digital inequality model for online political participation. *Socius*, *3*, 1–13. https://doi.org/10.1177/2378023117733903

Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication Research*, *30*(6), 625–648. https://doi.org/10.1177/0093650203257842

Choi, M., Kong, S., & Jung, D. (2012). Computer and Internet interventions for loneliness and depression in older adults: A meta-analysis. *Healthcare Informatics Research, 18*(3), 191–198. https://doi.org/10.4258/hir.2012.18.3.191

Contarello, A., & Sarrica, M. (2007). ICTs, social thinking and subjective well-being—The Internet and its representations in everyday life. *Computers in Human Behavior 23*(2), 1016–1032. https://doi.org/10.1080/10304310701268687

Cotten, S. R., Anderson, W. A., & McCullough, B. M. (2013). Impact of Internet use on loneliness and contact with others among older adults: Cross-sectional analysis. *Journal of Medical Internet Research, 15*(2). https://doi.org/10.2196/jmir.2306

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, *2*(4), 253–260. https://doi.org/10.1038/s41562-018-0307-6

DiMaggio, P., Hargittai, E., Celeste, C., & Shafer, S. (2004). From unequal access to differentiated use: A literature review and agenda for research on digital inequality. In K. M. Neckerman (Ed.), *Social inequality* (pp. 355–400). New York, NY: Russell Sage Foundation.

Duff, A. (2011). *A normative theory of the information society*. New York, NY: Routledge.

Eynon, R., & Geniets, A. (2016). The digital skills paradox: How do digitally excluded youth develop skills to use the internet? *Learning, Media and Technology, 41*(3), 463–479. https://doi.org/10.1080/17439884.2014.1002845

Facer, K., & Furlong, R. (2001). Beyond the myth of the "cyberkid": Young people at the margins of the information revolution. *Journal of Youth Studies, 4*(4), 451–469.

Fokkema, T., & Knipscheer, K. (2007). Escape loneliness by going digital: A quantitative and qualitative evaluation of a Dutch experiment in using ECT to overcome loneliness among older adults. *Aging & Mental Health, 11*(5), 496–504.

Fuglsang, L. (2005). IT and senior citizens: Using the Internet for empowering active citizenship. *Science, Technology, & Human Values, 30*(4), 468–495.

Galperin, H. (2017). Why are half of Latin Americans not online? A four-country study of reasons for Internet non-adoption. *International Journal of Communication*, *11*, 23.

Gui, M., Fasoli, M., & Carradore, R. (2017). "Digital well-being." Developing a new theoretical tool for media literacy research. *Italian Journal of Sociology of Education, 9*(1), 155–173. https://doi.org/10.14658/pupj-ijse-2017-1-8

Gurstein, M. (2015). Why I'm giving up on the digital divide. *The Journal of Community Informatics, 11*(1).

Haddon, L. (2000). Social exclusion and information and communication technologies. *New Media & Society, 2*(4), 387–406. https://doi.org/10.1177/146144480002004001

Hampton, K., & Wellman, B. (2003). Neighboring in Netville: How the Internet supports community and social capital in a wired suburb. *City & Community, 2*(4), 277–311. https://doi.org/10.1046/j.1535-6841.2003.00057.x

Hargittai, E. (2008). The digital reproduction of inequality. In D. Grusky (Ed.), *Social stratification* (pp. 936–944). Boulder, CO: Westview Press.

Hargittai, E. (2010). Digital na(t)ives? Variation in Internet skills and uses among members of the "Net Generation." *Sociological Inquiry, 80*(1), 92–113.

Hargittai, E., & Shaw, A. (2013). Digitally savvy citizenship: The role of Internet skills and engagement in young adults' political participation around the 2008 presidential elections. *Journal of Broadcasting and Electronic Media, 57*(4), 115–134.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology: An International Review, 58*(1), 1–23. https://doi.org/10.1111/j.1464-0597.2008.00379.x

Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences, 359*(1449), 1435–1522. https://doi.org/10.1098%2Frstb.2004.1522

Helsper, E. J. (2008). *Digital inclusion: An analysis of social disadvantage and the information society*. Department for Communities and Local Government, London, UK. Retrieved from http://eprints.lse.ac.uk/26938/

Helsper, E. J., & Eynon, R. (2013). Pathways to digital literacy and engagement. *European Journal of Communication, 28*(6), 696–713. https://doi.org/10.1177/0267323113499113

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Huta, V. (2015). An overview of hedonic and eudaimonic well-being concepts. In L. Reinecke & M. B. Oliver (Eds.), *The Routledge handbook of media use and well- being: International perspectives on theory and research on positive media effects* (pp. 384–395). New York, NY: Routledge.

Jahoda, M. (1958). *Current concepts of positive mental health*. New York, NY: Basic Books.

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (2003). *Well-being: Foundations of hedonic psychology.* New York, NY: Russell Sage.

Katz, V. S., & Gonzalez, C. (2016). Toward meaningful connectivity: Using multilevel communication research to reframe digital inequality. *Journal of Communication, 66*(2), 236–249. https://doi.org/10.1111/jcom.12214

Kavanaugh, A., Reese, D. D., Caroll, J. M., & Rosson, M. B. (2005). Weak ties in networked communities. *The Information Society, 21*(2), 119–131. https://doi.org/10.1080/01972240590925320

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly, 61*(2), 121–140.

Keyes, C. L. M. (2009). Brief description of the mental health continuum short form (MHC-SF). Retrieved from https://www.aacu.org/sites/default/files/MHC-SFEnglish.pdf

Keyes, C. L. M. (2014). Happiness, flourishing, and life satisfaction. In W. C. Cockerham, R. Dingwall, & S. R. Quah (Eds.), *Wiley Blackwell encyclopedias in social science. The Wiley-Blackwell encyclopedia of health, illness, behavior, and society* (pp. 747–751). Chichester, UK: Wiley Blackwell.

Keyes, C. L. M., & Shapiro, A. D. (2004). Social well-being in the United States. A descriptive epidemiology. In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we?* (pp. 350–372). Chicago, IL: University of Chicago Press.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: Guilford Press.

Latzer, M., Büchi, M., & Just, N. (2015). *Internet-Anwendungen und deren Nutzung in der Schweiz 2015* [Themenbericht aus dem World Internet Project – Switzerland]. Zurich, Switzerland: University of Zurich. Retrieved from http://mediachange.ch/media//pdf/publications/Anwendungen_Nutzung_2015.pdf

Lee, B., Chen, Y., & Hewitt, L. (2011). Age differences in constraints encountered by seniors in their use of computers and the Internet. *Computers in Human Behavior, 27*(3), 1231–1237. https://doi.org/10.1016/j.chb.2011.01.003

Lee, P. S. N., Leung, L., Lo, V., & Xiong, C. (2008). The perceived role of ICTs in quality of life in three Chinese cities. *Social Indicators Research, 88*, 457–476. https://doi.org/10.1007/s11205-007-9214-3

Leist, A. K. (2013). Social media use of older adults: A mini-review. *Gerontology, 59*(4), 378–384. https://doi.org/10.1159/000346818

Lin, J.-H. (2015). Need for relatedness: A self-determination approach to examining attachment styles, Facebook use, and psychological well-being. *Asian Journal of Communication, 26*(2), 153–173. https://doi.org/10.1080/01292986.2015.1126749

Lissitsa, S., & Chachashvili-Bolotin, S. (2016). Life satisfaction in the Internet age—Changes in the past decade. *Computers in Human Behavior, 54*, 197–206.

Litt, E. (2013). Measuring users' Internet skills: A review of past assessments and a look toward the future. *New Media & Society, 15*(4), 612–630. https://doi.org/10.1177/1461444813475424

Newman, L., & Gurstein, M. (2016, May 17). *Goodbye digital divide, hello digital equity*. Retrieved from https://croakey.org/goodbye-digital-divide-hello-digital-equity-and-why-we-need-to-go-the-extra-mile-to-get-it

Nimrod, G. (2013). Challenging the Internet paradox: Online depression communities and well-being. *International Journal of Internet Science, 8*(1), 30–48.

Nimrod, G. (2014). The benefits of and constraints to participation in seniors' online communities. *Leisure Studies, 33*(3), 247–266. https://doi.org/10.1080/02614367.2012.697697

Nyqvist, F., Forsman, A. K., Giuntoli, G., & Cattan, M. (2013). Social capital as a resource for mental well-being in older people: A systematic review. *Aging & Mental Health, 17*(4), 394–410. https://doi.org/10.1080/13607863.2012.742490

Ono, H., & Zavodny, M. (2007). Digital inequality: A five country comparison using microdata. *Social Science Research*, *36*(3), 1135–1155. https://doi.org/10.1016/j.ssresearch.2006.09.001

Organisation for Economic Co-operation and Development. (2013, March 20). *OECD guidelines on measuring subjective well-being*. Retrieved from http://www.oecd.org/statistics/oecd-guidelines-on-measuring-subjective-well-being-9789264191655-en.htm

Organisation for Economic Co-operation and Development. (2017, November 15). *How's life 2017? Measuring well-being*. Retrieved from http://dx.doi.org/10.1787/23089679

Park, S. (2012). Dimensions of digital media literacy and the relationship to social exclusion. *Media International Australia, 142*(1), 87–100. https://doi.org/10.1177/1329878X1214200111

Potter, W. J. (2010). The state of media literacy. *Journal of Broadcasting & Electronic Media, 54*(4), 675–696. https://doi.org/10.1080/08838151.2011.521462

Reisdorf, B., Axelsson, A. S., & Söderholm, H. M. (2012). *Living offline: A qualitative study of Internet non-use in Great Britain and Sweden*. Retrieved from https://spir.aoir.org/index.php/spir/article/download/10/pdf

Robinson, L. (2009). A taste for the necessary: A Bourdieuian approach to digital inequality. *Information, Communication & Society, 12*(4), 488–507. https://doi.org/10.1080/13691180902857678

Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., . . . Stern, M. J. (2015). Digital inequalities and why they matter. *Information, Communication & Society, 18*(5), 569–582. https://doi.org/10.1080/1369118X.2015.1012532

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science, 4*(4), 99–104. https://doi.org/10.1111/1467-8721.ep10772395

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4), 719–727.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online, 8*(2), 23–74.

Siefer, A. (2016, October 27). *What do we mean when we say "digital equity" and "digital inclusion"?* Retrieved from https://www.benton.org/blog/what-do-we-mean-when-we-say-digital-equity-and-digital-inclusion

Stephens, K. K., Mandhana, D. M., Kim, J. J., Li, X., Glowacki, E. M., & Cruz, I. (2017). Reconceptualizing communication overload and building a theoretical foundation. *Communication Theory, 27*(3), 269–289. https://doi.org/10.1111/comt.12116

Szabo, A., Allen, J., Stephens, C., & Alpass, F. (2018). Longitudinal analysis of the relationship between purposes of Internet use and well-being among older adults. *The Gerontologist*. https://doi.org/10.1093/geront/gny036

Tubella, I. (2005). Television and Internet in the construction of identity. In M. Castells & G. Cardoso (Eds.), *The network society* (pp. 257–268). Washington, DC: Center for Transatlantic Relations.

Turkle, S. (1995). *Life on the screen: Identity in the age of the Internet*. New York, NY: Simon & Schuster.

Valkenburg, P. M., & Peter, J. (2007a). Online communication and adolescent well-being: Testing the stimulation versus the displacement hypothesis. *Journal of Computer-Mediated Communication, 12*(4), 1169–1182. https://doi.org/10.1111/j.1083-6101.2007.00368.x

Valkenburg, P. M., & Peter, J. (2007b). Internet communication and its relation to well-being: Identifying some underlying mechanisms. *Media Psychology, 9*(1), 43–58. https://doi.org/10.1080/15213260709336802

Valkenburg, P. M., Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *CyberPsychology & Behavior, 9*(5), 584–590. https://doi.org/10.1089/cpb.2006.9.584

Van Deursen, A. J., & Helsper, E. J. (2018). Collateral benefits of Internet use: Explaining the diverse outcomes of engaging with the Internet. *New Media & Society*, *20*(7), 2333–2351. https://doi.org/10.1177/1461444817715282

Van Deursen, A., Helsper, E., & Eynon, R. (2016). Development and validation of the Internet Skills Scale (ISS). *Information, Communication & Society, 19*(6), 804–823. https://doi.org/10.1080/1369118X.2015.1078834

Van Deursen, A., Helsper, E., Eynon, R., & van Dijk, J. (2017). The compoundness and sequentiality of digital inequality. *International Journal of Communication, 11*, 452–473.

Wellman, B., Quan-Haase, A., Witte, J., & Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment. *American Behavioral Scientist, 45*(3), 436–455. https://doi.org/10.1177/00027640121957286

Zillien, N., & Hargittai, E. (2009). Digital distinction: Status-specific types of Internet usage. *Social Science Quarterly, 90*(2), 274–291. https://doi.org/10.1111/j.1540-6237.2009.00617.x

Appendix

Latent Variable Factor Loadings and Summary Statistics

Latent factor	Measurement item	Factor loading	*M*	*SD*
Social well-being	Social contribution	.44*	3.15	1.23
	Social coherence	.55*	3.28	1.08
	Social actualization	.61*	2.59	1.07
	Social acceptance	.43*	3.40	1.12
Internet skills (potential)	Operational skills	.64*	4.51	1.01
	Navigation skills	.59*	3.89	1.03
	Social skills	.62*	3.41	1.49
	Creative skills	.57*	3.00	1.56
	Mobile skills	.65*	4.00	1.52
Internet use (participation)	Look for news	.56*	3.05	1.59
	Search-engine use	.75*	4.05	1.07
	Check e-mails	.54*	4.20	1.01
	Use online encyclopedia	.58*	2.45	1.29

Note. Standardized estimates from Model 2 are reported. * $p < .001$.