Effects of active and passive use on subjective well-being of users of professional networks

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Abstract

Deutsch

Die Art und Weise, in der Menschen sowohl privat als auch beruflich Kontakte knüpfen hat sich in den vergangenen Jahren durch die zunehmende Verbreitung von Online-Netzwerkseiten stark gewandelt. Plattformen wie LinkedIn oder XING verändern die Dynamik des beruflichen Networkings durch die Schaffung eines neuen Umfelds, das das Knüpfen von Kontakten und den Austausch von Wissen erleichtert. Im Gegensatz zu sozialen Netzwerkseiten wurde beruflichen Netzwerkseiten in der Forschung bisher wenig Aufmerksamkeit geschenkt. Besonders die Verbindung zwischen der Nutzung beruflicher Netzwerkseiten und dem Wohlbefinden der Nutzer:innen blieb weitestgehend unerforscht. Eine genauere Betrachtung ist jedoch auch für professionelle Netzwerkseiten von gesellschaftlicher Bedeutung, da die Plattformen stetig wachsende Nutzer:innenzahlen verzeichnen und sowohl für Privatpersonen als auch Unternehmen zunehmend an Bedeutung gewinnen. Bestehende Forschung zum Zusammenhang zwischen der Nutzung sozialer Netzwerkseiten (SNS) und dem subjektiven Wohlbefinden der Nutzer:innen, konnte die Nutzungsart (aktive und passive Nutzung) als relevante Variable identifizieren. Ziel der vorliegenden Arbeit war es, diese Erkenntnisse auf den Kontext professioneller Netzwerkseiten zu übertragen und den Zusammenhang zwischen Nutzungsart einer professionellen Netzwerkseite und dem subjektiven Wohlbefinden der Nutzer:innen zu ergründen. Hierzu wurde erstmals das *active-passive model of SNS use* (*aktiv-passiv Modell der SNS-Nutzung*) auf den Kontext beruflicher Netzwerkseiten angewendet. Zur Beantwortung der Forschungsfrage wurde eine quantitative Online-Umfrage mit 526 LinkedIn-Nutzer:innen durchgeführt. Die Ergebnisse der durchgeführten Mediationsanalysen zeigten einen indirekten positiven Zusammenhang zwischen der aktiven Nutzung von LinkedIn und dem Wohlbefinden der Nutzer:innen. Weiterhin konnte ein indirekter negativer Zusammenhang zwischen der passiven Nutzung von LinkedIn und dem subjektiven Wohlbefinden der befragten Nutzer:innen festgestellt werden. Alle getesteten Mediatorvariablen zeigten sich als relevant für die Erklärung des Zusammenhangs zwischen Wohlbefinden und aktiver bzw. passiver Nutzung von LinkedIn. Hierzu gehören soziales Kapital im Fall der aktiven Nutzung sowie aufwärts und abwärts gerichtete soziale Vergleiche und Neid im Fall der passiven Nutzung.

Schlagwörter: Professionelle Netzwerkseiten, LinkedIn, Subjektives Wohlbefinden, Sozialer Vergleich, Neid, Soziales Kapital

English

As a result of the widespread use of online networking sites, the ways in which people connect and network, both personally and professionally, have been transformed in recent years. Platforms such as LinkedIn or XING have profoundly changed the dynamics of professional networking by providing new means of contact and creating an environment that promotes the exchange of knowledge and ideas. However, compared to social network sites, professional network sites have received little attention in research despite their growing importance. Particularly, the relationship between the use of professional network sites and users' well-being has been understudied. However, the investigation of these platforms is of societal relevance given their consistent growth and the increasing importance of these platforms for both individuals and companies. Existing research on the relationship between the use of social network sites (SNS) and the subjective well-being of users has identified the usage type (active and passive use) as a relevant variable. The aim of this study was to transfer these findings to the context of professional network sites and to explore the relationship between the type of use of a professional network site and the subjective well-being of its users. For this purpose, the *active-passive model of SNS use* was applied to the context of professional network sites for the first time. To answer the research question, a quantitative online survey was conducted with 526 LinkedIn users. Results of the mediation analyses revealed an indirect positive relation between active use of LinkedIn and well-being. Conversely, a negative indirect relation was found between passive use of LinkedIn and subjective well-being. All tested mediating variables, including social capital for active use and upward social comparison, downward social comparison and envy for passive use, were determined to be relevant in explaining the link between well-being and active and passive LinkedIn use, respectively.

Keywords: Professional Network Sites, LinkedIn, Subjective Well-being, Social Comparison, Envy, Social Capital

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List of Abbreviations

KMO	Kaiser-Meier-Olkin
MSA	Measure of Sample Adequacy
OSN	Online Social Network
SM	Social Media
SNS	Social Network Site
SWLS	Satisfaction with Life Scale
PNS	Professional Network Site

1 Introduction

Over the past decade online networking platforms have become integral parts of everyday life for most people, reshaping the way individuals communicate and network both privately and professionally. The growing popularity of these sites (M. Appel et al., 2020, p. 60; Pena et al., 2022, p. 788) has sparked both enthusiasm and apprehension, resulting in a heated debate on the consequences of social network site (SNS) use in both popular culture and academia. Followingly, researchers have started examining users' motivations and behaviors as well as effects of SNS usage on well-being (Valkenburg, 2022, p. 58). Almost simultaneously with the rise of private network sites such as Facebook or Instagram, platforms for professional networking have gained popularity. Unlike private SNSs, these professional network sites (PNSs) are primarily used in a business context. Platforms like LinkedIn or XING enable their users to cultivate and sustain connections with other professionals in their field and help with job search as well as other aspects related to the enhancement of professional careers (Ma & Leung, 2019, p. 1060; Mogaji, 2019, pp. 321–322). PNSs have fundamentally transformed the dynamics of professional networking by providing new means of communication and fostering continuous learning and professional development by providing space for the exchange of ideas and knowledge. They have not only gained importance for private users but also for organizations and companies, which are utilizing the platforms for marketing, recruiting and employer branding purposes. Thus, research on PNSs is not only relevant from an academic point of view but also from a practical one. A PNS that has witnessed substantial growth over the years, with millions of users worldwide, is the platform LinkedIn (LinkedIn Pressroom, n. d.).

So far, social media and online networking platforms have received considerable attention from academic research, while PNSs have been considered less. A substantial body of literature has been established on SNSs, investigating a multitude of topics ranging from overall well-being (Chen et al., 2016; G. Lee et al., 2011) to more specific aspects including depression (Farahani et al., 2011; Frison & Eggermont, 2016; Pantic et al., 2012), loneliness (S. Lin et al., 2022; Lou et al., 2012) as well as social capital (Burke et al., 2010; Koroleva et al., 2011) and social support (Burke & Kraut, 2016). Though, this body of literature is highly fragmented, deploying many different theoretical frameworks and measures (Clark et al., 2018, p. 33). The use of different theoretical perspectives and measures might also be a contributing factor to the heterogenous results concerning effect size and direction of the relationship between SNS use and well-being. While some authors have reported positive associations between SNS use and well-being (S. Lin et al., 2022; Pittman & Reich, 2016; Valenzuela et al., 2009;

Valkenburg et al., 2006), others have found negative (Krasnova et al., 2013; Kross et al., 2013; Shaw et al., 2015) or (partially) no relation (große Deters & Mehl, 2012; Haferkamp & Krämer, 2011; Verduyn et al., 2015) between SNS use and variables concerned with well-being. Initially overall measures of use such as time spent online prevailed in research. Subsequently, the dichotomization into active and passive use has been popularized, with active use referring to a usage pattern in which interaction with other users dominates (e.g. commenting, chatting) and passive use describing a pattern, where users mainly consume information (e.g. browsing).

Despite the great interest in social media and SNSs, so far relatively little research has been performed on PNSs (Brandenberg et al., 2019, p. 579; Ma & Leung, 2019, p. 1060; Ruparel et al., 2023, p. 1). In view of the increasing popularity of PNSs this is surprising. As the impact of platforms like LinkedIn continues to grow and shape the way professionals connect and share information, understanding the relevance and impact of these platforms becomes essential, calling for more research on PNSs (Chmielinski et al., 2020, p. 1; Davis et al., 2020, p. 2). Especially the association between PNS use and well-being has received very little academic attention so far (Jones et al., 2016, p. 601). Despite their differences, which are mainly related to the use context, SNSs and PNSs share similarities, which makes it interesting to further investigate if and how the effects previously found related to SNS use translate to PNS use, also allowing to gain insights on the impact of PNS use on well-being.

1.1 Research Objective

By addressing the gap in literature resulting from past research mostly focusing on privately used network sites, this thesis can contribute to literature on PNSs in two ways. First, by shedding light on the highly discussed relationship between online networking site use and users' well-being. Second, this thesis is, to the best of the author's knowledge, the first to apply the *active-passive model of SNS use* (Verduyn et al., 2022, pp. 62–63; Verduyn et al., 2017, p. 284) to the context of PNS use.

This thesis aims to explore the multifaceted relationship between usage patterns and users' well-being through investigation of mediating factors that have been identified in previous literature on SNS use. To achieve this research goal, the following research questions were established:

RQ1 What is the relationship between PNS usage type and users' subjective well-being?

RQ2 What factors play a role in determining the influence of PNS usage type on the subjective well-being of the users?

RQ2.1 How does bridging social capital influence the relationship between active use and users' subjective well-being?

RQ2.2 How do social comparison and envy influence the relationship between passive use and users' subjective well-being?

The platform LinkedIn will be used as an example for the investigation of PNSs, as it can be considered to be one of the most frequently used PNSs (Jones et al., 2016, p. 601; Ma & Leung, 2019, p. 1060). LinkedIn is well recognized both nationally and globally with over 21 million users in the DACH region and more than 228 million users in North America[1] (LinkedIn Pressroom, n. d.). The platform is therefore considered as an appropriate example to study PNSs.

1.2 Procedure and Structure

The remainder of this thesis is structured as follows: first key terms and definitions are presented in chapter 2 to establish the scope of this thesis. To build a comprehensive understanding of the topic, literature on SNS and PNS use and well-being is reviewed in chapter 3. Chapter 4 includes the theoretical framework on which this research is based upon. Here the *active-passive model of SNS use* and its individual components including subjective well-being, social comparison, envy and social capital will be introduced and explained in further detail. The chapter closes with a display of the research hypotheses and the research model. The following chapter 5 is concerned with the methodology used. First the research design and sample selection are presented. The survey design is presented next, followed by the measures employed. Chapter 5 ends with a description of the data collection process. Results, including the sample description will be presented in chapter 6. Chapter 7 will provide a discussion of results including a description of theoretical and practical implications. Limitations and an outlook for future research will be presented as well. The thesis ends with chapter 8, describing key takeaways of this research.

[1] Figures refer to the fourth quarter of 2023.

2 Terms and Definitions

The following chapter defines terms and lists definitions of concepts, which are considered important for the thorough understanding and proper interpretation of the results at the end of this thesis.

2.1 Social Network Sites

When discussing the definition of SNSs, it is inevitable to first define social media (SM) allowing for a distinction between the two terms. SM, although lacking a universally accepted single definition (Carr & Hayes, 2015, p. 3), can generally be described as a set of digital online applications enabling the creation and exchange of user-generated content (Carr & Hayes, 2015, p. 5; Kaplan & Haenlein, 2010, p. 61). In an attempt to unify the multitude of existing definitions for SM Carr and Hayes (2015, p. 8) developed a more fine grained definition which reads as follows:

> *"Social media are Internet-based channels that allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others*."

It can therefore be concluded that SM are characterized by three main criteria: (1) the applications and tools grouped under the category are available online, being accessible on the Internet, (2) users of SM are able to independently create content and (3) this content can be published in various forms and through different channels providing other users with the opportunity to receive this content. Examples of SM platforms are: SNSs such as Facebook, PNS like LinkedIn or discussion fora as well as dating platforms like Tinder or Bumble.

As a unifying single definition of SM is currently still missing, terms such as SNS have falsely been used synonymously (Carr & Hayes, 2015, p. 7) possibly creating impediments for scientific research and leading to inaccuracy in theoretical literature. Although SNSs can be grouped under the broad SM category (Carr & Hayes, 2015, p. 43; Verduyn et al., 2017, p. 275) and definitions show similarities, the two are distinct concepts that should not be used interchangeably.

With their seminal work boyd and Ellison (2007) popularized the acronym SNS, originally referring to social network sites. Though, over the past decade a multitude of variations have appeared. One of the most common variation is most likely to refer to SNSs as social networking sites (e.g. M. Appel et al., 2020, p. 60; Burnell et al., 2019, p. 1; Hanley et al., 2019, p. 1), emphasizing the creation of new relationships and connections. Other variations are: social network services (van Dijck, 2013, p. 200) or social networking

services (Zhang & Leung, 2015, p. 1007). Additionally new acronyms such as OSN, referring to online social networks (H. Appel et al., 2015, p. 278) have appeared. Each term is focusing on a specific characteristic of SNSs but initially describing the same application or platform: an internet based solution that allows individuals to meet new people or keep up with friends or acquaintances, even colleagues, virtually by making use of the platform's available tools and activities (Florenthal, 2015, p. 18). Generally, SNSs provide their users with the opportunity to share audiovisual content with other users and offer the opportunity to expand one's own network by communicating and exchanging content with other people.

As mentioned previously, just like SM, SNSs have not been uniformly defined in research. However, boyd and Ellison's (2007) study is considered a cornerstone in research on SNSs, as it provided an extensive overview on scientific developments research evolving around SNSs as well as providing one of the first comprehensive definitions. Although the original work was published over a decade ago many researchers still refer to the definition provided by boyd and Ellison (2007) which reads as following:

> *"We define social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site" (boyd & Ellison, 2007, p. 211)*.

This definition permits to conclude that SNSs display three main characteristics: (1) they provide users with the opportunity to create a personal profile which can either be private or public depending on the user's preferred settings, (2) they give users insight into other users' lists of contacts as well as allowing them to connect with other platform users and (3) the platforms display some sort of newsfeed to their users, providing them with content created by other users (Verduyn et al., 2020, p. 32).

(1) Personal profiles

SNS users are usually required to create a personal profile, enabling them to fully use all functions of the platform. Although differing between service providers most profiles are made up of personal information such as a personal photo, name, age, gender, contact information and information on one's background and interests. The profile is usually created upon registering to become a member of an SNS. Users are often asked a series of questions helping them to fill out different parts of their profile (boyd & Ellison, 2007, 211, 213). Additionally, most SNSs provide users with the option to either make their profile public, making it visible for everyone, sometimes even to not registered

users, or to create a semi-private or fully private profile, that can only be accessed by predefined users (e.g. registered users or immediate connections only).

(2) List of contacts

An essential part of SNSs is to communicate and connect with friends, acquaintances or simply other users. SNSs thus offer the opportunity to connect with or *befriend* other users by sending out requests to other people. Each personal user profile then contains information on the number of connections and additional details providing other users with insights on the list of connections one has (boyd & Ellison, 2007, p. 213). Connecting with other users also enables communication between people on the platform on a more personal level as they can then make use of direct messaging functions, giving them room for private conversations.

(3) Newsfeed/ Starting page

When users first open the application provided by an SNS, they will usually face their personal start page, often providing a newsfeed that contains other users' posts such as photos or blocks of text. The newsfeed will usually contain information that is regarded as relevant for the user, often based on past reception preferences detected by the algorithm.

SNSs can be differentiated into networks related to entertainment or concerning a specific topic. They can also be focused on exchanging information or content. Additionally, one can differentiate between networks catering towards more private social needs such as connecting with friends and family as well as networks oriented towards more professional communication (Röll, 2010, p. 209).

Users are driven by different motives to engage in SNS use. Some wish to connect with friends and family members who might not be located close to them or reconnect with old friends or even colleagues from previous jobs. Others chose to use SNSs as a way of connecting with people who they have shared interests and hobbies with (see various Facebook groups for an example). Hoping to broaden ones social circle can also be considered another motive to use an SNS (Verduyn et al., 2017, p. 278). Interestingly SNSs are often used to maintain pre-existing relationships rather than getting to know new people (Amichai-Hamburger & Vinitzky, 2010, p. 1289; boyd & Ellison, 2007, p. 211). It should be noted that the above-mentioned motives are mainly concerning private individuals. Especially in recent years companies and organizations have also started using SNSs for their business purposes, like marketing or employer branding (Chun et al., 2020, pp. 955–956). As this thesis focuses on private users and their well-being, greater emphasis is placed on the former user group.

Although SNSs have offered new ways of connecting with others and maintaining relationships (Verduyn et al., 2020, p. 32), they might pose certain risks for users. Especially in recent years, concerns regarding privacy and data protection have been raised (Warner & Wang, 2019, p. 375). As users often willingly provide detailed private information on themselves, this concern should be carefully taken into account. Additionally, a growing body of research addresses potential negative effects of SNS use on well-being or mental health (Vahedi & Zannella, 2021, p. 2174; Verduyn et al., 2020, p. 32; Verduyn et al., 2017, p. 275) particularly for adolescents and young adults, as these two groups often heavily engage in SNS activities (Masur et al., 2022, p. 187).

2.2 Usage Patterns on Social Network Sites

As SNSs provide a variety of different activities and ways the sites can be used, researchers have started to differentiate between different usage patterns. Often times, a distinction between active and passive use is made. The latter one is usually described as the mere consumption of information on SNSs including no or only a minimum amount of social interaction with other users (Chen et al., 2016, p. 508; Verduyn et al., 2015, p. 480). With a more passive usage style, users do not usually exchange information or directly communicate with other users on the SNS (Ding et al., 2017, p. 142; Verduyn et al., 2015, p. 480). Examples of passive use are browsing other users' profiles, posts containing text or audiovisual information as well as comments (Verduyn et al., 2017, p. 282). Active use is often referred to as a direct exchange of information involving direct communication with other users (Verduyn et al., 2015, p. 480; Verduyn et al., 2017, p. 281). Examples include giving status updates or commenting on other users' posts as well as actively posting content such as photographs or videos.

With increasing research in the field, the definition of active use has been extended. Some authors have differentiated between active private and active public use (Frison & Eggermont, 2015, p. 704). Active public use or public communication describes behavior that occurs in a public setting and comprises activities like sharing photos or giving status updates. Behaviors associated with active public communication enable direct interactions between SNS users and their community in a public setting. Active private use or private communication also involves direct interactions but in a private environment. Exchanging direct messages with friends or acquaintances on SNSs can be named as an example of private active use (Frison & Eggermont, 2015, p. 704). Another extension of the concept is the distinction between active social and active nonsocial use as proposed by Gerson et al. (2017, p. 81). Active social use is associated with behaviors like commenting or directly communicating with connections or other people via direct message or chat groups. These activities are active and of social

nature. Active nonsocial use is associated with behaviors like posting photos, where content is created actively by the user but there is no direct communication with other users involved (Gerson et al., 2017, p. 84).

An important side note to make is that active and passive use should generally be viewed as two extremes of a continuum. Both usage styles do overlap when performing certain activities on SNSs (Gerson et al., 2017, p. 85; Hanley et al., 2019, 2; Tromholt, 2016, p. 664). The effects and consequences of the different types of use will be discussed further later in chapter 3.2, which reviews previous literature on the relation between type of SNS use and well-being.

2.3 Professional Network Sites

The term SNS groups various different platforms and networking services that each differ in their use context or purpose. This is why some scholars prefer to differentiate between SNS and PNS to distinguish between the different platforms' use context and purpose. The term PNS was developed based on the acronym SNS, referring to a professional network site. Some authors refer to PNSs as professional social network sites (Brenner et al., 2019, p. 1), while others use the term professional networking sites (Grissa, 2017, p. 1). The latter term further emphasizes the establishment of new connections. Although networking is considered to be a behavior that involves both the creation of new relations and the interaction with the already existing network (Utz & Breuer, 2019, p. 180), it is often described as a practice focusing on the acquisition of new contacts to expand one's network of social contacts. Referring to PNSs as professional network sites sets the focus on the term network, referring to the set of contacts a person holds. As described above, this list of contacts represents a unique characteristic of SNSs, that also applies to PNSs. Often, a user's network is made visible by displaying the number of contacts on their profile or supported visually by displaying the profile pictures of the user's connections. Other terms interchangeably used with PNSs are online professional networks (Sievers et al., 2015, p. 25) or professional social networking sites (Professional SNSs) (Baumann & Utz, 2021, p. 1).

Regarding their structure PNSs are built similarly to SNSs. They allow users to create their own profiles and provide lists of a user's contacts that are visible to other users enabling them to reach out to people they might otherwise not have gotten to know. Moreover, most PNSs provide a space to share content in the form of text, photographs or videos.

PNSs are characterized by their context of use as they were created to serve as a tool for both employers and employees to engage in professional networking, creating new

ways for business networking in an increasingly digital world. The platforms provide opportunities for their users to connect with colleagues from their own organization or with other users outside of their current circle of social connections, helping them to grow their professional networks (Ma & Leung, 2019, pp. 1059–1060; Ruparel et al., 2023, p. 1). When taking a closer look at this process, a distinction can also be made between two forms of building a professional network: external and internal networking (Utz & Breuer, 2019, p. 181). While external networking describes the process of connecting with colleagues from different institutions or field of employment, internal networking is related to the establishment and maintenance of contacts within one's department or organization.

Users of PNSs are driven by different motivations to engage in the activities offered by the platforms. As mentioned previously, there are two main groups of users engaging in activities on SNSs and thus also on PNSs: individuals (private) and corporations (public). Examples of private users are college or university students as well as recent graduates. Firms and organizations also take advantage of the opportunities provided by PNSs as public users (Brenner et al., 2019, pp. 1–2) by using the platform for marketing purposes. Moreover, PNSs provide an opportunity to attract new employees and enable companies to use the network for HR purposes. Individuals make use of PNSs to present themselves to potential employers, describing their achievements and skills to attract recruiters' attention (Tobback, 2019, pp. 650–651). Additionally, users of PNSs use the provided space to acquire information on topics related to their field of work or provide other users with information in return. Moreover, users engage in building their professional network, connecting with coworkers or other likeminded individuals (Sievers et al., 2015, pp. 25–26; van Dijck, 2013, p. 200).

Although job searching and posting of vacant positions makes up for a great part of activities performed on PNSs (Ruparel et al., 2023, p. 1; Zide et al., 2014, p. 583), these platforms should be distinguished from pure job search platforms such as Indeed or Monster, as they provide a wider range of activities extending the presentation of job postings.

2.4 Differentiating between Social and Professional Network Sites

As one can infer from the explanation above, SNSs and PNSs share many similar features. They do differ to some extent, which is why the differences should be pointed out in the following. First of all, PNSs can be categorized as a subgroup of SNSs. The latter ones can be differentiated by various categories depending on the platforms' focus (Mojdeh et al., 2018, p. 84). Thus, PNSs can be classified as a form of SNSs that is

mainly concerned with business related content. Secondly, PNSs offer some unique activities, that are not provided by all SNSs, calling for them to be grouped into a specific category rather than being allocated broadly to just being an SNS. Such activities are the posting of job offers or vacancies.

However, the literature is inconclusive when it comes to assigning specific examples of PNSs. The platform LinkedIn provides an example for this phenomenon. Authors seem to define LinkedIn somewhat randomly as either an example for an SNS or a PNS. For example, LinkedIn is defined as a PNS by Baumann and Utz (2021, p. 1) and by Utz and Breuer (2019, p. 180) as well as Chmielinski et al. (2020, p. 1). In contrary, Weidner et al. (2016, p. 80) and Verduyn et al. (2017, p. 275) describe LinkedIn as an SNS. This thesis defines LinkedIn as a PNS, predominantly on the grounds of the context of use: LinkedIn is mostly used in a professional context and serves less to maintain private contacts or pure entertainment.

2.5 LinkedIn

LinkedIn is a US-American software development company, founded in 2003 and acquired by Microsoft in 2016 (LinkedIn, n. d.). With its headquarters located in Silicon Valley, the company offers a variety of products catering various different needs, including solutions for human resource management (e.g. talent acquisition), marketing or sales (LinkedIn, n. d.). The services are all combined in a single platform solution, which is both accessible on mobile devices via an app and on desktop computers through a webpage. Basic services are offered cost free, but LinkedIn also provides paid subscription offers (*LinkedIn Premium*), which allow access to special features. Different subscription plans are available based on position and goals of the user. The package *Premium Career* offers extra features to individuals seeking a job, while *Premium Business* is a solution for companies and organizations engaging in marketing, sales or other related activities (LinkedIn Premium, n. d.). LinkedIn currently provides its services in 26 languages and records more than 950 million members worldwide, with a majority of registered users in the US (over 206 million)[2] (LinkedIn Pressroom, n. d.). The site is popular among students, employees, companies and schools as well as universities, with over 63 million companies and 131 thousand schools listed[2] (LinkedIn Pressroom, n. d.). LinkedIn has recorded consecutive member growth (LinkedIn Pressroom, 2023) and is frequently referred to as one of the most popular PNSs. Users can set up a personal profile, similar as on other online networking platforms. Members, looking for a job or being interested in growing their network make use of their profiles to present

[2] Figures refer to the fourth quarter of 2023.

themselves and their professional achievements and personal skills (Florenthal, 2015, p. 19). The website allows users to post content such as photos, text or videos and additionally offers the opportunity to share or comment on the articles of other users. Members can also connect with other registered LinkedIn users (Ma & Leung, 2019, p. 1059; Papacharissi, 2009, p. 204), which is considered a core function of the platform, as it is designed to build and grow users' professional networks (Castillo-de Mesa & Gómez-Jacinto, 2020, p. 104). Once connected with another member, users are able to directly communicate with their connections, when making use of the direct messaging feature. Members can choose to follow businesses or influencers from a variety of different industries and join interest groups (Cho & Lam, 2021, p. 1). Additionally, as mentioned previously, the application provides the option to view or post job offers. The feature *open to work* which is an added banner visible on users' profile photos, offers additional aid for both recruiters and employees looking for an employment. Lastly, LinkedIn also offers a tool for training and education, called *LinkedIn Learning*®. The service is offered on a paid subscription basis, tailored to needs for businesses, higher education and government offices, which want to provide their employees or students with opportunities to expand their skill set (LinkedIn Learning, n. d.).

3 Literature Review

SM and SNS use have been increasingly researched over the past decade. Scholars have paid a substantial amount of attention to users' well-being in relation to SM and SNS use (M. Appel et al., 2020, p. 60). The current body of literature on SM[3] and SNS use is characterized by an interdisciplinary character (Gao et al., 2023, p. 172; Rains & Brunner, 2015, p. 115) with a great deal of publications in psychology (H. Appel et al., 2015; Gerson et al., 2016; Kross et al., 2013; S. Lin et al., 2021) but also psychiatry (Jarman et al., 2022), medical sciences (Coe et al., 2012; Dienlin & Johannes, 2020) and media and communication research (Tandoc & Goh, 2023) offering a wide variety of theoretical approaches and focal topics ranging from social interaction and establishment of relationships to identification of usage patterns and user types (Bayer et al., 2020, p. 473). Other topics researched in association with SNS use include social capital (Ellison et al., 2007; Johnston et al., 2013; Koroleva et al., 2011), personality traits (Gerson et al., 2016) and usage motives (Kocak et al., 2020) or narcissism and academic success in relation to SNS use (M. Appel et al., 2020, p. 60).

With the extensive body of literature on the topic of SNS use and well-being, a variety of different theoretical approaches has been used by researchers. A diverse set of theories such as uses and gratifications (Ha et al., 2015; Pittman & Reich, 2016; Sheldon et al., 2021; Smock et al., 2011) or social capital theory (Koroleva et al., 2011; Reimann et al., 2021) has been applied in literature.

When reviewing publications in the field, a striking number of studies have focused on Facebook to analyze SNS use and its effects on well-being (Bayer et al., 2020, p. 473; Kross et al., 2021, p. 56). A content-analysis of SNS literature from a time period of 16 years revealed that 80% of studies focusing on a single SNS selected Facebook as their platform of choice (Rains & Brunner, 2015, p. 114). Although studies examining a different SNS or a variety of different platforms have been published, a great majority of research on SNSs still focusses on Facebook. The high user count and international availability can be named as the key arguments used justifying the analysis of Facebook to examine effects of SNS use (Burke & Kraut, 2016, p. 271; Krasnova et al., 2015b, p. 593). However, critics have raised concerns about generalizability of results from these studies. The neglect of other SNSs has also been blamed for leading to a focus on Facebook-specific features and user groups (Stoycheff et al., 2017, p. 969).

[3] Note that, despite their theoretical distinction SM and SNSs are often used interchangeably in literature. This review will thus contain articles referring to both SM and SNSs. Literature on instant messaging services, which are sometimes also referred to as SM was not included.

Several different streams of research can be extracted when reviewing literature on SNS use and well-being. In the beginning of research on SNS use and its effect on users' well-being, many studies focused on the frequency of use or overall time spent online. This resulted in a very large but inconsistent body of literature. In an effort to find explanations for the lack of consensus in results, it was later suggested that the assumed direction of the relationship between SNS use intensity and well-being (i.e. linear or non-linear) as well as the level (i.e. between-person or within-person level) at which it is being analyzed may contribute to the inconsistency in results (Boer et al., 2022, pp. 2–3). Moreover, in recent years a growing number of publications has started to investigate the effects of user specific differences in outcomes of SNS use.

In the light of further advances in research a more fine-grained approach has been developed, with a greater number of studies differentiating between various usage patterns (i.e. active and passive). Research on this chain of effects makes up for a great part of current literature. Albeit research in this body of literature has yielded similarly inconsistent and inconclusive results as literature concerned with measuring use intensity and frequency, four main factors that could explain positive and negative effects of SNS use on well-being repeatedly appear. The accrual of social capital and the perception of social support could be responsible for the positive effects associated with active use, while social comparison behavior and the elicitation of feelings of envy have been made responsible for inducing negative effects on SNS users' well-being (Orben, 2020, p. 410; Verduyn et al., 2017, p. 284). However, this assumption of effect has also been challenged in recent publications (Meier & Krause, 2022, p. 2; Valkenburg et al., 2021, p. 1; Valkenburg, van Driel, & Beyens, 2022, p. 530).

With the increasing popularity of PNSs such as LinkedIn, research has also picked up pace in this field (Ruparel et al., 2023, p. 6). The existing body of literature is however still comparably small in relation to literature on SNS use (Brenner et al., 2019, p. 2; Chmielinski et al., 2020, p. 2; Florenthal, 2015, p. 17; Ma & Leung, 2019, p. 1060). Publications in this area mainly evolve around the investigation of use motivations and likelihood of adoption (Brenner et al., 2019; Florenthal, 2015; Ma & Leung, 2019) and benefits of using PNSs for one's career (Davis et al., 2020; Mogaji, 2019) or differences between online and offline professional networking (Baumann & Utz, 2021). Thus, even though this thesis is investigating the relationship between PNS use and well-being, the main part of this literature review will be concerned with the effects of SNS use on well-being, as there is very little research available on the effects of PNS use on users' well-being (Jones et al., 2016, p. 601). The following review will therefore first highlight scientific findings on the relationship between SNS use (overall use in chapter 3.1 and

usage patterns in chapter 3.2) and well-being before concluding with a brief overview of literature on PNSs (chapter 3.3).

3.1 Overall Social Network Site Use and Well-being

Especially early literature on SM and SNS use was concerned with the investigation of the relationship between aggregate levels of SNS use (i.e. frequency of SNS use or overall time spent on SNSs) and well-being. Early research from the first decade of the 21st century was mainly based on cross-sectional approaches, using self-report measures of use frequency or overall time spent on SNSs (Kross et al., 2021, p. 57; Valkenburg, Beyens, et al., 2022, p. 2). Today, cross-sectional study designs still dominate literature (Hancock et al., 2022, p. 1). However, some researchers have made an effort to refrain from self-report data on overall SNS use and have instead adopted logfile data analyses as a non-self-report measure for SNS usage (e.g. Burke & Kraut, 2016). Although SM and SNSs have increasingly received attention from researchers, results on the relationship between usage and users' well-being have been inconclusive and of ambiguous nature (Kross et al., 2021, p. 57). Results from studies until the 2010's indicated both negative and positive effects of SM and SNS use on well-being (Kross et al., 2021, p. 57) and revealed a great divide in opinions on effect directions and sizes of the relationship between SM and SNS use and well-being that holds up to the present day (Verduyn et al., 2021, p. 134). In an effort to resolve some of the ambiguity that had arisen, researchers have begun to employ more sophisticated methods including experience sampling and longitudinal study designs, starting around the 2010's (Kross et al., 2021, p. 57; Valkenburg, van Driel, & Beyens, 2022, p. 533). However, results still have not allowed for a consensus on whether SNS use should be regarded as positively or negatively related to well-being (M. Appel et al., 2020, p. 61).

When observing aggregate levels of SNS use, some authors have reported declines in users' well-being (Kross et al., 2013, p. 1), while others have found no relationship (Coyne et al., 2020, p. 1; Orben et al., 2019, p. 10226) at all. Albeit the ambiguity, some meta-analytic evidence suggests that small negative effects on well-being can be associated with SM and SNS use (M. Appel et al., 2020, p. 68; Vahedi & Zannella, 2021, p. 2174). For example, Vahedi and Zannella (2021, p. 2174) have found a positive association between SNS use and users' depressive symptoms, but with small effect size. Yoon et al. (2019, p. 69) have found similar results in their meta-analysis. Their work showed small positive correlations between time spent on SNSs and symptoms of depression. The same held true for frequency of SNS checking. Though, there is a discussion in literature on whether research using variables referring to ill-being (e.g. depression or loneliness) should be conflated with well-being (Valkenburg, van Driel, &

Beyens, 2022, p. 540). Some authors argue that well-being should not be simply seen as the absence of ill-being. Consequently, studies associating lower levels of depression or loneliness with SNS use should not be interpretated as positive for well-being. Meta-analytic evidence should also be viewed with some caution as these analyses are inherently limited by their input. Meta-analyses are only so good as the studies on which they are based. Especially recently, several cross-sectional studies in the field have been criticized for their low quality (Orben, 2020, p. 409).

Due to its size the existing body of literature cannot be presented in its entirety. However, table 1 should adequately illustrate the diverse nature of operationalizations and ambiguity of results produced by research on the association between aggregate levels of SNS use and subjective well-being. As subjective well-being consists of both cognitive and affective components, which will be explained in further detail in chapter 4, the overview differentiates between affective subjective well-being and cognitive subjective well-being.

Table 1 Selection of Literature on overall Social Network Site Use and Well-being

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Valkenburg et al., 2006	CS (*N* = 881) CU2 users recruited via links posted to CU2 profiles	Intensity of CU2 use (number of days per week, daily visit frequency and time spent during one visit)	SWBc - SWL	Intensity of CU2 use (+) →number of relationships; frequency of received feedback and positive tone of feedback (+) → social self-esteem (+) → SWL
Valenzuela et al., 2009	CS (*N* = 2,603) college students recruited randomly through list of e-mail addresses	Intensity of FB use (network size, daily time spent and emotional attachment to FB)	SWBc - SWL	Intensity of FB use (+) → SWL
Farahani et al., 2011	CS (*N* = 265) university students recruited through convenience sample	Intensity of FB use (last week' s daily and weekly use rates) *	SWBa - depression, anxiety, stress	Intensity of FB use (ns) → depression Intensity of FB use (+) → anxiety Intensity of FB use (+) → stress
G. Lee et al., 2011	CS (*N* = 217) university students using Cyworld.com recruited from a large university in South Korea	Cyworld use (weekly usage time) Cyworld network size (weekly visitors)	SWBc - SWL SWBa - positive and negative affect SWB - aggregate of SWBc + SWBa	Cyworld use (ns) → SWL Cyworld use (ns) → SWBa Cyworld use (ns) → SWB Cyworld network size (+) → SWL Cyworld network size (ns) → SWBa Cyworld network size (+) → SWB
Lou et al., 2012	CS (*N* = 340) first-year college students recruited from two southern US universities (*n* = 118) students non-FB users (*n* = 222) students FB users	Intensity of FB use (number of FB friends, daily time spent on FB, extent of active FB engagement, attitudes toward FB)	SWBa - loneliness	Intensity of FB use (-) → loneliness Loneliness (ns) → intensity of FB use

Table 1 Selection of Literature on overall Social Network Site Use and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Pantic et al., 2012	CS (*N* = 160) Serbian high school students	Daily time spent on SNS	SWBa - depression	Daily time spent on SNS (+) → depression
Apaolaza et al., 2013	CS (*N* = 344) Spanish adolescent recruited from three secondary education centers**	Daily time spent on Tuenti	SWBc - SWL	Daily time spent on Tuenti (+) → socializing (+) → self-esteem (+) → SWL Daily time spent on Tuenti (+) → socializing (-) → loneliness (+) → SWL
Kross et al., 2013	LT (*N* = 82) FB users recruited via flyers posted around a US American city	Intensity of FB use (0 not at all, 100 a lot) – answer option to text-message based questions (sent out five times per day, over two weeks)	SWBc - SWL SWBa - positive and negative affect	Intensity of FB use (-) → SWL Intensity of FB use (-) → SWBa
Sagioglou & Greitemeyer, 2014 Study 1	EXP (*N* = 123) FB users recruited through a link published on the FB account of a research assistant	EXP Study 1 Current FB use (time spent immediately before participation) Internet use (usual time spent online) General FB and internet use (different indicators, not fully listed; among others: number of friends, amount of status updates, daily amount spent online)	SWBa - positive and negative affect	Current FB use (-) → SWBa General FB use (ns) → SWBa General Internet use (ns) → SWBa
Sagioglou & Greitemeyer, 2014 Study 2	EXP (*N* = 263) recruited from Mechanical Turk (MTurk) panel	EXP Study 2 FB activity group (20 min active FB use) Browsing control group (20 min Internet use but no SNS) No-activity control group	SWBa - positive and negative affect	FB activity (-) → SWBa Browsing (ns) → SWBa No activity (ns) → SWBa

Table 1 Selection of Literature on overall Social Network Site Use and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Burke & Kraut, 2016	LT (*N* =1,910) adult FB users recruited through Facebook ads and e-mail targeted at users who had been active on the site in the previous 30 days	FB use intensity (server log data from participants' FB profiles) Composed communication received One-click communication received Broadcast communication viewed	SWB as aggregate of: SWL positive and negative affect perceived social support depression loneliness perceived stress	Aggregated communication (ns) → SWB Composed communication (+) → SWB One-click communication (ns) → SWB Broadcast communication (ns) → SWB
L. Y. Lin et al., 2016	CS (part of LT study) (*N* = 1,787) adults recruited through random digit dialing and address-based sampling - GfK panel	Intensity of SM use (daily time spent for personal use, visits per week, and global frequency score over 11 SM platforms)	SWBa – depression	Intensity of SM use (+) → depression
Pittman & Reich, 2016	CS (*N* = 253) university students	Use of image based SM (Snapchat and Instagram yes, no; aggregated as either 0,1,2)	SWBc - SWL SWBa - happiness loneliness	Image based SM use (+) → SWL Image based SM use (+) → happiness Image based SM use (-) → loneliness

Only variables related to overall SNS use and well-being are considered in this overview
**Measurement not further specified ** No information on recruiting procedure available*
CS Cross-sectional LT Longitudinal EXP Experiment
SWB subjective well-being SWBa affective subjective well-being SWBc cognitive subjective well-being

The work of Valkenburg et al. (2006) represents the starting point of research on the association between intensity of SM and SNS use and well-being. As shown in table 1, the results produced by subsequent studies greatly vary. While some authors have reported positive effects of SNS use on cognitive well-being for specific SNSs (e.g. Valenzuela et al., 2009, p. 889; Valkenburg et al., 2006, p. 589) and an aggregate of SNSs (Pittman & Reich, 2016, p. 164) others have reported negative effects of SNS use on cognitive well-being (Kross et al., 2013, p. 3). Results on the direction of effect of SNS use on affective well-being are also inconclusive. Some authors have reported negative effects of SNS use on affective well-being (Farahani et al., 2011, p. 813) while others have suggested positive effects (Lou et al., 2012, p. 113; Pittman & Reich, 2016, p. 164). As mentioned previously, the ways in which well-being has been operationalized also greatly varies. While cognitive well-being is often measured as satisfaction with life, operationalization of affective well-being ranges from positive and negative affect or happiness to variables which are reversely related to well-being such as loneliness, depressive symptoms or anxiety. Additionally, the way in which SNS use is measured also ranges from only capturing self-reported time spent on SNSs to multi-item measures or even log file-based analyses of SNS profiles. The overview of studies in table 1 also supports the observation made by some researchers (Bayer et al., 2020, p. 473), that Facebook is frequently chosen as a study object. In regard to study designs, cross-sectional approaches dominate. Though, since the later 2010's some researchers have also started to adopt longitudinal and experimental designs.

Possible explanations for observed negative effects of SNS use intensity on well-being (e.g. Kross et al., 2013, p. 3; Sagioglou & Greitemeyer, 2014, p. 362) are the increased risk of isolation (Clark et al., 2018, p. 33) or the risk of being exposed to harmful content or cyber bullying. The replacement of real life face to face communication (M. Appel et al., 2020, p. 62) by online communication has also been suggested to be a factor explaining the observed negative effects of SNS use on well-being. This is featured in the displacement hypothesis (Neuman, 1988, p. 414), which assumes a direct and proportional negative relationship between harmful effects of technology use and the time exposed to the technology in question. Although, originally developed in the context of television consumption, the hypothesis has been extended to the context of SNSs (Przybylski et al., 2021, p. 507; Przybylski & Weinstein, 2017, p. 204). The alleged negative effects arise from the fact that digital activities replace other activities, such as meeting up with friends, engaging in off-line activities with family or performing some form of sport or physical activity (Przybylski & Weinstein, 2017, p. 204). It is assumed that the negative effects rise with increased screen time and exposure, making intense

technology increasingly harmful. However, more recent empirical evidence suggests that the assumption of a linear relationship between use intensity and well-being might not hold true for the way SNSs are used today (Przybylski & Weinstein, 2017, p. 205). An opposing hypothesis that has been suggested is the digital Goldilocks hypothesis[4]. Moderation is the key variable in this explanation (hence the naming reference to the fairy tale). It is proposed that *the dose makes the poiso*n, making both extremely low and very high screen time more harmful than moderate amounts of exposure to technology (Boer et al., 2022, p. 2).Transferred to the context of SNSs, this is explained as follows: low SNS use, especially in younger individuals can make them miss out on important information and results in feeling left out and not being able to join the conversation. Extremely high or even disordered use is also harmful to users' well-being as this might lead to neglect of personal relationships and tasks (Boer et al., 2022, p. 2). Thus, it could be assumed that the relationship between SNS use intensity and well-being can be illustrated as an inverted u-shape rather than a linear model. Albeit one can find cross-sectional support (Przybylski & Weinstein, 2017, p. 204) for this relationship, longitudinal studies have failed to provide empirical evidence to support the hypothesis (Boer et al., 2022, p. 2).

As recently suggested by Boer et al. (2022, p. 3) the differences in reported effect directions of the relationship between SM and SNS use intensity could also be partially influenced by methodological factors. Whether the relationship between SM or SNS use and well-being is analyzed at a between-person or a within-person level can influence reported effect directions and sizes (Boer et al., 2022, p. 3). Between-person level analysis describes the investigation of one individual compared to others in the same group (i.e. age cohort, gender, occupation, neighborhood etc.). Within-person level analysis is concerned with the investigation of processes occurring within one single individual. Thus, changes in well-being in relation to an individual's average well-being are measured (Valkenburg, van Driel, & Beyens, 2022, p. 533). Cross-sectional data is prone to capture relationships primarily at the inter-individual level rather than the intra-individual level. Within-person level analyses tend to produce different results in direction and size of effect compared to between-person level analyses of the relationship between SM or SNS use and well-being. While between-person level analyses were able to show a negative relation between SM use intensity and well-being (with small effect sizes), within-person level were mostly unable to show any significant relation between the two variables (Boer et al., 2022, p. 3).

[4] Goldiloks refers to the eponymous fairy tale and its protagonist.

Additionally to the analysis of usage intensity, researchers have begun to investigate the influence of user specific differences including self-esteem (e.g. Apaolaza et al., 2013; Chen et al., 2016; J. K. Lee, 2022; Wang et al., 2017), effortful control (e.g. Chen et al., 2016) or social comparison orientation (e.g. J. K. Lee, 2022; Vries et al., 2018; C.-C. Yang, 2016) as the effect of SNS use on its users has been shown to vary tremendously between studied subjects (Boer et al., 2022, p. 2). For example, findings of the experimental study by Vries et al. (2018, p. 239) suggested that Instagram users' social comparison orientation significantly influenced decreases or increases in positive affect. Users' positive affect was reduced for individuals with high social comparison orientation when being exposed to stranger's Instagram posts with positive framing. Subjects with lower levels of social comparison orientation experienced increases in positive affect under the same conditions. The study was not able to detect any effects, neither for high nor low social comparison orientation on negative affect (Vries et al., 2018, p. 239). The cross-sectional study of J. K. Lee (2022, p. 6251) showed that social comparison orientation had a direct negative effect on psychological well-being of SNS users. Additionally, social comparison orientation had a negative effect on participants' perceived social support and self-esteem, also acting in a serial mediation, reducing psychological well-being (J. K. Lee, 2022, p. 6252). Self-esteem was also studied by other authors (e.g. Apaolaza et al., 2013; Valkenburg et al., 2006). For example Apaolaza et al. (2013, p. 1286) found that the relationship between socializing on the platform Tuenti (a Spanish SNS) positively influenced users' well-being by increasing self-esteem and reducing loneliness.

As established, research on SM and SNSs is characterized by a great diversity of theoretical approaches, which is inevitably associated with the use of different operationalizations. This can lead to so called jingle (Thorndike, 1904, p. 14) and jangle (Kelley, 1927, p. 64) fallacies. Jingle fallacy arises when researchers make the assumption that two separate concepts are identical simply because they share the same name (i.e. using well-being to refer to depression and satisfaction with life) (Kross et al., 2021, p. 57). Jangle fallacy describes the situation in which researchers mistakenly believe that two similar or nearly identical concepts are different due to having different labels (i.e. using online social networks, social network sites and social networking sites interchangeably) (Kross et al., 2021, p. 57). This can lead to confusion and makes it difficult to compare studies and draw generalizable conclusions on effects of SNS use on well-being. Another factor that decreases generalizability and increases difficulty of measurement is the great variety of activities that can be performed when using an SNS (Gerson et al., 2017, p. 81). When taking overall time spent or frequency of use as an indicator of SNS use, the difference in activities performed is disregarded and neglected.

This is why, the focus of research began to shift towards more detailed measures, differentiating between usage patterns in the beginning of the 2010's (Burke et al., 2010 as a starting point). Moreover, self-report measures of aggregate SM or SNS use turned out to be very inaccurate and susceptible towards biases (Griffioen et al., 2020, p. 3). For example, users often underestimate the overall time spent on SNSs.

3.2 Usage Patterns on Social Network Sites and Well-being

The ambiguity in results on the relationship between aggregate measures of SNS use and well-being as well as related factors have led to the conclusion that SNS use and well-being have a more nuanced relationship and overall use is not the only important factor. Followingly, researchers have started to develop more fine-grained approaches to analyze the relationship between SNS use and well-being. In order to analyze the effects of social media or more specifically SNS use in a more nuanced way, many researchers have made use of the dichotomization in active and passive use. Although the concept was originally developed specifically to investigate Facebook usage, it can and has been extended to other platforms like Instagram or Twitter (Verduyn et al., 2017, p. 282) (also see chapter 2.2 for a definition).

Active SNS use has been associated with positive effects on users' well-being as the active communication can encourage social interaction (Gao et al., 2023, p. 172). This may stimulate the accrual of social capital and enhance the user's social network, which can improve well-being (Verduyn et al., 2022, p. 63). One way to explain the increase in social capital experienced after active use is the social enhancement hypothesis, also sometimes referred to as the rich get richer hypothesis (Kraut et al., 2002, pp. 58–59). Here, the assumption is made that people who already have a large (offline) network of people will also easily make contact with others online. These people might also be more likely to benefit from the social interactions facilitated by active use, as active use is more valuable to maintain relationships than passive use. This active SNS usage, in turn, can strengthen existing relationships and result in positive social outcomes, such as heightened perceptions of social support (Frison & Eggermont, 2016, pp. 155–156).

Users who tend to be more drawn to passive use, might be exposed to unrealistic ideals and displays of others on SNSs, as people tend to present themselves in an overly positive and appealing way (Verduyn et al., 2021, p. 134). The exposure to overly positive and unrealistic content may provoke social comparison behavior and induce feelings of envy. Browsing, an essential feature of passive use, does not involve any social interaction and can reduce social engagement (Gao et al., 2023, p. 172). Thus, passive users who solely browse their newsfeed including other people's posts might not

capitalize on the benefits of SNS use like social support or feeling of connectedness. This can negatively impact users' well-being.

The assumption that passive use decreases well-being by inducing social comparison behavior and eliciting envy is also referred to as the passive use hypothesis (Valkenburg, van Driel, & Beyens, 2022, pp. 536–537). Its counterpart is the active use hypothesis which assumes that active SNS use has positive effects on well-being by enabling the accrual of social capital and eliciting social support (Valkenburg, van Driel, & Beyens, 2022, p. 536). Meta-analytic evidence has produced ambiguous results on the accuracy of the active and passive use hypothesis. The analysis of Yin et al. (2019, p. 640), reviewing 63 studies on SNS use and mental health indicators published between 2005 and 2016, found no significant relationship between passive or active use and indicators of mental health. Hancock et al. (2022, p. 27) found a positive relationship between active SM use and a combined measure of well-being consisting of positive (eudaimonic, hedonic and social well-being) and negative (anxiety, depression and loneliness) indicators in their meta-analysis but no effect for passive use (Hancock et al., 2022, p. 46). A relatively recent review (Valkenburg, van Driel, & Beyens, 2022) has also demonstrated the heterogeneity in reported relationships between both passive and active use and indicators of well- and ill-being. For example, reported associations between active use and cognitive well-being (measured as satisfaction with life) ranged from large negative to small positive effects (Valkenburg, van Driel, & Beyens, 2022, p. 537). The authors also found that studies investigating active use in relation to well-being indicators more frequently reported positive effects of active use than studies that investigated indicators of ill-being (Valkenburg, van Driel, & Beyens, 2022, p. 537). Conversely, passive use was associated with negative effects more often when indicators of ill-being had been studied (Valkenburg, van Driel, & Beyens, 2022, p. 537).

Despite the small size of reported effect sizes of the negative relationship between passive SNS use and users' well-being, there can still be significant consequences. This holds true when the predicted behavior is widespread and applies to a large population. This is of particular relevance with SNSs, considering that a considerable number of users spend a great amount of time on SNSs (Verduyn et al., 2022, p. 63).

As established, both measurements and studied indicators of well- and ill-being as well as reported results vary greatly. Table 2 gives an overview of studies measuring active and passive use and their effect on well-being. Like in table 1, a distinction between affective subjective well-being and cognitive subjective well-being is made.

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Burke et al., 2010	CS (part of LT study) (*N* = 1,193) adults recruited via FB ad	Directed communication (AU) Consumption (PU) Measured with server log data from participants' FB profiles	Bridging and bonding social capital SWBa - loneliness	AU (+) → bonding social capital AU (-) → loneliness PU (-) → bridging social capital PU (+) → loneliness
Haferkamp & Krämer, 2011 Study 1	EXP (*N* = 93) recruited randomly via e-mails of StudiVZ and FB users	Exposure to online profiles of physically attractive or unattractive persons	SWBa - positive and negative affect	Exposure to attractive profiles (-) → positive affect/ (ns) negative affect
Haferkamp & Krämer, 2011 Study 2	EXP (*N* = 103) recruited randomly via e-mails of StudiVZ and FB users	Exposure to online profiles of people with high or low occupational attainment	SWBa - positive and negative affect	Exposure to high occupational attainment profiles (ns) → SWBa
Koroleva et al., 2011	CS (*N* = 253) FB users recruited through student and alumni mailing lists of different universities	Active Participation (AU) (frequency of posting, sharing and reacting to content on FB) Passive Following (PU) (frequency of scrolling through newsfeed, following friends' posts)	Sources of social capital (network structure, social connectedness) Benefits of social capital (horizon broadening, networking value, emotional support, offline participation)	AU (+) → offline participation (mediated by network structure and social connectedness) AU (+) → networking value (mediated by network structure and social connectedness) PU (+) → social connectedness (+) → networking value AU (+) → horizon broadening (mediated by network structure and social connectedness) PU (+) → social connectedness (+) → horizon broadening AU (+) → emotional support (mediated by network structure and social connectedness)

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
große Deters & Mehl, 2012	EXP (*N* = 86) FB using undergraduate students recruited from US University	Experimental group (AU) (post more status updates than weekly average - determined by prior analysis of participants' FB profile) Control group (no instructions)	SWBa - loneliness subjective happiness depression	AU (-) → loneliness AU (ns) → subjective happiness AU (ns) → depression
Krasnova et al., 2013	CS (*N* = 227) FB users recruited using a mailing list of a German university	Passive Following (PU) (frequency of looking at News Feed, through conversations of profiles of friends and others)	SWBc - SWL	PU (+) → envy (-) → SWL
Wenninger et al., 2014	LT (*N* = 80) FB using students recruited from two German schools	Active use (AU) (time spent chatting, daily amount of posts, comments and likes – individually transformed to measure weekly behavior) Passive Following (PU) (time spent browsing News Feed and looking at others' profiles)	SWBc - SWL	AU chatting (+) → SWL AU posting (+) → SWL AU commenting (ns) → SWL AU liking (ns) → SWL PU (-) → SWL
Fardouly et al., 2015	EXP (*N* = 112) female students and staff members recruited through the university psychology student participant pool from a university in the UK or through flyers posted around the campus	Experimental group 10 min of browsing FB (PUfb) (entire application) or online magazine website (cosmopolitan) Control group browsing appearance-neutral control website (home craft hearthandmade)	SWBa - positive and negative affect	PUfb (-) → SWBa (compared to control group)

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Frison & Eggermont, 2015	LT (*N* = 1,612) students recruited from 15 randomly selected secondary schools in Belgium	Active public FB use (AUpu) (frequency of posting messages, photos and other content on own timeline) Active private FB use (AUpr) (frequency of sending personal messages and chatting) Passive FB use (PU) (frequency of visiting friends' and strangers' profiles, looking at friends' and strangers' photos)	SWBa - depressed mood	Loneliness (+) → AUpu (+) → Positive public FB feedback (+) → perceived friend support → (-) depressed mood Loneliness (ns) → AUpr AUpr (+) → perceived friend support (-) depressed mood Loneliness (+) → PU (-) → perception of friend support (-) → depressed mood
Krasnova et al., 2015b	CS (*N* = 509) FB users convenience sample using a mailing list of a German university	Social Information Consumption (PU) (frequency of looking at News Feed, following and clicking through what friends have shared, browsing friends' photos)	SWBc - SWL SWBa - sadness on SNS	PU (+) → envy (-) → SWL PU (+) à envy (+) → sadness on SNS
Shaw et al., 2015	CS (*N* = 75) FB using undergraduate students recruited from an introductory psychology course	Passive use (PU) (multi item measure on frequency of passive activities)*	SWBa - social anxiety	PU (+) → social anxiety
Tandoc et al., 2015	CS (*N* = 736) college students recruited from US American University via personal contact and e-mail	FB surveillance use (PU) (activities of keeping track of other people's posts)	SWBa - depression	PU (ns) → depression PU (+) → envy (+) → depression

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Verduyn et al., 2015 Study 1	EXP (*N* = 84) FB using undergraduate students 3 questionnaires: T1 baseline, T2 post manipulation, T3 end day	Experimental group 1 Active use (AU) (10 min of posting, sharing, reacting, commenting or communicating with other FB users) Experimental group 2 Passive use (PU) (10 min of browsing, scrolling through newsfeed, looking at friends' pictures/pages)	SWBc - SWL SWBa - positive and negative affect	AU (ns) → SWL T3 PU (ns) → SWL T3 AU (ns) → SWBa T2 PU (ns) → SWBa T2 AU (ns) → SWBa T3 PU (-) → SWBa T3
Verduyn et al., 2015 Study 2	LT (*N* = 89) FB users recruited through flyers posted around town 3 phases Baseline measure 5 text message based questionnaires over 6 days Additional questionnaire (for *n* = 77 participants)	Active use (AU) (self-report on frequency of AU since last text message) Passive use (PU) (self-report on frequency of PU since last text message) Same definitions of AU/PU as in Study 1	SWBc - SWL SWBa - positive and negative affect	AU (ns) → SWL AU (ns) → SWBa PU (ns) → SWL PU (-) → SWBa PU (+) → envy (-) → SWBa
Chen et al., 2016	CS (*N* = 451) Chinese undergraduate students recruited through convenience sample	Passive SNS use (PU) (degree of activity on SNS, rate of commenting, rate of browsing, rate of interaction with others, degree of passiveness on SNS)	SWBc - SWL SWBa - positive and negative affect SWB - aggregate of SWBc + SWBa	PU (-) → self-esteem (+) → SWB

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Frison & Eggermont, 2016	CS (*N* = 910) students recruited from 18 randomly selected high schools in Belgium	Active public FB use (AUpu) (frequency of posting messages, photos and pictures on own timeline) Active private FB use (AUpr) (frequency of sending personal messages and chatting) Passive FB use (PU) (frequency of visiting other' s profiles)	SWBa - depressed mood	AUpu (+) → perceived online social support (-) → depressed mood AUpu (+) → depressed mood AUpr (+) → perceived online social support (-) → depressed mood AUpr (ns) → depressed mood PU (+) → depressed mood
Ding et al., 2017	CS (*N* = 707) Chinese university students recruited through convenience sample in six different majors from two universities	Passive SNS use (PU) (self-reported degree of activity on SNS, rate of commenting, rate of browsing, rate of interaction with others, degree of passiveness on SNS	SWBc - SWL SWBa - positive and negative affect SWB – aggregate of SWBc + SWBa	PU (-) → SWB
Wang et al., 2017	CS (*N* = 696) recruited via different SNS	Passive SNS usage (PU) (frequency of viewing other' s photos, updates and comments)	SWBc - SWL SWBa - positive and negative affect SWB – aggregate of SWBc + SWBa	PU (ns) → SWB PU (-) → self-esteem PU (+) → upward social comparison (-) → self-esteem (-) → SWB
Burnell et al., 2019	CS (*N* = 717) undergraduate students recruited from a public US university through a convenience sample	Passive use (PU) summed for FB, Instagram, Twitter and Snapchat (self reported daily time spent looking at others' profiles)	SWBa - depressive symptoms global self-worth	PU (+) → social comparison (+) → FOMO (+) → depressive symptoms PU (+) → social comparison (+) → FOMO (-) → global self-worth

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
Y. Liu et al., 2020	CS (*N* = 872) Chinese middle school students recruited from two schools	Active use (AU) of QQ and WeChat Measure adopted from Frison and Eggermont (2015) AU as aggregate of active public and active private use	SWBa - flourishing	AU (+) → flourishing AU (+) → social capital (+) → flourishing AU (+) → offline social capital (+) → flourishing
Pang, 2021	CS (*N* = 318) WeChat users recruited from two large universities in Northern China	Active WeChat use (AU) (frequency of posting status updates, replying and commenting on friends' posts, sending private messages to friends and sharing links) Passive WeChat use (PU) (frequency of looking at friends' status updates, scrolling through news feed, looking at friends' pages and pictures)	SWBa - fear of missing out depressive mood	AU (-) → upward social comparison AU (ns) → depression or FOMO PU (+) → upward social comparison (+) → depressive mood PU (+) → upward social comparison (+) → FOMO
Reimann et al., 2021	CS (*N*1 = 143) students (*N*2 = 320) students Recruited through snowball-sampling with various channels	Active Instagram use (AU) Passive Instagram use (PU) (frequency of active and passive activities – multi item measure)	SWBc - SWL	AU (+) → briding and bonding social capital PU (+) → bridging and bonding social capital AU (ns) → SWL AU (+) → bonding social capital (+) → SWL PU (ns) → SWL

Table 2 Selection of Literature on Usage Patterns on Social Network Sites and Well-being (continued)

Source	Design and Sample	Independ Variable(s) related to SNS Use	Depended Variable(s) related to SWB	Relation
S. Lin et al., 2022	CS (*N* = 390) undergraduate students recruited through convenience sample	Active SNS use (AU) (frequency of active SNS activities - multi item measure)	SWBa - loneliness	AU (+) → social support (-) → loneliness AU (+) → social support (+) → self-esteem (-) → loneliness
Yue et al., 2022	CS (*N* = 1,131) adult healthy Wuhan residents in China Recruited through convenience and snowball-sampling	Passive SM use (PU) (extent to which SM was used for browsing others' profiles, pictures, comments and posts that not relevant to COVID-19/ that are relevant to COVID-19, and information seeking after Wuhan was locked down)	SWBa - perceived stress	PU (+) → upward contrast comparison (+) → stress PU (+) → downward contrast comparison (+) → stress PU (+) → downward identification comparison (+) → stress

Only variables related to usage patterns on SNS and well-being are considered in this overview
**Measurement not further specified*
CS Cross-sectional LT Longitudinal EXP Experiment
SWB subjective well-being SWBa affective subjective well-being SWBc cognitive subjective well-being

Similarly to studies investigating aggregate levels of SNS usage, research on different usage patterns produced mixed results. Burke et al. (2010) were able to show that directed communication, which has later been referred to as active communication by other authors (e.g. Verduyn et al., 2020, p. 33), enabled the accrual of social capital (although the effect was only shown for bonding social capital) (Burke et al., 2010, p. 1911). Directed communication also reduced loneliness, while content consumption, later often referred to as passive use (e.g. Verduyn et al., 2020, p. 33), was associated with reduced bridging social capital and increased loneliness (Burke et al., 2010, p. 1911). Again, literature on usage patterns is also characterized by a great variety of operationalizations of well-being indicators. Especially affective components of well-being have been measured in different ways. While some authors have used positive and negative affect (e.g. Chen et al., 2016; Fardouly et al., 2015; Haferkamp & Krämer, 2011) as an indicator, others have referred to happiness (e.g. große Deters & Mehl, 2012) or sadness (e.g. Krasnova et al., 2015b) or ill-being indicators such as depressive mood (e.g. Frison & Eggermont, 2015; Tandoc et al., 2015) or loneliness (e.g. Burke et al., 2010; große Deters & Mehl, 2012). Other authors have also created subjective well-being variables consisting of both cognitive and affective components (e.g. Chen et al., 2016; Ding et al., 2017; Wang et al., 2017). Although cross-sectional approaches still dominate literature, researchers have made an effort to include longitudinal and experimental studies.

The direction of the relationship between usage patterns and well-being presented in literature varies. While some authors have found positive effects of active use on well-being (e.g. Burke et al., 2010, p. 1911; Frison & Eggermont, 2015, p. 717) others have not been able to identify significant relations between active use and well-being. For example, große Deters and Mehl (2012, p. 582) have found that active use reduced loneliness but had no significant effect on depression or subjective happiness.

When looking at the associations between active use and social capital and social connectedness, mixed results appear. Y. Liu et al. (2020, p. 4) were able to show a positive relation between active use and the accrual of social capital. S. Lin et al. (2022, p. 1283) found that active use had a positive effect on social support which in turn reduced users' loneliness. Reimann et al. (2021, p. 7) found that active Instagram use was positively associated with both bridging and bonding social capital. However, no relation to cognitive subjective well-being was found. Mixed results were also represented by Koroleva et al. (2011, pp. 14–16), who identified a positive relation between both passive and active use and social connectedness. Verduyn et al. (2015, p. 482, pp. 485-486) could not find a significant relation between neither active Facebook use and affective well-being nor active Facebook use and cognitive well-being. The study

by Pang (2021, p. 7) was able to show negative effects of active use on social comparison but showed insignificant relations between active use and depression as well as fear of missing out.

Overall, in literature passive use has been studied more frequently than active use, and albeit the general ambiguity of results has been frequently associated with negative effects. For example, Burnell et al. (2019, p. 7) identified a positive relation between passive use and social comparison, which positively predicted fear of missing out. Fear of missing out was associated with increased depression and reduced global self-worth. Another study also found positive associations between passive use and social comparison, which predicted increased depression and fear of missing out (Pang, 2021, p. 7). Yue et al. (2022, p. 5) also found a positive relation between passive use and upward contrast comparison. However, they also found that passive use was positively associated with downward contrast and downward identification comparison. In an experimental study (study 1) Verduyn et al. (2015) was not able to find a significant relation between passive use and affective well-being immediately following the manipulation (10 min of active Facebook use) but significant reduction in affective well-being of users' at the end of the day (Verduyn et al., 2015, p. 482). However, no significant effects on cognitive well-being were recorded. The authors' second study showed a negative association between passive Facebook use and affective well-being which was mediated by envy. Passive use induced envy, which reduced affective well-being (Verduyn et al., 2015, p. 486).

Table 2 shows that although both passive and active use have been studied, very few publications test both the active and passive use hypotheses simultaneously. Moreover, there is relatively little research on passive use and envy, while many papers study the connection between passive use and social comparison.

3.3 Research on Professional Network Sites

A review of the current literature reveals a gradual increase in the number of studies of professional networks (also with a focus on LinkedIn). However, the total number of publications remains relatively low compared to research in the field of SNSs. So far LinkedIn has been researched with regards to human resource related topics including recruitment and selection (Caers & Castelyns, 2011; Zide et al., 2014) and employer branding (Carpentier et al., 2017; Joglekar & Tan, 2022). Self-presentation (Tifferet & Vilnai-Yavetz, 2018) and deception (Guillory & Hancock, 2012) have also been studied. Other topics include career outcome expectations (Pena et al., 2022), use intention and motives (S. A. Smith & Watkins, 2023) as well as (career) benefits (Utz, 2015; Utz &

Breuer, 2019). With regard to user groups, a specific focus has been laid on students (Carmack & Heiss, 2018; Florenthal, 2015; Slone & Gaffney, 2016) but some authors have also studied specific user groups such as PhD holders (Baruffaldi et al., 2017) or midwives (Power, 2015). When examining usage behavior, several studies have focused on sociodemographic factors (Kim & Malek, 2017). Some studies also deal with the influence of personality on the usage motives of LinkedIn users (Davis et al., 2020; Ma & Leung, 2019).

Like research on SM and SNSs, research on PNSs is characterized by great diversity in theoretical approaches and topics studied. Albeit the great variety of themes dealt with, virtually no research on PNSs and well-being or more specifically LinkedIn and well-being could be identified. To the best of the author's knowledge so far only two papers have been published dealing with PNS use and well-being (i.e. Brandenberg et al., 2019; Jones et al., 2016). Both examined the relationship between use frequency and depression. Jones et al. (2016) investigated the relationship between LinkedIn use frequency and users' levels of depression and anxiety. Results showed a positive relationship between use frequency and both depression and anxiety (Jones et al., 2016, p. 604), indicating a negative effect of LinkedIn use on users' well-being. Brandenberg et al. (2019) investigated usage behaviors on Xing, a German PNS similar to LinkedIn. The authors were able to show that total Xing activity (aggregated from a multi-item measure) had negative effects on self-esteem and was also positively associated with depressive tendencies (Brandenberg et al., 2019, pp. 584–586).

Within the body of literature, no publications have been identified examining the active and passive use hypotheses in relation to PNSs. The author has identified some studies investigating social comparison orientation (e.g. Brandenberg 2019). One conference paper on envy and LinkedIn use was identified (Chmielinski et al., 2020) but no results were available. The only variable that has received some attention is social capital (Ma & Leung, 2019; Utz, 2015). Though, most papers used aggregate levels of use intensity or time spent on LinkedIn. Table 3 presents an overview of studies related to PNS use that were identified as relevant for the present investigation of the relationship between PNS use and well-being.

Table 3 Selection of Literature on Professional Network Sites

Source	Design and Sample	Independ Variable(s)	Depended Variable(s)	Results
Brandenberg et al., 2019	CS (*N* = 145) XING users recruited through campus-wide flyers and invitations via Facebook and XING	Use frequency and self-developed Xing activity questionnaire	SWBa - depressive tendencies	Xing-Activity Total (-) → self-esteem Xing-Activity Total (+) → depressive tendencies
Jones et al., 2016	CS (*N* = 1,780) young adults recruited through GfK panel	LinkedIn use frequency (number of times visited per week)	SWBa - depression anxiety	LinkedIn use (+) → depression and anxiety Comparison of users (at least once per week) and non-users: Users showed greater odds of having increased depression and anxiety compared to non-users
Utz, 2015	CS (*N* = 1,959) employed online users recruited through GfK LinkedIn users (*n* = 627)	Frequency of reading and posting messages on LinkedIn	Professional informational benefits (as effects of social capital)	Frequency of reading on LinkedIn (+) → professional informational benefits Frequency of posting on LinkedIn (ns) → professional informational benefits
Ma & Leung, 2019	CS (*N* = 459) Chinese LinkedIn users, students excluded recruited through snowball sampling	LinkedIn use intensity (number of log ins per week, time spent during one visit, number of connections) LinkedIn feature use (reacting to professional information, following professional information, posting for self-promotion, strategic networking)	Perceived Social Capital (bridging)	Intensity of LinkedIn use (ns) → bridging social capital Reacting to professional information (+) → bridging social capital Following professional information (+) → bridging social capital

CS Cross-sectional LT Longitudinal EXP Experiment
SWB subjective well-being SWBa affective subjective well-being

4 Theoretical Approach Active-Passive Model of SNS Use

The following section is concerned with the description of the theoretical foundation this work is based on: the *active-passive model of SNS use* (Verduyn et al., 2022, pp. 62–63; Verduyn et al., 2017, p. 284). As presented in the literature review above, the influence of SNS use on users' well-being has increasingly been brought into the focus of attention of academic literature and research (S. Lin et al., 2021, p. 1348). A theoretical approach which has subsequently gained popularity is the differentiation into active and passive use. Burke et al. (2010, p. 1909) originally proposed this distinction by describing Facebook use as directed communication or consumption. Directed communication entails the active engagement in communication between friends, while consumption is characterized by a passive observation of the newsfeed. Based on this approach Verduyn et al. (2017) then proposed a more detailed two way model of passive and active use to explain the different effects of usage patterns on SNS users' well-being which is illustrated in figure 1.

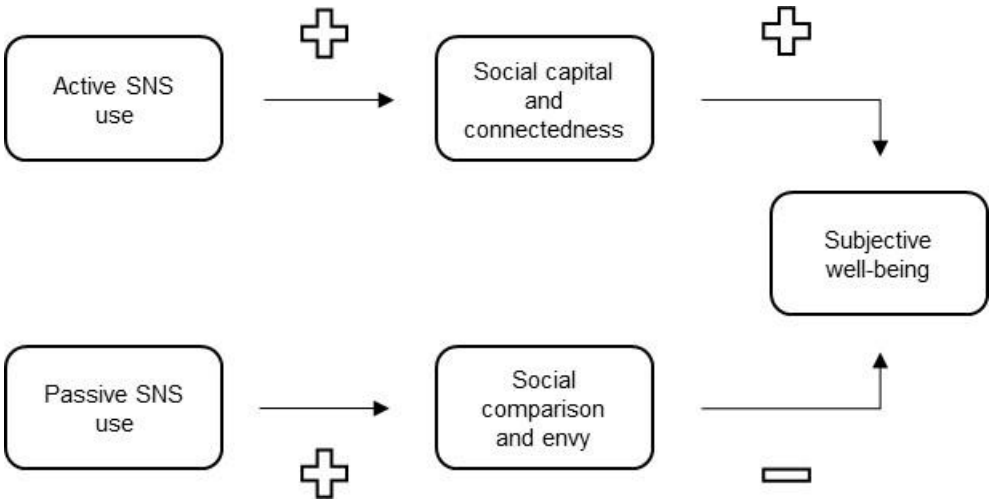


Fig. 1 The Active-Passive Model of SNS Use. Adapted from Verduyn et al. (2017, p. 284)

The model assumes that the way of using SNSs, which is presented in a specific usage pattern (active or passive) is an essential influencing factor determining whether SNS use is beneficial or harmful to users' subjective well-being. Passive use is seen as potentially harmful by promoting social comparison behavior which may elicit feelings of envy and subsequently decrease well-being. Active usage patterns are assumed to be associated with beneficial outcomes for well-being through the accrual of social capital.

The following chapters will be concerned with a more in-depth explanation of the model's components. First, subjective well-being will be conceptualized (chapter 4.1), followed by social comparison (chapter 4.2) and envy (chapter 4.3), as the two components of the model's passive use route and social capital (chapter 4.4) as part of the model's active

use path. As active and passive use have been defined in chapter 2.2, this section will refrain from a detailed description of the two usage patterns to avoid redundancy. Section 4.5 will conclude this chapter by presenting the research hypotheses.

4.1 Subjective Well-Being

Given the extensive body of research on different forms and conceptualizations of well-being, it is useful to begin by broadly locating the concept of subjective well-being within the maze of different terms and concepts. Generally, a distinction between two main approaches can be made: the hedonic approach and the eudaimonic approach (Ryff et al., 2021, p. 92). Subjective well-being can be allocated to the hedonic approach, which consists of three main components: life satisfaction, positive affect and negative affect. Figure 2 illustrates the connections between the different components.

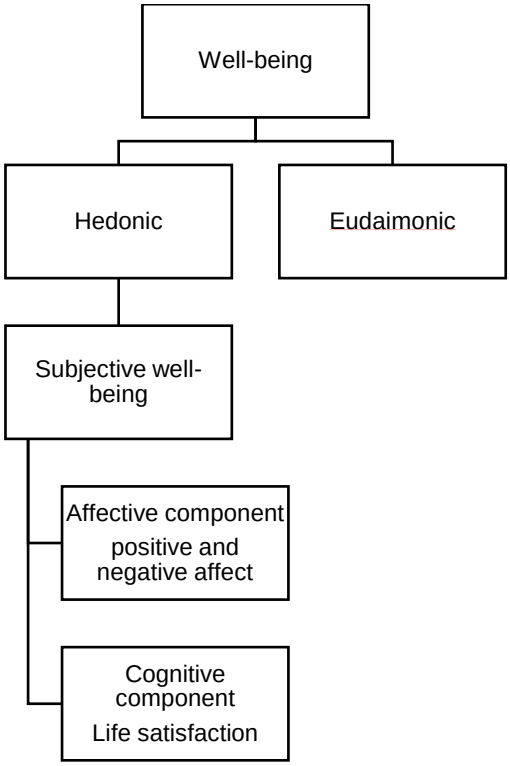


Fig. 2 Components of Well-being. Adapted from Shankleman et al. (2021, p. 472)

Broadly speaking, hedonic well-being tries to define what makes life experiences pleasant or unpleasant, influencing individual's happiness (Ryff et al., 2021, p. 94). Eudaimonic well-being deals with human potential which includes self-realization, self-acceptance and general life purpose (Shankleman et al., 2021, p. 472).

Subjective well-being has been extensively researched in behavioral sciences (Kross et al., 2013, p. 1) as well as other disciplines including economics and health sciences (Diener et al., 2018, p. 1). The concept has been derived from positive psychology, a

discipline popularized by researchers like Martin Seligman in the beginning of the 21st century[5]. With the rise of positive psychology, researchers began to look into the more positive side of human living, exploring what makes life lifeworthy. Unlike before, where psychologists mostly focused on ill- rather than well-being, researchers began to analyze the positive side of well-being (Myers, 2014, p. 12, p. 584).

Research concerned with subjective well-being makes assessments of how people evaluate their life and living conditions. Thus, one can broadly define subjective well-being as a construct that *"[…] refers to all of the various types of evaluations, both positive and negative, that people make of their lives"* (Diener, 2006, p. 153).

Subjective well-being can be further grouped under the broader theoretical framework of psychological well-being, also referred to as psychological health (Diener, Pressman, et al., 2017, p. 134)[6]. According to Su et al. (2014, p. 252) psychological well-being consists of seven core dimensions 1) subjective well-being (2) supportive and enriching relationships, (3) interest and engagement in daily activities, (4) meaning and purpose in life, (5) a sense of mastery and accomplishment, (6) feelings of control and autonomy and (7) optimism. As briefly outlined above, subjective well-being describes well-being as a personal experience that is characterized by a feeling of general satisfaction, prevalence of positive affect and relative absence of negative affect (Diener, Heintzelman, et al., 2017, p. 87; Wiese et al., 2018, p. 129). As humans are social creatures that depend on social interaction, supportive and enriching relationships are important contributors to psychological health. Finding pleasure or fulfillment in activities can give people a sense of satisfaction. This also contributes positively to psychological well-being. Moreover, being able to find meaning and purpose in life can enhance psychological health. An additional aspect is the experience of mastery and accomplishment, which is characterized by the belief to be in possession of a skill set that is useful and applicable. The sixth dimension is concerned with feelings of control and autonomy. Believing in having control over one's life and one's own decisions is an essential part of psychological well-being. The last dimension includes optimism, which technically is not an experience but can be better described as a general positive mindset and outlook on life (Wiese et al., 2018, p. 129).

Subjective well-being has been found to be one of the most important dimensions of psychological health (Su et al., 2014, p. 254) and is made up of cognitive and affective

[5] The concept of positive psychology was not new at that point but had started to gain popularity in research.

[6] Note that eudaimonic well-being has been equated with psychological well-being by some authors (see Diener et al. (2018, p. 3) for an extensive overview on well-being terminology). However, this thesis defines the two as distinct and conceptually different terms.

components (Diener, 1984, p. 542, 2006, p. 153). Cognitive components include satisfaction with life, which is more stable than affective components like joy or frustration. Affective reactions can be of positive and negative nature and include momentary emotions as well as more long term oriented moods (Diener, Pressman, et al., 2017, p. 134). While positive affect describes the experience of pleasant and positive emotions like joy, negative affect is characterized by unpleasant emotions such as sadness (Diener, 2006, p. 153).

Diener (1984, pp. 543–544) defines three major characteristics of subjective well-being: (1) subjectivity, (2) the inclusion of positive aspects and (3) a comprehensive assessment of all areas of an individual's life. Well-being is subjective and experiential, making it unique to every person (Diener et al., 2018, p. 1). However, the subjective nature of the construct does not make it impossible to objectively measure the outcomes as these can manifest in behavioral changes (Diener, 2006, p. 153). Additionally, the subjectivity of the construct might even be one of its core strengths. As people are likely to differently judge different objective criteria as influential to their personal well-being, it is very hard to create a list of set criteria that will apply to everyone. Thus, one could assume that the subjective allocation of weight to different criteria is better reflected through measurement of subjective well-being and can thus be used as a proxy for measuring overall well-being (Diener et al., 2018, p. 2).

Although certain variables such as physical health or wealth have been found to be contributive, they do not impose a prerequisite for subjective well-being (Diener, 1984, p. 543). The inclusion of positive measures is important as well-being is not simply defined by the absence of ill-being or negative affect. Yet, negative affective reactions should not be disregarded when analyzing subjective well-being. Both positive and negative affect are important to well-being as positive affect can indicate that a person evaluates the way in which their life is evolving as positive and desirable, while the continuous and lasting experience of negative affect can indicate lower well- and higher ill-being (Diener, 2006, p. 153). Finally, the inclusion of more global measures of various aspects of personal living enables the overall evaluation of personal living conditions (Diener, 1984, p. 544).

4.2 Social Comparison

The theory of social comparison was first introduced by Leon Festinger in 1954 (Festinger, 1954). With its socio-psychological approach, the theory is exploring the processes of comparing oneself to others, referred to as social comparison. Engaging in social comparisons allows individuals to evaluate their behaviors and actions and to

navigate the complex system of social interactions they are faced with on a daily basis (Baldwin & Mussweiler, 2018, p. 9067). According to the original theory, humans have an innate drive to compare themselves to others, especially when they are lacking further information or there is no objective standard of comparison readily available to them (Festinger, 1954, p. 117). However, the assumption that objective information is generally preferred over other information was not supported empirically by subsequent studies (Peter, 2016, p. 27; Raab, 2010, p. 30).

Whenever individuals are uncertain about their opinion or their own capabilities, they will consult others by using them as a comparison target that offers reference for acceptable behavior. Additionally, most people will tend to compare themselves to other individuals who are similar to them, making social comparisons among people with similar characteristics and abilities or opinions more likely (Festinger, 1954, p. 121). Festinger's original theory was based on the assumption that people will compare themselves to others in order to gain information and evaluate their own opinions as well as abilities (B. P. Buunk et al., 2005, p. 63). Though, more recent studies have shown that comparisons can also involve a broader spectrum including various aspects of one's self concept (Peter, 2016, p. 27). Over the years, a diverse range of comparison dimensions such as body image or career achievements (Haferkamp & Krämer, 2011, p. 309) has been identified in research (Jang et al., 2016, p. 148).

With further research on the processes underlying social comparison behavior, the original theory has been expanded over the years (A. P. Buunk & Gibbons, 2007, p. 3; B. P. Buunk et al., 1990, p. 1238; B. P. Buunk et al., 2005, p. 63). Examples of theoretical extensions are Wills' (1981) downward comparison theory or the selective accessibility model (Mussweiler, 2003).

Although, extensive research had been performed on social comparison processes after the publication of Festinger's original work, the first explicit definition appeared forty years later (Peter, 2016, p. 29). Wood (1996, pp. 520–521) defined social comparison *"[…] as the process of thinking about information about one or more other people in relation to the self "*. Wood's (1996) work highlights the importance of distinguishing between the actual comparison process, its antecedents and consequences. The author defined three main components: *"[…] acquiring, thinking about, and reacting to social information"* (Wood, 1996, p. 521). These can also be referred to as: pre-comparison, comparison and post comparison stage. The pre-comparison stage includes comparison motives that can but not necessarily have to initiate the actual comparison process, while the actual comparison process consists of the reception and evaluation of information

acquired. Outcomes of the comparison process are part of the post-comparison stage (Peter, 2016, p. 31; Wood, 1996, p. 521).

Regarding the motives for social comparisons, three main items can be extracted: self-evaluation, self-improvement and actions tailored towards improving self-esteem (Peter, 2016, p. 31). Additionally, one can make a distinction between two orientations in regard to comparison motives: ability and opinion based orientation. While ability based comparisons are related to self-esteem or self-improvement, opinion based comparisons evolve around self-evaluation motives to identify socially acceptable behavior (Park & Baek, 2017, p. 84). Stronger orientation towards ability based comparisons could lead to intentional selection of superior comparison targets as a form of motivation or desirable future ideal. People with a stronger orientation towards ability based comparisons could also search for inferior comparison targets to engage in self-enhancement by deriving a feeling of superiority. Individuals who have a greater inclination towards ability based comparison behavior tend to view comparisons from a more competitive perspective. Contrary, opinion based social comparison behavior is often performed to obtain information on socially acceptable behavior. Opinion based comparisons are used as an indicator to evaluate the accuracy of ones' own opinions or manners (Park & Baek, 2017, p. 84).

The existence of specific social comparison motives might lead one to assume that social comparison processes are of conscious nature. However, often times people compare themselves without being aware of doing so. Pursuing a goal like self-improvement should not be conflated with consciously comparing oneself to another person (Peter, 2016, p. 32).

The reception of social information represents a necessary precondition for a social comparison process to take place. However, the sole acquisition of social information is not enough. A social comparison has only occurred once the acquired information has been evaluated and set in relation to oneself. Two main criteria seem to be necessary for a comparison process to take place: similarity to the comparison target and relevance of the comparison dimension (Peter, 2016, p. 38; Raab, 2010, p. 30). Both criteria are subjective and are very likely to vary between individuals. The evaluation of the acquired social information represents the core part of the social comparison process. This includes the creation of a connection between oneself and the comparison target as well as the assessment and evaluation of this comparison (Wood, 1996, p. 521). The extent to which a connection is established can vary: Some people might simply identify their position comparative to others (similar, upward or downward), while others look for specific similarities and differences between themselves and their comparison target

(Wood, 1996, p. 521). When looking for similarities or differences with the comparison target two main orientations can be identified: assimilation and contrast (Peter, 2016, p. 40). When the comparison process is mainly focused on similarities with the target it can be defined as assimilative, while processes with a focus on differences with the target are referred to as contrastive (Meier & Johnson, 2022, p. 3). Assimilation occurs when an individual's self-evaluation shifts towards the comparison target, resulting in a more positive self-evaluation after an upward comparison and a more negative self-evaluation after a downward comparison. When an individual's self-evaluation shifts away from the comparison target, resulting in a more negative evaluation following an upward comparison and a more positive evaluation after a downward comparison, researchers speak of contrast effects (Gerber et al., 2018, p. 6; Verduyn et al., 2020, p. 33). Contrast compared to assimilation is the more frequent and dominant response to social comparisons (Gerber et al., 2018, p. 47).

After establishing a connection with the comparison target, individuals will subsequently evaluate the comparison by determining the direction and deciding whether the individual being compared is perceived as superior (upward comparison), inferior (downward comparison), or on an equal level (lateral comparison) (Peter, 2016, pp. 40–41). Although, there is also evidence available for lateral comparisons, most comparison behaviors seem to be either directed upward to a superior target or downward to an inferior target (Gerber et al., 2018, p. 12). In their meta-analysis compromising 60+ years of research on studies investigating social comparison processes, Gerber et al. (2018, p. 21) were able to identify that offline comparison processes with an upward direction tend to occur more frequently than downward comparisons.

Upward social comparisons are often associated with prevalent motives of self-evaluation and self-improvement, while downward social comparisons can be connected to an individual's desire for self-enhancement (B. P. Buunk et al., 1990, p. 1238). Individuals may be driven to use social comparisons in order to facilitate self-improvement, providing them with motivation for actual self-growth and personal development. Self-enhancement motives are driven by an individual's desire to temporarily alleviate negative feelings and maintain a positive self-concept (Hepper et al., 2010, p. 782).

Reactions to the detected similarities or differences between oneself and the comparison target can manifest in a variety of ways such as cognitive, affective and behavioral changes (Wood, 1996, p. 521). These outcomes are part of the post-comparison stage. Cognitive reactions include self-evaluation processes. Affective outcomes can be both positive (e.g. feeling proud) or negative (e.g. experiencing envy). Resorting to imitation

of the comparison target is an example of a behavioral change induced by a social comparison (Wood, 1996, p. 521).

Social comparison processes are considered to be a ubiquitous phenomenon that occurs frequently in day to day life and across cultures (Baldwin & Mussweiler, 2018, p. 9067; Verduyn et al., 2020, p. 32). Though, the frequency of their occurrence varies across individuals. One contributing factor is an individual's social comparison orientation (Baldwin & Mussweiler, 2018, p. 9067; B. P. Buunk et al., 2005, p. 65; Vogel et al., 2015, p. 249; Wang et al., 2017, p. 3). People who are more inclined towards comparing themselves to others tend to engage more frequently in social comparisons compared to individuals who do not show this inclination.

Although an extensive body of research has been established around social comparison processes in an offline context, a considerable amount of literature has also applied social comparison theory to an online context, especially focusing on the effects of comparison behavior on users' well-being (M. Appel et al., 2020, p. 62; Jang et al., 2016, p. 147; Johnson, 2021, p. 9). Many studies have been published under the presumption that SNSs promote social comparison behavior by providing a large base of information on other people, easily accessible to all users of the network site (Burnell et al., 2019, p. 2; Clark et al., 2018, p. 33; Krasnova et al., 2013, p. 1478; J. K. Lee, 2022, p. 6247; Meier & Krause, 2022, p. 2). Additionally, content generated by users on SNSs is often highly curated. This could especially promote upward social comparison processes (Vogel et al., 2015, pp. 249–250) as SNS users tend to present themselves as best as possible leading to an overall unrealistic presentation of users' lives and achievements (Hanley et al., 2019, p. 2; Krasnova et al., 2013, p. 1478).

Very mixed evidence on the direction and severity of effects caused by social comparisons on SNSs exists. Some authors argue that especially upward social comparisons cause negative effects (Feinstein et al., 2013, pp. 161–162; Vries & Kühne, 2015, p. 218). Others have begun to make critical remarks on the assumption of a direct relationship between social comparison on SNSs and positive or negative effects, suggesting more nuanced effect chains (Meier & Johnson, 2022, p. 1; Meier & Schäfer, 2018, p. 411). In fact, a growing body of literature suggests that the direction of effect experienced might not be exclusively dependent on the position (upward/downward) of the comparison target (B. P. Buunk et al., 1990, p. 1239; B. P. Buunk et al., 2005, p. 74).

Despite the controversy, many researchers still assume social comparisons to be particularly frequent and harmful on SNSs (Burnell et al., 2019, p. 8; Clark et al., 2018, p. 33; Meier & Johnson, 2022, p. 1; Verduyn et al., 2020, p. 33).

In addition to the vast amount of information available as a basis for social comparisons, the context from which the information is derived is also important. Most users will gravitate towards choosing comparison targets from their immediate network, making the targets more similar to themselves. Similarity to the comparison target has been found to be an important influence on the effect size of reaction to the social comparison (B. P. Buunk et al., 1990, p. 1239; Peter, 2016, p. 45; R. H. Smith, 2000, p. 174). Social comparisons tend to have a stronger effect on individuals' self-evaluation, affect and behavior when the selected comparison is similar to them. This is amplified by the nature of SNSs as explained above. Additionally, information is also often derived from the sources that are felt to be relatable (Verduyn et al., 2020, p. 33). Often SNSs' algorithms will also rank content highest, that they calculate to be personally relevant to the user based upon previous usage behavior such as giving likes, commenting or simply consuming certain content. This will further increase the likelihood that comparison targets with close similarity to the comparing individual will be chosen.

Upward social comparisons could be made more likely on SNSs because of the positive bias of the content posted on these platforms. As most users only present the highlights of their lives and the achievements they have made, comparison targets are more likely to be perceived as superior, making upward social comparisons more likely (Alfasi, 2019, p. 112; Vogel et al., 2015, p. 250). Moreover, the effect of upward social comparisons may be enhanced and amplified because most users are not constantly aware of the overly positive self-presentation of others. Thus, SNS users could falsely conclude that the curated content presented on SNSs reflects reality, when it is in fact often staged or otherwise enhanced (Lup et al., 2015, p. 248). In addition to that, overly positive self-presentations are often enriched by metrics such as likes, views or comments that allow other users to draw conclusions on the poster's popularity, further facilitating evaluations on one's standing in a social group (Blease, 2015, p. 3). Moreover, empirical evidence can be found, supporting the assumption that there is a relationship between SNS use intensity and the occurrence of social comparison processes (S. Y. Lee, 2014, p. 253; Ozimek & Bierhoff, 2019, p. 2; Vogel et al., 2014, p. 206).

The potentially increased frequency, especially of upward social comparisons, has raised concerns among certain parties, as some studies have suggested that a higher frequency of social comparisons may be associated with more negative outcomes, especially for upward social comparisons (Clark et al., 2018, p. 33). However, the affective consequences of upward and downward comparisons are not exclusively caused by the position of the comparison target. Research has shown that comparisons can have both positive and negative effects, depending on the comparing individual's personal characteristics such as social comparison orientation. For example, people who

show higher social comparison orientation tend to experience more negative affect after comparison with a superior target and more positive affect after a comparison with an inferior target (B. P. Buunk et al., 2005, p. 62). Generally, the effects of social comparisons on one's own self-evaluation are dependent on the extent to which the standards of comparison a person has set are achieved. A feeling of satisfaction is reached through a match of set comparison and one's own performance. Satisfaction can also be achieved through outperformance of the set standard by one's own performance (Raab, 2010, p. 31).

Upward comparisons are often associated with negative consequences, but there might also be positive assimilation affects which can inspire or motivate the comparer (B. P. Buunk et al., 2005, p. 63). Downward social comparisons have often been linked to positive effects. However, similarly to upward comparisons, there is reason to assume that they can also evoke negative reaction such as pity (R. H. Smith, 2000, p. 176). Nevertheless, a relatively large basis of literature has been able to demonstrate negative effects of social comparison behavior on well-being in SNS users (Verduyn et al., 2020, pp. 33–34). Generally considering social comparison behavior, without specifically looking at the location of the selected comparison target, some meta-analytic evidence also suggests a negative impact of social comparisons on subjective well-being of users (F.-R. Yang et al., 2019, p. 1829).

Most recent meta-analytic reviews only attribute small effect sizes in the general negative relationship between SNS use and subjective well-being (M. Appel et al., 2020, p. 69). Nevertheless, small effects can still have a considerable impact as SNSs record high user numbers and are frequently used by a wide number of (young) people (Verduyn et al., 2022, p. 63). One of the results associated with social comparisons that has received considerable attention is the elicitation of feelings of envy through social comparison behavior.

4.3 Envy

Despite the existence of literature worth several decades, there is still no full consensus on the definition and conceptualization of envy, especially regarding envy on SNSs (Wenninger et al., 2021, p. 12). However, there is consensus on the fact that envy can be characterized as a common human experience that is bound to a social environment in order to emerge (Tai et al., 2012, p. 107). Although it is very common, most individuals are unlikely to admit having experienced envy (Cohen-Charash, 2009, p. 2128).

First envy should not be confused with jealousy (Cohen-Charash, 2009, p. 2129; Wenninger et al., 2021, p. 2). Jealousy arises whenever an individual is in possession of

something but fears to lose this to another person (e.g. a child who fears losing a favorite toy to a sibling). Envy on the other hand is characterized by the realization of the unattainability of another person's item or attribute. Thus, a social comparison is a main characteristic of envy, while fear is central to the experience of jealousy (R. H. Smith & Kim, 2007, p. 47).

Additionally, often times a distinction is made between situational or episodic and dispositional envy (Wenninger et al., 2021, p. 2). While situational envy originates from social comparisons that are induced by specific characteristics of the environment a person is in (e.g. workplace) (Cohen-Charash, 2009, p. 2128; Duffy et al., 2012, p. 645) dispositional envy is closer to being a rather stable personality trait and describes one's tendency or predisposition to experience envy in the first place (R. H. Smith et al., 1999, p. 1008). When researching envy on SNSs, the conceptualization of situational envy is preferred by some authors (e.g. Krasnova et al., 2015b, p. 587) as SNSs portray environments that enable online interactions and foster social comparison behaviors.

Some authors also advocate for specifically distinguishing between the nature of envy and its consequences. Tai et al. (2012, p. 107) criticize that often times *"[…] what envy 'is' […] and what envy 'does' […]"* are confounded, which negatively impacts the precision of conceptualization and measurement.

Two approaches to conceptualize envy have appeared: the unitary and the dual approach (Crusius et al., 2020, p. 3; Wenninger et al., 2021, p. 2). The unitary approach views envy as a singular but complex emotion, that consists of three main factors: feelings (e.g. shame or guilt), cognitions (e.g. desire for an unattainable state or attribute) and motivation (e.g. elimination of pain or self-improvement) and is characterized by the experience of pain and hostile feelings (Crusius et al., 2020, p. 14). Here envy is seen as a complex emotion that results from upward social comparisons and is characterized by a mix of negative feelings that can include pain, inferiority and resentment (R. H. Smith & Kim, 2007, p. 46; Wenninger et al., 2021, p. 2). A definition that has found great resonance with researchers following the unitary approach is the following: Envy can be defined as an *"[…] unpleasant, often painful emotion characterized by feelings of inferiority, hostility, and resentment caused by an awareness of a desired attribute enjoyed by another person or group of persons"* (R. H. Smith & Kim, 2007, p. 46). Two important points should be extracted from this definition: (1) the experience of negative feelings such as pain and inferiority and (2) the awareness of the unattainability of a desired attribute possessed by others. These describe the two main components of situational envy: feeling and comparison (Cohen-Charash, 2009, p. 2130).

When considering the consequences of envy, one can distinguish between psychological and behavioral responses (Wenninger et al., 2021, p. 4). There are three main types of behavioral responses that can be identified: (1) leveling down the envied person, (2) leveling up oneself and (3) avoidance (Crusius et al., 2020, p. 14). These are also referred to as coping strategies. Chmielinski et al. (2020, p. 4) for example describe the three as self-enhancement, undermining and avoidance. Despite the different nomenclature, they essentially describe the same phenomenon.

Contrary to the unitary approach, the dual approach distinguishes between malicious and benign envy. This approach defines different forms of envy depending on the behavioral tendency evoked (Wenninger et al., 2021, p. 2). Hostile thoughts and intentions aimed at hurting the other are characteristics of malicious envy. A desire for self-improvement and trying to act like the envied person is referred to as benign envy (Crusius et al., 2020, p. 14). Benign envy is often associated with a tendency to emulate the envied person or engaging in behavior aimed at eliminating the distance between oneself and the comparison target (Wenninger et al., 2021, p. 2). Contrary, malicious envy evokes strategies aimed at undermining the superior target and bringing the envied person down (van de Ven et al., 2012, p. 195). This can manifest in increased attention towards the superior other as well as aggressive behavior and social undermining (e.g. gossip) (Crusius et al., 2020, p. 14). Two appraisals have been identified as core mechanisms responsible for eliciting either benign or malicious envy: deservedness and perceived control. According to appraisal theory, every emotion can be related to a particular set or pattern of appraisals, which essentially are cognitive assessments of a situation (van de Ven et al., 2012, p. 196). The specific combination of appraisals can then bring up different emotional reactions. Malicious envy is more likely to occur than benign envy when the position of the envied target is perceived to be undeserved. Deservedness describes the degree to which the envied person deserves to be in the position he or she is in. For example, a student that has not studied for a test achieving a good grade would probably be envied by most students, as they perceive his or her good grade to be unfair and undeserved (assuming that other factors such as how popular the student is or how much he or she seems to be liked by the teacher are left out). When the position of the envied person is perceived as deserved and thus fair, benign envy is more likely to occur. This could be the case if said student from the previous example had studied hard for the test, making him or her deserve the good grade. People are even more inclined to experiencing benign envy when they appraise the situation as deserved and the envying person is in perceived control over obtaining the envied object (van de Ven et al., 2012, p. 195).

Both approaches (unitary and dual) agree in that they define envy as a painful and unpleasant experience that is associated with feelings of inferiority. Especially the feeling of pain is what connects the two approaches despite their differences (Tai et al., 2012, p. 109). Most researchers also agree that envy is elicited by social comparisons. Especially self-relevant social comparisons directed upwards to a superior are prone to causing envy (Crusius et al., 2020, p. 3; Wenninger et al., 2021, p. 2). The degree of similarity to the comparison target and self-relevance of the comparison domain can be considered to be the two core conditions that foster the experience of envy (Krasnova et al., 2015b, p. 588; R. H. Smith & Kim, 2007, p. 50).

As aforementioned, there is still no full agreement on a single and unique definition or conceptualization of envy, especially for research on envy in the online context. Though, many articles resort to offline definition of envy, such as the one by Smith and Kim (2007, p. 46) mentioned above. Wenninger et al. (2021, p. 4) only found one definition of envy specifically focusing on the context of SNSs in their literature review. James et al. (2017, p. 571) define envy as *"[…] a negative emotion resulting from OSN use in which a user covets the possessions or life experiences of another person who belongs to the same social network regardless of whether the user knows him or her personally."* Unique to this definition is the inclusion of the term OSN referring to online social networks, which can be understood synonymously for SNSs.

Despite the lack of specific definitions tailored towards the SNS environment, an extensive body of research has been established on the relationship between SNS use and the experience of envy. Envy coupled with social comparison behavior is regarded as one of the key variables explaining negative effects of SNS use on users' well-being and has been found to be frequently experienced by many SNS users (Meier & Johnson, 2022, pp. 1–2). Some researchers also argue that envy might even be more likely to occur in an online compared to an offline context because of structure and functionalities of SNSs (Krasnova et al., 2015b, p. 589). Users are confronted with large amounts of social information (Krasnova et al., 2013, p. 1478) and are usually closely connected to similar people through functions like *people you may know* or recommendations of connections from the same university, school or neighborhood (Krasnova et al., 2015b, p. 589). This increases the similarity of comparison targets and might make the experience of envy more likely.

Next to researching the occurrence of envy on SNSs, researchers have also been interested in the investigation of envy in the workplace (Tai et al., 2012, p. 107; Vecchio, 2000, p. 161). Interestingly though, so far very little research has been performed on the occurrence of envy on PNSs (Chmielinski et al., 2020, p. 1). This is surprising, as one

could assume that envy is even more likely to occur on PNSs as they are work related and envy has been found to be likely to occur on the workplace (Duffy et al., 2021, p. 34). As PNSs also share many similar features with SNSs (in regard to structure and functions) one could assume that PNS users might be even more prone to experiencing envy than users of SNSs like Facebook or Instagram that have a more private use context as PNSs combine features of the online world and the work environment.

4.4 Social Capital

The formation of social capital and the feeling of connectedness have been deemed as beneficial for SNS users' subjective well-being (Verduyn et al., 2017, p. 284). Some researchers even argue that social capital and social support can be classified as the most effectual variables explaining well-being and satisfaction with life (Trepte & Scharkow, 2016, p. 304). One can also observe that social capital theory has been widely employed in research associated with SNS use (Wenninger et al., 2019, p. 5).

Within research on SNSs and well-being two concepts have been used when describing the role of social ties and social connectedness on SNSs: social capital and social support. While the term social capital seems to be primarily used by political scientists and researchers with a background in sociology, the term social support has been employed by psychologists (Burke et al., 2011, p. 1). Both concepts describe the way in which individuals derive benefits from each other based on social interactions and relationships (Saegert & Carpiano, 2017, p. 295). Though connected and often used interchangeably, the two terms differ from another (Trepte & Scharkow, 2016, p. 307). Broadly speaking, social capital represents a resource embedded in social networks and social relationships that allows for the derivation of benefits. In relation to this, social support can be viewed as one of these benefits (Trepte & Scharkow, 2016, p. 307). Although, social support can be viewed as a manifestation of social capital (Drentea & Moren-Cross, 2005, p. 924), it is not solely responsible for the creation of well-being. The accrual of social capital has also been associated with positive effects on well-being (Trepte & Scharkow, 2016, p. 308). Social capital theory is seen as helpful in studying the relationship between SNS use and well-being because the theory helps to explain the importance and role of one's network, which is an essential and central asset of SNSs (Wenninger et al., 2019, p. 6). Both social support and social capital have been researched in the SNS context. Though, this thesis focuses on social capital (more specifically bridging social capital). This is justified for two reasons: (1) social capital theory focuses on networks and their structure – which are an essential part of PNSs and (2) social capital can be accrued through relationships with acquaintances. Social support is often received from immediate family and friends. As PNSs are predominantly

used in a work-related context, bridging social capital was seen as a better fit to PNSs than social support.

Social capital is a broad term with a variety of definitions in multiple fields (Adler & Kwon, 2002, p. 17), generally referring to *"[t]he benefits obtained from one's social relationships or social network […]"* (Verduyn et al., 2017, p. 287). A definition that has been cited frequently is the one by Bourdieu (1986, p. 248), who defined social capital as:

> *"[…] the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition […]"*.

According to this definition, social capital is bound to the existence of a person's social network. It essentially describes the (potential) benefits that can be derived from a social network, which can consist of close relatives and family members but also friends and acquaintances. N. Lin's (2008, p. 51) definition of social capital also had great impact on research and has been widely adopted (Trepte & Scharkow, 2016, p. 305). The author defines social capital as *"[…] resources embedded in one's social networks [and] resources that can be accessed or mobilized through ties in the networks"* (N. Lin, 2008, p. 51). Similarly to Bourdieu (1986, p. 248) the existence of social networks is emphasized in this definition. Additionally, the aspect of mobilization, an active behavior performed by individuals to obtain the benefits embedded in the social networks, is brought into focus by this definition.

In order to differentiate the role of different social connections in the process of social capital accrual, a distinction between two forms of social capital has been proposed: bridging and bonding (Williams, 2006, p. 597). Both forms of social capital can be tied to previous theories on social network structure like tie strength (weak and strong tie relationships) as popularized by Granovetter (1973, p. 1360). Bridging social capital is accrued through contact with heterogenous groups of weak-ties and acquaintances (Trepte & Scharkow, 2016, p. 305). It is more likely derived from a bigger number of diverse, less intimate social ties and is more often associated with the provision of new information than bonding social capital. Exposure to a set of different perspectives and feeling as part of a broader community are also related to bridging social capital. Bonding social capital is provided by more homogenous groups of strong-ties and a closer circle of friends and connections, who are emotionally close and rather similar to one another. (Szreter & Woolcock, 2004, pp. 5–6). It is associated with companionship and emotional support. Some authors also advocate for adding a third form: linking social capital, which refers to the connections and relationships between individuals or groups who hold different levels of power, status, or authority (Szreter & Woolcock, 2004, p. 6). However,

the original distinction between bridging and bonding social capital remains the most popular.

Social capital can provide benefits at the individual and collective levels and has been found to be linked to positive outcomes for mental health and well-being (Trepte & Scharkow, 2016, p. 308). Subjective well-being and social relationships are connected to social capital in two ways: Firstly, there is evidence, that subjective well-being promotes prosocial behavior and sociability. Secondly, feeling supported by a tightly knit circle of friends, has been positively associated with increased subjective well-being (Verduyn et al., 2017, pp. 284–285).

In regards to the relationship between SNS use and the accrual of social capital previous research provides ambiguous results (Ma & Leung, 2019, p. 1061). However, there is a base of scientific evidence that allows to assume that active SNS usage is linked to the formation of social capital (Verduyn et al., 2017, p. 289). Because of their design and online setting, SNSs offer unique opportunities for users to satisfy their need for social interactions. Compared to an offline setting, people can easily keep up with a great number of relationships. The online context facilitates maintenance of contacts by reducing monetary and time costs that would be constrictive factors in an offline context.

4.5 Hypothesis Development

Based upon the literature review and the theoretical framework presented above, the research model presented in figure 3 was developed.

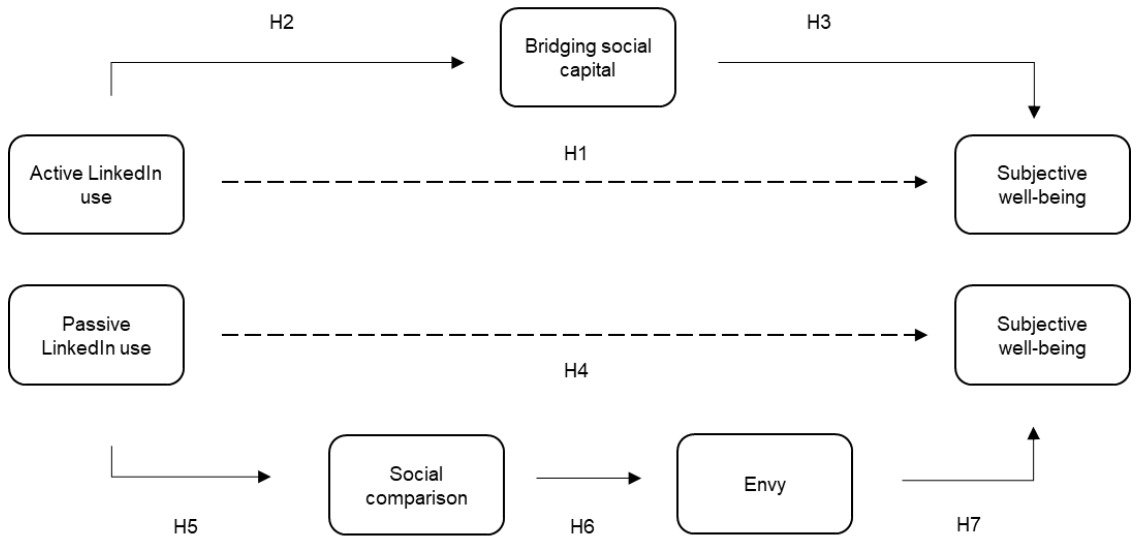


Fig. 3 Research Model. Own Depiction

The model comprises the following seven hypotheses:

H1: Active LinkedIn use has an indirect effect on subjective well-being.

H2: Active LinkedIn use influences bridging social capital.

H3: Bridging social capital influences subjective well-being.

H4: Passive LinkedIn use has an indirect effect on subjective well-being.

H5: Passive LinkedIn use influences social comparison behavior.

H6: Social comparison behavior influences envy.

H7: Envy influences subjective well-being.

Active LinkedIn use is assumed to have an indirect effect on subjective well-being (H1) through bridging social capital (H2), which acts as a mediating factor (H3). The assumed indirect effect of passive LinkedIn use (H4) is explained by social comparison behavior (H5) and envy (H6), which act as serial mediators (H7).

5 Methodology

As previous literature has covered the relationship between PNS use and well-being inadequately, more research on the topic is needed. Thus, the central goal of this thesis is to contribute to this gap in literature by investigating to which extent usage patterns effect PNS users' well-being using a cross-sectional empirical approach in the form of an online survey. The research model proposed in chapter 4.5 will be statistically tested in separate mediation analyses.

As described in chapter 1.1, the platform LinkedIn is used exemplary to study PNS usage behavior. Considering the platform's grow and increasing popularity both in Germany and internationally, LinkedIn was regarded as a suitable example. The focus on a single platform also proved helpful in providing an appropriate level of detail and specification for this research. LinkedIn's international presence was also deemed beneficial, as the survey could be distributed to both German and English speakers, thereby increasing the potential number of participants.

The following section is structured as follows: first the general research design will be described including an explanation of the chosen methodological approach (chapter 5.1). This will be followed by an explanation of the sample selection (chapter 5.2) and a description of the survey design (chapter 5.3) and measures (chapter 5.4) used. The chapter closes with an outline of the data collection process (chapter 5.5).

5.1 Research Design

A quantitative online survey in the form of a standardized computer-assisted web interview, was carried out in order to answer *RQ1: "What is the relationship between PNS usage type and users' subjective well-being?"* and *RQ2: "What factors play a role in determining the influence of PNS usage type on the subjective well-being of the users?"*, including the subquestions *RQ2.1: "How does bridging social capital influence the relationship between active use and users' subjective well-being?"* and *RQ2.2: "How do social comparison and envy influence the relationship between passive use and users' subjective well-being?"*.

Computer-assisted web interviews are frequently employed tools in social science research and have been proven to be very cost-effective and efficient (Berekoven et al., 2009, p. 107). Moreover, utilizing an online survey was deemed to be reasonable as this thesis was based on an examination of online networking sites. Thus, it appeared counterintuitive to conduct a survey using paper and pencil interviews when considering events that naturally occur in the online space. Moreover, Internet access is a basic requirement for using LinkedIn. As this is also required to fill out the online questionnaire,

no particular target group is faced with disadvantages. Online surveys can facilitate data collection and thus allow for larger sample sizes (Brosius et al., 2016, p. 112). They also offer the benefit of anonymity (Brosius et al., 2016, p. 121). Participants may feel more comfortable responding freely when guaranteed anonymity compared to face-to-face interviews. Online surveys can also help reduce bias effects, such as social desirability. This is particularly beneficial for this study as participants were questioned about their tendencies for social comparison and experiences with envy. Both topics may lead participants to give socially desirable answers. As with every method, online surveys also come with some limitations. Self-selection[7] bias can affect response quality and lower the generalizability of results. Moreover, longitudinal studies or mixed method approaches including in depth qualitative research, are considered state-of-the-art, and certainly do hold benefits compared to cross-sectional approaches. Nevertheless, the approach was still deemed appropriate, regarding the monetary and time constraints posed.

The statistical population is made up of all LinkedIn users worldwide. As the number of registered users was over 950 million in Q4 of 2023 (LinkedIn Pressroom, n. d.) a full census is far beyond the author's capabilities. Firstly, there is only limited information on the composition of the population and the actual number of active LinkedIn users. Secondly, a full census is unfeasible considering timely and monetary restrictions. It was therefore necessary to draw a sample.

5.2 Sample Selection

To improve diversity in participant characteristics, recruitment was performed in two waves using two different selection methods. Two requirements for survey participation were predefined: age and usage frequency. To ensure legal compliance, participants were required to be 18 years of age or older. Participants who stated to use LinkedIn never or less than once a month were screened out to ensure that respondents had at least somewhat recently used LinkedIn and were able to recall their experience. Due to limited time resources, non-probability sample selection procedures were used. Snowball sampling was employed in the first wave of recruitment. The survey link was sent out to potential participants using WhatsApp private messages, WhatsApp group messages and the WhatsApp status update function. Information on the target audience, survey topic and purpose, as well as expected participation duration was included in the distributed messages along with the survey link. All potential participants were asked to

[7] Self-selection bias describes the bias that can occur when participants are free in their choice to participate in a survey or not. People who frequently participate in surveys tend to show certain characteristics that are not present in non-participants (Nikolopoulou, 2022).

forward all information to other potential participants in their circle of friends or acquaintances. Additionally, a similar message was posted on the author's LinkedIn page. This post was liked and reposted by several of the author's LinkedIn connections. In addition to the public post, two other messages were published in two LinkedIn groups (i.e. *Umfrageteilnehmer finden (Probanden für Bachelorarbeit, Masterarbeit, Dissertation, Marktforschung)* and *Survey Exchange – Find participants for research studies (for dissertation, thesis, market research)*, specifically targeting students and researchers looking for research participants. The survey link was also distributed via a mailing list targeting students of the Market and Media Research master's program at TH Köln. Additionally, the link was sent out to current participants and alumni of the *Academy of Continuing Education* (*Team Continuing Education*) [Akademie für wissenschaftliche Weiterbildung (Team wissenschaftliche Weiterbildung)] at TH Köln using a mailing list.

Three survey sharing platforms (i.e. SurveyCircle, SurveySwap and PollPool) were used in the second recruiting wave. SurveyCircle is a platform on which links to scientific studies (mostly bachelor and master theses) are published. Through an incentive system, SurveyCircle users are encouraged to participate in each other's published surveys. SurveySwap and PollPool are based on a similar principle. It was therefore expected that participants acquired via these platforms would consist primarily of bachelor's and master's students.

5.3 Survey Design

The online survey was created using the platform Unipark (EFS survey). The survey was available online, accessible through a link. After choosing their preferred language (English/German), participants were led to the introductory site, which included basic information on the purpose of the study, the approximate duration and contact information of the researcher. Information on data collection and protection followed. Participants were also informed that they could stop participating in the survey at any time without having to face any negative consequences. By continuing with the survey, participants declared to agree with the collection of their personal data and were led to the first question. In total, the survey comprised a set of nine questions, including two screening questions (LinkedIn use intensity and age). All questions were set as mandatory, preventing respondents to skip questions. Participants were given the option to opt out of answering specific items for questions four to nine by selecting the response option "*Can't say"*, in an effort to improve response quality and avoid response tendencies towards the center. All items (of the non-screening questions) were displayed randomly to prevent sequence effects. After answering the screening questions,

participants were asked to state their gender and fill out measures regarding their usage pattern on LinkedIn, their subjective well-being, their tendency to engage in social comparison behavior, their experiences with envy as well as their levels of bridging social capital. Measures used are explained in further detail in section 5.4. After submitting the survey, participants were shown a closing text confirming successful participation. Moreover, participants were informed about the study's purpose in further detail, as the introductory site only included very brief information to avoid bias. A detailed structure of the entire survey is presented in appendices A and B.

5.4 Measures

To operationalize the research model proposed in section 4.5, pretested measures were used whenever possible. However, some instruments had to be modified to fit the research (PNS/LinkedIn) context. All scales, both in their original and their adapted form are presented in appendix C. Whenever possible, pre- translated measures were used. The remaining scales were translated to German by the author and then inspected by a bilingual (German, English) native speaker.

Use Intensity and Age

Use intensity of LinkedIn and age were employed as screening questions to ensure a good fit of respondents to the target group (people who use LinkedIn at least somewhat regularly and are of legal age). To measure use intensity, respondents were asked to rate how often they visited LinkedIn. Answer options included: *"never", "less than once a month"*, *"once or twice a month"*, *"three to four times a month"* and *"more than four times a month"*. Respondents who answered *"never"* or *"less than once a month"* were immediately directed to an end page, thanking them for their willingness to participate and informing them that they were not part of the target audience. The same procedure was used for people who responded that they were under the age of 18. Age was measured with an open text field, asking participants to enter their age. A filter was integrated to ensure that participants needed to be 18 or older to get to the next question.

Gender

Information on participant's gender was collected with a single choice question. Answer options included: *"female", "male", "another gender"* or *"prefer not to answer"*. The question was framed based on recommendations of ESOMAR (ESOMAR, 2022, p. 4). For the German version *"divers"* was used as the equivalent answer option to *"another gender"* as this wording is used in the official statistics of the federal government (Statistische Ämter des Bundes und der Länder, n. d.).

Usage Pattern

To measure usage pattern (active or passive use) an altered version of the Passive and Active Usage Scale (PAUS) by Hanley et al. (2019, pp. 4–5) was employed. The scale was originally developed to measure Facebook and Instagram use. Due to the lack of scales with specific fit to PNSs, the items measuring passive and active Instagram use were adapted to the LinkedIn context. The resulting scale was comprised of seven items, four measuring passive and three measuring active use. Participants had to rate the frequency with which they performed certain activities when using LinkedIn on a 5 - point Likert scale (1 = *"never"*, 5 = *"almost always"*). Answer options were originally phrased as 1 = *"never"*, 5 = *"frequently"*, but *"frequently"* was changed to *"almost always"* to avoid ambiguity of the term *"frequently"*. Sample items are: *"Scroll through my newsfeed"* (passive) and *"Contact others via DM (direct message)"* (active).

Subjective Well-being

Two instruments were employed to measure the two components of subjective well-being (cognitive and affective). This was deemed to be necessary, to ensure comprehensive measurement of the construct as recommended by previous literature (Diener, Heintzelman, et al., 2017, p. 87). The abbreviated version of the Satisfaction with Life Scale (SWLS) (Diener et al., 1985; Kjell & Diener, 2021) was used to assess the cognitive dimension of subjective well-being. This was seen fit, as the SWLS has been applied extensively before and was recommended by Diener, Heintzelman, et al. (2017, p. 87). The abbreviated scale was found to have good reliability and showed the same psychometric properties as the original scale (Kjell & Diener, 2021, p. 183). The short form of the SWLS is made up of the first three items of the original five item scale. A sample item is *"In most ways my life is close to my ideal"*. For the German questionnaire, the first three items of the German version of the SWLS (Janke & Glöckner-Rist, 2012) were used. Respondents rated their agreement to the statements on a 7-point Likert-type scale (1 = *"Strongly disagree",* 7 = *"Strongly agree"*).

To measure the affective part of subjective well-being the Scale of Positive and Negative Experience (SPANE) (Diener et al., 2009; Diener et al., 2010) was used as it has been applied previously in studies investigating the influence of SNS use on subjective well-being (Choi & Kim, 2020, p. 9). The scale has been developed as a shorter but still comprehensive alternative (Diener et al., 2010, p. 145) to measure positive and negative affect compared to previous scales such as the PANAS by Watson et al. (1988). It comprises 12 items, six including words for positive affect (e.g. *"pleasant"*) and six words for negative affect (e.g. *"unpleasant"*). Participants were asked to think back to their last visit on LinkedIn and indicate to what degree they had felt the listed emotions, answer

options ranged from 1 = *"not at all"*, 5 = *"extremely"*. The original question asked participants to think back to the last four weeks of their lives and rate how they had felt. This question was modified based on Choi and Kim (2020, p. 9) to ensure sufficient fit to the context of PNSs. For the German version of the question, a translation from Rahm et al. (2017) was used.

Social Comparison

Reviewing literature, a wide range of operationalizations for social comparison have been detected. Some ranging from one item measures openly asking participant whether or how much they compared themselves to others (Burke et al., 2020, p. 4; S. Y. Lee, 2014, p. 256). Other authors have opted to measure social comparison behavior by collecting data on the tendency to compare (most common measure is the INCOM by Gibbons and Buunk (1999)). Others have operationalized social comparison through its outcomes. However, the author of this thesis has decided against this method, to avoid erroneous confluence with the measurement of envy and for conceptual clarity. The scale employed in this survey was derived from Steers et al. (2014, p. 715) and adapted to the LinkedIn context. The original question's stem was *"TODAY, when I was on Facebook…"*, which was changed to *"The last time I was on LinkedIn"*. In the original scale, answer options ranged from 1 = *"I disagree strongly"* to 9 = *"I agree strongly"*, which was changed to a 5-point scale as seen in Meier and Schäfer (2018, p. 413). The scale measures three directions of comparison behavior over six items (two for each direction): upward, downward and non-directional. Sample items include: *"I felt less confident about what I have achieved compared to other people"* (downward), *"I paid a lot of attention to how I do things compared to how others do things"* (non-directional) and *"I paid attention to how I do things versus how others do things and felt my way was better"* (upward).

Envy

To measure envy, a six item scale developed by Krasnova et al. (2015b) was used as recommended by Wenninger et al. (2021, p. 9). The original scale was developed for use in research on SNSs (specifically Facebook). The term Facebook was substituted with LinkedIn. Additionally, two items were rephrased to improve contextual fit. The item *"Most of my Facebook contacts have it better than I do"* was rephrased to *"Most of my LinkedIn contacts seem to be on top of things in life"* to improve understanding of the item. Additionally, the item *"It is somehow disturbing when I see on Facebook how much traveling others can afford"* was rephrased to *"It is somehow disturbing when I see on LinkedIn how much traveling others do in their job"* to improve fit to the PNS context. Respondents were asked to rate the frequency of experiencing the stated feelings when

using LinkedIn on a scale from 1 = *"(almost) never"* to 7 = *"very often"*. The original question was: "*When using Facebook, how often are you thinking that:"*. "That" was omitted following suggestions from the pretest. A sample item is: *"It is somewhat annoying to see on LinkedIn how successful some of my connections are"*. The German version was translated, following the same procedure as with the measure of active and passive use and social comparison.

Bridging Social Capital

For bridging social capital, the bridging subscale of the Internet Social Capital Scales by Williams (2006, p. 602) was employed as it has been previously applied to the context of LinkedIn (Ma & Leung, 2019, pp. 1067–1068). The original measure includes ten items, of which one item ("*I am willing to spend time to support general online/offline community activities"*) was omitted due to lacking fit to the context. All items were modified to the PNS context by substituting *"offline/online"* with *"LinkedIn"* as suggested by Ma and Leung (2019, p. 1068). Participants could state their agreement on a 5-point Likert scale ranging from 1 = *"strongly disagree"* to 5 = *"strongly agree"*. Only bridging social capital was measured as this was seen to be more fitting to the work-related context of LinkedIn and also suggested by previous literature (Ma & Leung, 2019, p. 1061). A sample item is: *"Interacting with people on LinkedIn makes me feel like part of a larger community"*. The German version was translated, following the same procedure as with the measure of active and passive use, social comparison and envy.

5.5 Data Collection

Pretest

A pretest with 12 LinkedIn users was carried out to check for comprehensibility and completeness of content. Additionally structural design and functionality of screen out questions were checked. Participants of the pretest also checked spelling and grammar in the survey. The pretest was carried out between 05.06.2023 and 08.06.2023. A total of 15 participants accessed the survey link to the pretest. Three people were screened out due to insufficient frequency of LinkedIn use. Of the final 12 respondents, three were male and nine female. Nine answered the questionnaire in German and three in English. Respondents were able to leave comments in a commentary box or privately message the author to share their comments. Feedback was mostly positive. Minor changes in regard to spelling and grammar were made. The average time for completion was between five and six minutes, which was declared as acceptable. Response distributions were checked, and no severe right or left skewedness was detected.

Data Collection

The field time was set for the period between 12.06.2023 and 10.07.2023. During the time of data collection, the survey link was accessed by a total of 945 people. Of these, 86 participants were screened out (two due to age and 84 due to use intensity). Followingly, the adjusted total sample was 859. Out of this, 575 participants started the survey[8] and 27 respondents dropped out over the course of the questionnaire. This corresponds to a dropout rate of 4.7%. Accordingly, a total of 548 persons completed the entire questionnaire during the survey period. Average response time was approximately five minutes.

Data Cleansing and Preparation

Prior to data analysis, the data set was examined and prepared[9]. This was carried out in a multi-stage procedure. First, the data set was examined for outliers regarding the total time required to complete the survey. Manually checking responses of participants who had completed the questionnaire in less than three minutes, ensured that data from those who had not answered carefully was excluded. A total of three participants had to be removed from the data set, because their response behavior showed inattentiveness. Data from participants who took more than ten minutes to complete the questionnaire was also checked but no uncommon answer behavior was detected. Moreover, participant's self-stated information on age was checked for plausibility. One participant who stated to be 99 years of age and showed inattentive answer behavior was removed from the dataset. Subsequently, response tendencies were considered. First, tendency towards extreme positions (1 and 5 resp. 7) was checked. This allowed for a detection of participants who had answered in a pattern (e.g. always crossing the lowest answer option). A total of eight participants had to be removed in this step. Lastly, participants' tendency to use the "*Can't" say* response option was examined. A total of ten people had to be removed in this last step. After this multi-stage exclusion procedure, the final sample consisted of 526 remaining participants.

Quality Criteria

To evaluate the factorial validity (Döring & Bortz, 2016, p. 446) of the items used in the study, all scales (usage pattern, cognitive and affective well-being, social comparison, envy and bridging social capital) were examined using a principal component analysis. Varimax rotation was employed as the orthogonal rotation procedure as this is one of the most commonly used rotation methods in empirical research (Backhaus et al., 2016,

[8] Answering the first question after the introductory text was defined as the start of the survey.
[9] All analyses were run in IBM SPSS 28.0.1.0.

p. 419; Costello & Osborne, 2005, p. 3). The Kaiser-Guttman criterion was used to determine the number of factors extracted as this is commonly employed (Cleff, 2015, p. 224). Thus, only factors with eigenvalues greater than one were included. The eigenvalue of a factor indicates, how much of the total variance of all items can be explained by this particular factor (Backhaus et al., 2016, p. 415). All data was z-standardized before conducting the principal component analysis.

Data needs to be examined for suitability prior to conducting a principal component analysis (Backhaus et al., 2016, p. 392). Since the analysis is based on the calculation of correlations, the correlation matrix should be considered as a first step (Fromm, 2012, p. 63). Both the strength and significance of the correlation coefficients should be taken into account. The presence of a factorial structure among multiple items should only be assumed when correlations between variables are significant and not equal to zero (Fromm, 2012, p. 63). The Measure of Sample Adequacy (MSA) and the Kaiser-Meier-Olkin (KMO) criterion are used additionally to test the suitability of individual items for factor analysis. Items with a MSA value less than .5 should not be included in the factor analysis (Weiber & Mühlhaus, 2014, p. 132). The KMO criterion, derived from the individual MSA values (Weiber & Mühlhaus, 2014, p. 133) should have a value > .5 (Cleff, 2015, p. 220). Assuming normally distributed data, Bartlett's Test of Sphericity can also be used to test for suitability. If data is normally distributed and $p < .05$, indicating significant correlations between variables, data can be considered suitable (Cleff, 2015, p. 219). Communalities of individual items should also be considered. In the context of principal component analysis, communalities describe the proportion of variance of one item that can be explained by all factors together (Cleff, 2015, p. 222). It is recommended to consider exclusion of items from further analysis when their communality falls below .4, as it may suggests that the item is unrelated to other items or represents a separate factor (Costello & Osborne, 2005, p. 4).

At first, all seven items measuring usage pattern were examined. The correlation matrix (appendix E table E1) revealed mostly significant ($p < .001$ and $p < .005$) correlations between the examined items. All individual MSA values (each > .5) (table E2) as well as the KMO criterion (= .714) indicated suitability for principal component analysis. Bartlett's Test of Sphericity was not examined, as prior analysis revealed that data was not normally distributed[10]. A low communality of .152 was calculated for item P4 (table E3). Additionally, the rotated component matrix showed that item P4 did not load on neither factor one nor two (table E4). Item P4 was eliminated based on suggestions of Costello

[10] The same principle was followed for all other constructs, since no normal distribution could be assumed.

and Osborne (2005, p. 4). The principal component analysis was run again. Both individual MSA values (each > .5) (table E5) and the KMO criterion (= .712) were satisfactory. Communalities (table E6) indicated suitability for the analysis (> .4 for all). The rotated component matrix (table E7) showed that items associated with passive use (P1 to P3) all loaded on one factor, while items related to active use (A1 to A3) loaded on another factor, as to be expected. The extracted two factors explained 64.13% of the total variance of all six items.

Next, all three items measuring cognitive aspects of subjective well-being were examined. The calculated correlation matrix showed significant correlations ($p < .001$) between .618 and .728 (table E8). All individual MSA values (each > .5) (table E9) as well as the KMO criterion (= .722) indicated suitability for principal component analysis. Communalities (table E10) suggested suitability for the analysis (> .4 for all). One factor was extracted on which all three items (SWBc1, SWBc2, SWBc3) loaded highly (table E11). This factor explained 77.61% of the total variance of the three items.

The 12 items for the affective component of subjective well-being were examined next. The calculated correlation matrix showed mostly significant correlations ($p < .001$ and $p < .005$) (table E12). MSA values were all > .8 but < .9 (table E13), which is labeled as *meritorious* (Kaiser & Rice, 1974, p. 112). The KMO criterion (= .909) also indicated suitability for principal component analysis. Calculated communalities (table E14) ranged between .548 and .747. Two factors were extracted. Items associated with negative emotions all loaded on one factor, while items related to positive emotions loaded on the other factor (table E15). The two factors explained 66.06% of the total variance of the 12 items.

Next, items for social comparison were analyzed. The calculated correlation matrix showed significant correlations ($p < .001$ and $p < .005$) (table E16). MSA values were all > .5 ranging between .622 and .872 (table E17). The KMO criterion was .784, which also indicated suitability for principal component analysis. Communalities were all > .4 (table E18). Two factors were extracted, explaining 70% of the total variance of the six items. The items for upward social comparison (SoCoup1, SoCoup2) loaded on one factor, while the items for downward social comparison (SoCodo1 and 2) loaded onto the other extracted factor (table E19). The items for nondirectional comparison (SoCono1, SoCono2) also loaded onto the same factor as the items for upward social comparison. As both items for nondirectional comparison satisfactorily met the prerequisites for analysis and therefore should not be removed, they were combined with the two items for upward social comparison and aggregated into one indicator for upward social comparison. The loading of all four items on a common factor is an indication of

overlap in their content. It could be that items for nondirectional comparison were phrased in a way that seemed similar to upward comparison items for participants.

Subsequently, all six items for envy were examined. The correlation matrix showed significant correlations ($p < .001$) between .269 and .664 (table E20). All individual MSA values (each > .5) (table E21) as well as the KMO criterion (= .872) indicated suitability for principal component analysis. Communalities for envy1 (. 252) were very low and critical for envy2 (.399) (table E22). First, envy1 was omitted from the analysis as suggested by Costello and Osborne (2005, p. 4). The principal component analysis was run again. MSA values (each > .5) (table E24) and the KMO criterion (= .860) indicated suitability for primary component analysis. Item envy2 had a communality of .381 (< .4) (table E25). One factor was extracted (table E26), explaining 64.87% of the total variance. As envy2 had a communality of .381 (table E25), the item was omitted from the analysis. The principal component analysis was run again with the remaining items (envy3 to envy6). MSA values (table E27) ranged from .806 to .860 and the KMO criterion (= .823) also indicated suitability for analysis. Communalities were all > .4 (table E28). One factor was extracted, with all items loading highly onto (table E29), accounting for 71.3% of total variance. As all communalities were > .4 and the total variance explained was greater than with items envy2 to envy6, all subsequent analyses were performed using items envy3 to envy6.

Lastly, the nine items for bridging social capital were analyzed. Suitability for principal component analysis was indicated by the correlation matrix. Correlations ranged from .318 to .724 ($p < .001$) (table E30). Individual MSA values ranged between .885 and .950 (table E31). The KMO criterion was .912. Communalities were all > .4 (table E32). Item BriSoCa9 was at a critical value of .423. One factor was extracted (table E33), which explained a total variance of 54.11%. A second principal component analysis was run to test the results when omitting item BriSoCa9. Data suggested suitability for analysis (KMO = .909; MSA values > .5; communalities > .4) (tables E34 and E35). One factor was extracted (table E36) which explained 56.36% of total variance. As this value was only slightly higher than the variance explained in the model with all nine items and the communality of BriSoCa9 was only critical and not < .4, all nine items of the bridging social capital scale were taken into consideration for further analyses.

To test the individual scales' reliability Cronbach's alpha was used for usage pattern, cognitive subjective well-being, affective subjective well-being, upward social comparison, envy and bridging social capital, as it is one of the most frequently employed tests for internal consistency reliability (Döring & Bortz, 2016, p. 444). For scales consisting of only two items, the Spearman-Brown formula is considered a preferable

alternative to Cronbach's alpha (Eisinga et al., 2013, p. 640). It was thus calculated for downward social comparison, as the scale only comprised two items.

Cronbach's alpha values of > .7 can be considered as acceptable (Krebs & Menold, 2019, p. 495). However, higher Cronbach's alpha values do not necessarily indicate higher internal consistency. Particularly high Cronbach's alpha values (> .9) may indicate redundancy of items (Streiner, 2003, p. 102). Test results for all variables are presented in table 4[11]. Passive use, cognitive subjective well-being, both positive and negative affective subjective well-being, upward social comparison, envy and bridging social capital scales showed satisfactory values for Cronbach's alpha (all > .7 and < .9). Values for bridging social capital (α = .893), positive affective subjective well-being (α = .890), negative affective subjective well-being (α = .888) were relatively high but still < .9 and thus acceptable. Cronbach's Alpha of active use was .649, which is critical as it is < .7. However, no improvement of Cronbach's Alpha could be achieved by omitting variables. Spearman-Brown coefficient was .694 for downward social comparison.

Table 4 Internal Consistency Reliability of the Scales used

Scale	Items included	Cronbach's Alpha	Spearman-Brown
Usage pattern Passive use	P1-3	.719	-
Usage pattern Active use	A1-3	.649	-
SWBc	SWBc1-3	.855	-
SWBa positive SPANE P	SWBa1,3,5,7,10,12	.890	-
SWBa negative SPANE N	SWBa2,4,6,8,9,11	.888	-
SoCoup	SoCoup1-2, SoCono1-2	.823	-
SoCodo	SoCodo1-2	-	.694
Envy	Envy3-6	.866	-
BriSoCa	BriSoCa1-9	.893	-

[11] Scales were tested after the principal component analysis. Thus, some items originally included in the scale were not considered.

6 Results

The following chapter is concerned with the presentation of results. After a sample description in chapter 6.1, the data analysis process will be presented (chapter 6.2). This chapter will conclude with the results of the hypothesis testing (chapter 6.3).

6.1 Sample Description

After data cleansing the total sample (*N* = 526) consisted of 173 male and 350 female participants. Two stated that they identified with another gender and one participant did not want to disclose their gender. The mean age of the participants was *M* = 28.69 years (*SD* = 8.66). The youngest participant was 19, the oldest participant 65 years old. Sixty-four participants answered the questionnaire in English while 462 completed the questionnaire in German. A majority (323) of the respondents stated that they used LinkedIn more than four times a week. Ninety-seven participants indicated that they used LinkedIn three to four times a week. The rest (106) reported to use the platform one to two times a month.

6.2 Data Analysis

On the basis of the validity and reliability tests, item scores were calculated as following:

The responses to the passive and active sub-scales were averaged, resulting in an active usage score (a_use) and a passive usage score (p_use), ranging from one to five. The scale score for cognitive subjective well-being (SWBc) was computed by summing ratings of all three items. Higher score values indicated higher levels of cognitive subjective well-being. A similar procedure was performed for affective subjective well-being. For the positive feelings score (SWBa_po) all ratings for items related to positive feelings were summed. The same procedure was applied to items related to negative feelings for the negative feelings score (SWBa_ne). The score for overall well-being (SWB_to), which was used in all further analyses, was computed by subtracting the negative feelings score of affective well-being from the sum of the cognitive well-being score and the positive feelings score of affective well-being, similarly to Chen et al. (2016, p. 509). Mean scores for upward and downward comparison were calculated. Following results from the principal component analysis, items for upward and nondirectional comparison were grouped together. Item responses of the resulting four items for upward comparison were averaged to calculate the upward comparison score (SoCo_up). The same was done for the two items of downward comparison (SoCo_do). Similarly, for envy, item scores of the remaining items after principal component analysis were averaged to create the score (envy), with higher numbers representing stronger feelings

of envy. Item responses for bridging social capital were also averaged to calculate the bridging social capital score (BriSoCa). Afterwards, all computed scores were standardized using z-transformation.

The hypotheses stated in section 4.5 can be represented in a mediation model (see section 4.5, Fig. 3). The mediation analysis was performed using the PROCESS add on (version 4.2) for SPSS. As PROCESS produces regression based mediation models, the following assumptions, which also apply to ordinary least squares regression, should be considered before conducting a mediation analysis: (1) linearity, (2) normality, (3) homoscedasticity and (4) independence (Hayes, 2013, pp. 53–57). Albeit the importance of these assumptions, Hayes (2013, p. 52) emphasizes that the violation of one or more of these assumptions does not necessarily imply that the analysis should not be performed at all.

Linearity was tested visually through scatter plots. To facilitate the visual inspection, fitting lines based on LOESS smoothing were added. The relationship of all variables involved in the mediation analyses were approximately linear.

The remaining three assumptions mainly concern estimation errors resulting from the estimation of Y when using ordinary least squares regression (Hayes, 2013, p. 52). As the actual error terms are unobservable, residual values were be considered instead as recommended in literature (Backhaus et al., 2016, p. 117).

No specific tests for normal distribution were run. PROCCESS uses bootstrapping, which is a resampling procedure that does not require normal distribution of data (Preacher & Hayes, 2008, p. 880). As recommended by Hayes (2013, p. 430) the setting for 5000 samples was used.

Heteroscedasticity was not tested, as the heteroscedasticity-consistent estimator HC3 was applied as recommended in previous literature (Hayes, 2013, p. 55; Long & Ervin, 2000, p. 217).

The independence of the residuals can be assumed based on the way this study was conducted. Hierarchical selection methods, cluster analyses, or repeated measures on the same participants are more at risk of creating data in which residuals are not independent (Eid et al., 2017, p. 715). None of these cases are present in the present study.

6.3 Hypothesis Testing Results

Active Use and Bridging Social Capital

To test hypotheses H1 to H3, a simple mediation model (model 4 in PROCESS) was used. Figure 4 shows the results of the first mediation analysis, examining the relationship between active LinkedIn use and subjective well-being, which was predicted to be mediated by bridging social capital. The relationship between active LinkedIn use (predictor variable X) and subjective well-being (outcome variable Y) was denoted by *c* (total effect). The path active LinkedIn use and bridging social capital (mediator variable M), was denoted by *a*, and the path of bridging social capital to subjective well-being was denoted by *b.* The indirect effect was represented as *ab* (product of *a* and *b* path), and path *c*' denoted the direct effect of active LinkedIn use to subjective well-being after the inclusion of bridging social capital in the model. A total of 515 valid cases were included in the analysis.

A positive significant total effect, which is the sum of the direct and indirect effect (Hayes, 2013, p. 116), was observed, $c = .1321$, $p = .0028$, 95%-CI [.0456; .2185]. The model did not show a significant direct effect between active LinkedIn use and subjective well-being[12], $c' = .0967$, $p = .1237$, 95%-CI [-.0191; .1585].

The model also showed a positive significant effect of active LinkedIn use on bridging social capital, $b = .3033$, $p < .001$, 95%-CI [.2165; .3901]. Bridging social capital also had a positive significant effect on subjective well-being, $b = .2057$, $p < .001$, 95%-CI [.1120; .2994]. A positive, indirect effect of active LinkedIn use on subjective well-being was observed, $ab = .0624$, 95%-CI [.0303; .0999]. The completely standardized indirect effect was .0619, 95%-CI [.0311; .0986]. Followingly, hypotheses H1 to H3 are supported by the results provided. Active LinkedIn use did have an indirect effect on subjective well-being (H1), active LinkedIn use also influenced subjective well-being (H2) and bridging social capital had a significant effect on subjective well-being (H3).

[12] Although, statistically not identical with a significance of $p < .05$, effects are considered significant when the confidence interval does not include zero (Hayes, 2013, p. 109).

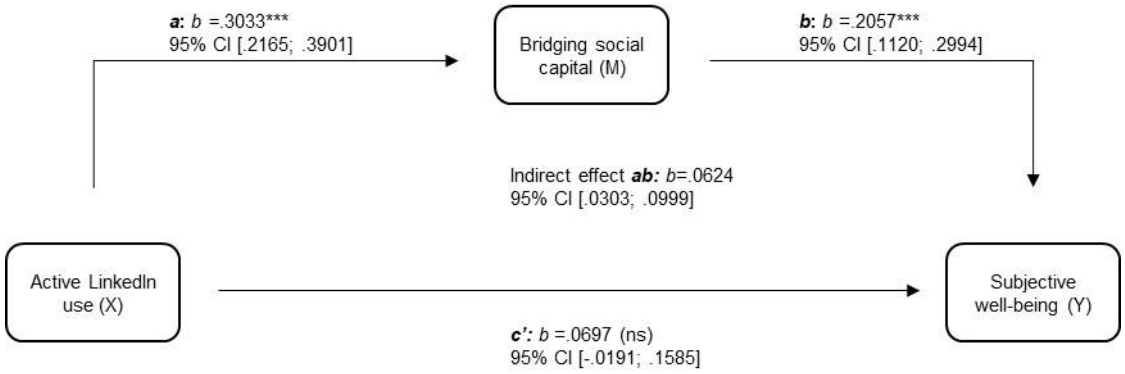


Fig. 4 Mediation Model 1 Active Use. Own Depiction

All confidence intervals shown are percentile bootstrap 95% confidence intervals. *** $p < .001$, two-sided. ns = not significant. *b* = regression coefficient.

Passive Use and Social Comparison

Next, two serial mediation analyses (model 6 in PROCESS) were run to test hypotheses H4 to H7. The first analysis tested the relationship using upward social comparison and envy as mediators in the relationship between passive LinkedIn use and subjective well-being (model 2, Fig. 5). In the other analysis, upward comparison was replaced by downward social comparison (model 3, Fig. 6). The analysis of the model 2 included 519 valid cases. Model 3 included 515 cases. For both models the relationship between passive LinkedIn use (predictor variable X) and subjective well-being (outcome variable Y) was denoted by *c* (total effect). The path between passive LinkedIn use and upward/downward social comparison (mediator variable M_1), was denoted by a_1, and the path of upward/downward social comparison to envy (mediator variable M_2) was labeled as d_{21}. The path between envy and subjective well-being was denoted by b_2. The relation between passive LinkedIn use and envy was denoted by a_2 and the path between upward/downward social comparison as b_2. Path *c*' denoted the direct effect of passive LinkedIn use to subjective well-being after the inclusion of both mediator variables upward/downward social comparison and envy in the model.

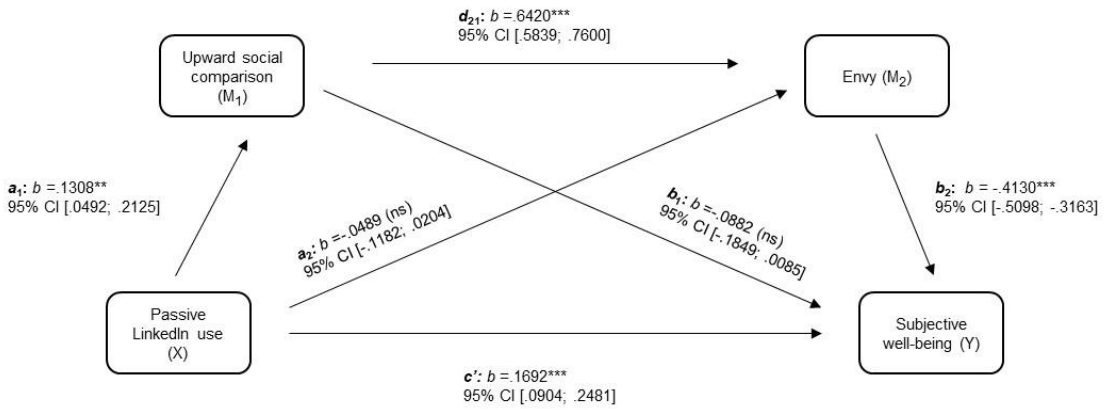


Fig. 5 Mediation Model 2 Passive Use and Upward Social Comparison. Own Depiction

All confidence intervals shown are percentile bootstrap 95% confidence intervals. *** $p < .001$, ** $p < .01$ two-sided. ns = not significant. b = regression coefficient.

For model 2 a positive significant total effect was shown, $c = .1432$, $p = .0019$, 95%-CI [.0530; .2335]. The total effect represents the sum of the direct and indirect effect, just as with the simple mediation model (Hayes, 2013, p. 146), the only difference being that the serial mediation model produces several indirect effects. A positive significant direct effect of passive LinkedIn use on subjective well-being was observed $c' = .1692$, $p < .001$, 95%-CI [.0904; .2481].

The model showed a significant positive effect of passive LinkedIn use on upward social comparison, $b = .1308$, $p = .0017$, 95%-CI [.0492; .2125]. The effect of upward social comparison on envy was positive and significant, $b = .6420$, $p < .001$, 95%-CI [.5839; .7600]. Envy also had a significant negative effect on subjective well-being, $b = -.4130$, $p < .001$, 95%-CI [-.5089; -.3163]. Upward social comparison did not have a significant effect on subjective well-being, $b = -.0882$, $p = .0738$, 95%-CI [-.1849; .0085]. The effect of passive LinkedIn use on envy was not significant either, $b = -.0489$, $p = .1662$, 95%-CI [-.1182; .0204]. Indirect effects were observed as following: passive LinkedIn use did not have a significant effect on subjective well-being through upward social comparison, $a_1b_1 = -.0115$, 95%-CI [-.0287; .0008]. The completely standardized indirect effect for the a_1b_1 - path was -.0115, 95%-CI [-.0289; .0008]. The effect of passive LinkedIn use on subjective well-being through envy was not significant either, $a_2b_2 = .0202$, 95%-CI [-.0091; .0501]. The completely standardized indirect effect for the a_2b_2 - path was .0201, 95%-CI [-.0093; .0490]. Passive LinkedIn use did show a significant negative effect on subjective well-being through upward social comparison and envy, $a_1d_{21}b_2 = -.0347$, 95%-CI [-.0583; -.0120]. The completely standardized indirect effect for the $a_1d_{21}b_2$ – path was -.0345, 95%-CI [-.0586; -.0118].

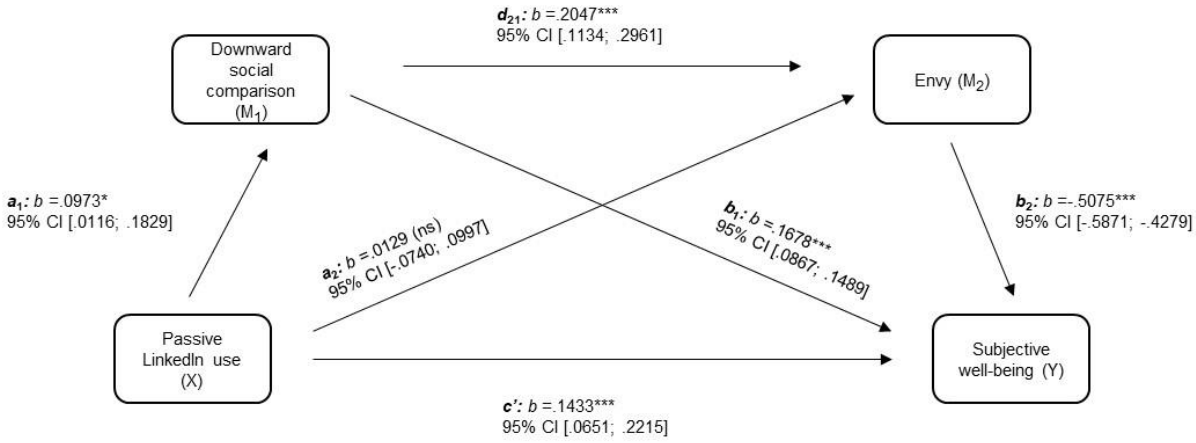


Fig. 6 Mediation Model 3 Passive Use and Downward Social Comparison. Own Depiction

All confidence intervals shown are percentile bootstrap 95% confidence intervals. *** $p < .001$, *$p < .05$ two-sided. ns = not significant. *b* = regression coefficient.

For model 3 a positive significant total effect was shown, $c = .1430$, $p = .0020$, 95%-CI [.0526; .2333]. A positive significant direct effect of passive LinkedIn use on subjective well-being was observed $c' = .1433$, $p < .001$, 95%-CI [.0651; .2215].

Passive LinkedIn use had a significant positive effect on downward social comparison, $b = .0973$, $p = .0262$, 95%-CI [.0116; .1829]. The effect of downward social comparison on envy was positive and significant, $b = .2047$, $p < .001$, 95%-CI [.1134; .2961]. Envy had a significant negative effect on subjective well-being, $b = -.5075$, $p < .001$, 95%-CI [-.5871; -.4279]. Downward social comparison had a significant positive effect on subjective well-being, $b = .1678$, $p < .001$, 95%-CI [.0867; .1489]. The effect of passive LinkedIn use on envy was not significant, $b = .0129$, $p = .7707$, 95%-CI [-.0740; .0997]. Indirect effects were observed as following: passive LinkedIn use had a significant positive effect on subjective well-being through downward social comparison, $a_1b_1 = .0163$, 95% CI [.0016; .0342]. The completely standardized indirect effect for the a_1b_1 – path was .0163, 95%-CI [.0017; .0345]. The effect of passive LinkedIn use on subjective well-being through envy was not significant, $a_2b_2 = -.0065$, 95%-CI [-.0503; .0383]. The completely standardized indirect effect for the a_2b_2 - path was -.0065, 95%-CI [-.0513; .0374]. Passive LinkedIn use had a significant negative effect on subjective well-being through downward social comparison and envy $a_1d_{21}b_2 = -.0101$, 95% CI [-.0217; -.0009]. The completely standardized indirect effect for the $a_1d_{21}b_2$ - path was -.0101, 95%-CI [-.0218; -.0009].

Followingly, hypotheses H4 to H7 can be supported. Passive LinkedIn indirectly influenced subjective well-being (H4), passive LinkedIn use influenced both upward and downward social comparison behavior (H5), both upward and downward comparison behavior had an effect on envy (H6) and envy influenced subjective well-being (H7).

7 Discussion

In the following chapter, the results previously described in section 6.3 will be interpreted and discussed (chapter 7.1). This is followed by a presentation of theoretical and practical implications of this research (chapter 7.2). Limitations and an outlook on future research will be discussed afterwards (chapter 7.3).

7.1 Discussion of Results

The purpose of the present study was to gain a better understanding of the relationship between usage patterns of PNSs and their effect on users' subjective well-being.

All three hypotheses (H1 to H3) for the mediation model, testing the relationship between active LinkedIn use and subjective well-being were supported. As the mediation model showed, active LinkedIn use positively predicted bridging social capital. This is in line with previous research on SNS use and social capital. For example, Burke et al. (2010, p. 1911) revealed a positive effect of active SNS use on bonding social capital. Reimann et al. (2021, p. 9) found that the positive indirect relationship between active Instagram use and satisfaction with life was mediated by bonding social capital. Additionally, active Instagram use was positively related to both bridging and bonding social capital.

There are several possible reasons for explanation for the effect found in this study. It could be that LinkedIn users who already have a higher need to socialize and feel more socially connected tend to engage more actively in conversations or direct interactions on LinkedIn, resulting in greater social capital. The fact that distances can be overcome more easily and the exchange with other users is thus facilitated could also contribute to the positive effect of active use on social capital. The observed positive effect of bridging social capital on subjective well-being can be explained by positive feedback received. LinkedIn users who engage in active use might be exposed to more positive feedback, resulting from conversations or positive networking experiences.

As described in chapter 6.3, the coefficient of the total effect *c* in the mediation model for active use (model 1, Fig. 4) was .1321, which, according to Hayes (2013, p. 121) can be interpreted as follows: Two individuals who differ by one unit in their level of active LinkedIn use are estimated to differ by .1321 units in levels of subjective well-being. The positive sign of the coefficient indicates that individuals with higher levels of active LinkedIn use experience stronger positive effects on subjective well-being. As the direct effect between active LinkedIn use and subjective well-being was insignificant after adding the mediator variable bridging social capital, the relationship between active LinkedIn use and subjective well-being was fully mediated by bridging social capital. According to Zhao et al. (2010, p. 201), results of model 1 can be classified as an indirect-

only mediation, as the indirect path (*ab*) was significant but the direct path (*c'*)[13] was not. Bridging social capital acted as a mediator, which is consistent with the hypothesized theoretical framework and according to Zhao et al. (2010, p. 201), makes it unlikely that an additional mediator was omitted in the analysis.

Results of the second mediation analysis (model 2, Fig. 5), examining the relation between passive LinkedIn use and subjective well-being, with upward social comparison and envy as mediating variables, were also generally in line with previous research. Consistent with prior research, passive use positively influenced upward social comparison, which elicited feelings of envy. In return envy had a significant negative effect on subjective well-being. Krasnova et al. (2013, p. 1487) also found envy to be a significant mediator variable in the relationship between passive following on Facebook and users' satisfaction with life. Krasnova et al. (2015b, p. 598) supported these results, by revealing that envy fully mediated the negative effect of social information consumption on SNSs (passive use) on both cognitive and affective well-being. Wang et al. (2017, p. 6) found that passive use was positively related to upward social comparison behavior on SNSs. Similarly, Q. Liu et al. (2017, p. 6) showed that passive SNS use positively predicted upward social comparison, which in turn negatively influenced self-esteem.

Apart from the $a_1d_{21}b_2$ – path no significant indirect effects were predicted in model 2. Neither the a_1b_1 - nor the a_2b_2 - path showed significant effects. Thus, no indirect relation between passive LinkedIn use and subjective well-being through upward social comparison (a_1b_1 - path) could be identified. The same held true for the indirect relationship between passive LinkedIn use and subjective well-being through envy (a_2b_2). Surprisingly, a significant positive direct effect between passive LinkedIn use and subjective well-being was identified in model 2. According to Zhao et al. (2010, p. 200) model 2 shows a competitive mediation, because both direct and indirect effect are significant but of opposite signs as the indirect is negative and the direct effect is positive. According to Zhao et al. (2010, p. 201) this result most likely indicates incompleteness of the theoretical framework applied. Upward social comparison and envy both showed to be relevant mediating factors, which is indicated by the significant indirect effect. However, both variables were not able to fully mediate the relationship between passive LinkedIn use and subjective well-being. Thus, it is very likely that there are other variables which could act as additional mediating factors. Prior research shows that the effect of passive use on subjective well-being is also influenced by users' self-esteem. For example, Chen et al. (2016, p. 511) showed that users' self-esteem mediated the

[13] Zhao et al. (2010, p. 198) label the direct path as *c*.

relationship between passive SNS use and well-being. They additionally, found effortful control to be a moderator variable, meaning that the indirect effect showed to be stronger for users who reported lower levels of effortful control. An individual's tendency to compare with others, also referred to as self-comparison orientation might also function as an additional mediating factor. For example, one study revealed that individuals with higher social comparison orientation experienced more negative affect after upward comparisons (B. P. Buunk et al., 2005, p. 62).

The total effect *c* of model 2 was positive, with a coefficient of .1432. This might seem surprising at first, considering the negative indirect effect observed. The positive total effect can be, however, explained by a cancelling out of the direct and indirect effects as the total effect represents the sum of both direct and indirect effects.

Results of the third mediation analysis (model 3, Fig. 6), examining the relationship between passive LinkedIn use and subjective well-being through downward comparison and envy were generally also in line with previous literature. Like model 2, model 3 showed a significant negative indirect effect in the $a_1d_{21}b_2$ - path, indicating that both downward social comparison and envy acted as mediating variables in the relationship between passive LinkedIn use and subjective well-being. In comparison to model 2, the indirect effect of the $a_1d_{21}b_2$ - path was smaller in model 3, as suggested by the comparison of completely standardized indirect effects for the $a_1d_{21}b_2$ - paths. Completely standardized indirect effects can be used as effect-size measures (Cheung, 2009, p. 427). They can also be used to compare mediation models (Regorz, 2018). The completely standardized indirect effect for the $a_1d_{21}b_2$ – path in model 2 was -.0345, while the coefficient for model 3 was -.0101, indicating a stronger effect for the model 2, which tested upward social comparison as M_1. One possible explanation could lie withing the direction of comparison. As previous literature has suggested, upward social comparisons tend to occur more often than downward comparisons (Gerber et al., 2018, p. 21). It could be that not only direction but also frequency of comparisons influences the effect comparison behavior has on an individual's well-being. This assumption is supported by findings from previous research. For example, Vogel et al. (2015, p. 253) found that Facebook users who tended to engage more in social comparisons (measured with social comparison orientation) experienced lower state self-esteem and more negative affect than Facebook users who engaged in social comparisons less frequently.

Like in model 2, a significant positive direct effect of passive LinkedIn use on subjective well-being was observable in model 3. This could also be explained by the omission of an additional mediator in the model, as the results of model 3 also indicate a competitive mediation as characterized by Zhao et al. (2010, p. 200). Both the direct and two of the

indirect effects were significant but of opposite signs. The direct effect was positive, while the indirect of the a_1b_1 - path was also positive and the indirect $a_1d_{21}b_2$ - path was negative. The positive indirect effect of passive LinkedIn use on subjective well-being through downward social comparison (a_1b_1 - path) might be explained by the fact that apart from their negative and envy inducing effect, downward social comparisons can also have positive effects by inducing a feeling of superiority in the comparing individual. It could be, that LinkedIn users experience an increased sense of self-worth when they see profiles of other users who have achieved comparatively less, or when they read posts that discuss setbacks or failure.

7.2 Theoretical and Practical Implications

The results of this thesis further expand upon previous research by examining users of PNSs. This study extends prior findings of other studies in two ways. First, it advances literature on online networking site use and well-being as it explores PNS use. Previous research mainly examined the relation between SNS use and well-being with special attention to Facebook (Bayer et al., 2020, p. 473; Kross et al., 2021, p. 56; Rains & Brunner, 2015, p. 114). Moreover, prior studies have mainly focused on examining either passive or active use, while this study examined both usage patterns at once.

While results of this study are preliminary and should not be generalized, results suggest that SNSs and PNSs share similarities, that lead to similar effect patterns when examining the relationship between usage patterns and well-being. Testing the *active-passive model of SNS use* in the context of PNSs, revealed appropriate applicability. Results of this thesis also have practical relevance. As PNSs like LinkedIn continue to grow in importance for both private and corporate users, it is of interest to the public to further explore the effects of PNS usage on well-being and identifying potentially harmful usage patterns. Knowledge on the effects of PNS usage could also guide the development of future platforms and improve current ones.

7.3 Limitations and Future Outlook

This thesis naturally comes with a number of limitations that limit the quality and generalizability of results. The first limitation lies within the non-representative nature of the sample, which implies that the selected group may not accurately reflect all of the population’s relevant characteristics. While the sample's composition was satisfactory and carefully selected, the possibility of self-selection effects cannot be ruled out. This implies that individuals who voluntarily chose to participate may have particular traits or interests that differentiate them from others. This could hold true specifically for, participants recruited through survey sharing platforms like SurveyCircle or SurveySwap.

Most of these platforms' users are students, trying to promote their own survey by responding to as many surveys as possible. Although there are rules of conduct on the platform, not all participants are expected to behave in an exemplary and compliant manner. During the data cleansing process, most erroneous records came from participants recruited through SurveyCircle or SurveySwap. Additionally, participants recruited from these platforms share common demographic characteristics, including age and occupation. It may thus be advisable to consider alternative methods for recruiting in the future. Nevertheless, it is important to recognize the advantages of these platforms, as they provide easy access to a large pool of participants and thus enable the acquisition of large samples without high financial expenses. As this study was one of the first to research the relationship between PNS use and well-being, it is of an exploratory nature demanding replication and validation, preferably with larger samples and with longitudinal approaches. The application of experience sampling[14], could also be beneficial by allowing to naturally and timely capture the usage experience. Additionally, the examination of other PNSs, like XING would be desirable to improve generalizability of results.

Furthermore, this study is limited by its cross-sectional approach. As no inference on causality can be made from cross-sectional studies, it is unclear whether active LinkedIn usage has a positive effect on subjective well-being or whether people who are better off in terms of well-being, use LinkedIn more actively than passively. The same holds true for passive use. It is not clear whether users who score lower on well-being measures use LinkedIn more passively or whether passive LinkedIn use causes users to feel worse.

Basing the survey on participant recall of their last experience on LinkedIn might have also imposed a limitation. By relying on post-receptive memories without any information on when exactly the participants last used LinkedIn, it is unclear how recent their last memory was and how well participants were able to retrieve their experience. This might be especially problematic for affective well-being as participants might not have been able to accurately tell how they have felt the last time they used LinkedIn.

Another weakness could be imposed by the dichotomization into active and passive use that was used for this study. The *active-passive model of SNS use* has received recent criticism. For example, Meier and Krause (2022, p. 5) have argued that the dichotomization *"[…] is just screen time in disguise […]"*. As previous literature suggests,

[14] Experience sampling is a research method employed to gather real-time insights into an individual's daily life and experiences. Participants are prompted at random or scheduled intervals throughout the day to provide self-reports. By collecting data in real-world settings, recall bias may be reduced (Moreno et al. 2012, p. 1098).

passive use is more common than active use, resulting in most users spending the majority of their time on SNSs engaging in passive use. Thus, the authors argue, that the distinction into active and passive use does not add conceptual value as both screen time and passive use technically represent the same value for most users. Meier and Krause (2022, p. 6) have also criticized that the definition of passive use often times comprises too many different experiences one can have when engaging in passive use. As browsing often aggregates all content consumed, no differentiation is made between topics or tone of content consumed, which can also influence the effect induced by passive use behavior. Thus, it would be advisable for future research to further differentiate usage patterns. Verduyn et al. (2022, p. 64) have proposed an extended version of the *active-passive model of SNS use* as a starting point for a more fine grained approach. Though, this model has not yet been applied to either SNS or PNS use. In terms of future research, it could thus be beneficial to further investigate the extended model.

The examination of a more nuanced set of variables in the relation between LinkedIn use and well-being would be desirable for future research. The reason or purpose of using LinkedIn would be interesting to research. It might make a difference whether the platform is used for marketing or human resource management purposes as part of ones' job or as a career tool. People using the platform privately as a self-advertising tool might be more vulnerable to negative feedback or to experiencing envy as individuals who use LinkedIn as part of their job, because the content consumed might not be experienced as relevant to the personal self or self-worth as for users who solely use the platform privately. Inspecting reasons for use along with measures of usage pattern may also aid the process of identifying risk factors for negative impact of LinkedIn use on users' well-being. Additionally, it could be beneficial to investigate the composition of users' networks. The degree to which a user is personally connected to his or her LinkedIn connections, might also affect the severity of negative effects caused by social comparison behavior. If a users' network is mainly composed of colleagues or acquaintances, the people a user will compare to are most likely to be more similar to him or her, possibly making social comparisons more harmful.

Another path for future research might be the exploration of the impact of personality traits on effects of PNS usage on well-being. While personality has been extensively studied in the context of SNSs there is a lack of research on the association in the context of PNSs (Utz & Breuer, 2019, p. 180).

8 Conclusion

In summary, this thesis represents an important first step in developing a better understanding of the relationship between usage patterns on PNSs and their effect on users' well-being.

A systematic categorization of existing literature on SNS use and users' well-being revealed a need for more research on PNSs. The current body of literature showed to be characterized by heterogeneity in both theoretical frameworks and measures applied, leading to great variety in results generated by research in the field.

The primary goal of this research was to examine the relationship between usage type on PNSs and users' subjective well-being. By applying the *active-passive model of SNS use* to the context of PNSs, this thesis has made a first step in the exploration of this topic. Results indicated a positive indirect relationship between active LinkedIn use and well-being. The indirect relationship between passive LinkedIn use and subjective well-being was negative. All tested mediating variables (bridging social capital for active use and upward social comparison, downward social comparison and envy for passive use) showed to be relevant in explaining the relationship between subjective well-being and active and passive LinkedIn use respectively. Bridging social capital fully mediated the relationship between active LinkedIn use and well-being. Through the accrual of bridging social capital, active LinkedIn users' well-being was affected positively. However, results of the two mediation models examining passive LinkedIn use indicated possible omissions of other mediating variables as the direct effect between passive LinkedIn use and subjective well-being remained significant after the mediator variables were added to the model. Further research is needed to examine the complexity of the relationship between usage patterns and well-being. As PNSs continue to grow and gain importance for both private and corporate users, an important task for future research will be to start assessing directionality of the relation between usage patterns and well-being. Moreover, it might be advisable to further break down usage patterns and measure the *active-passive model of SNS use* in more detail to combat recent criticism on the model's strength. Further research on the association between PNS use and well-being might also aid the development of best practices for use, helping both private and corporate users to maximize the potential of the platforms, while minimizing usage risks.

References

Adler, P. S., & Kwon, S.-W. (2002). Social Capital: Prospects for a New Concept. *Academy of Management Review*, *27*(1), 17–40. https://doi.org/10.5465/AMR.2002.5922314

Alfasi, Y. (2019). The grass is always greener on my Friends' profiles: The effect of Facebook social comparison on state self-esteem and depression. *Personality and Individual Differences*, *147*, 111–117. https://doi.org/10.1016/j.paid.2019.04.032

Amichai-Hamburger, Y., & Vinitzky, G. (2010). Social network use and personality. *Computers in Human Behavior*, *26*(6), 1289–1295. https://doi.org/10.1016/j.chb.2010.03.018

Apaolaza, V., Hartmann, P., Medina, E., Barrutia, J. M., & Echebarria, C. (2013). The relationship between socializing on the Spanish online networking site Tuenti and teenagers' subjective wellbeing: The roles of self-esteem and loneliness. *Computers in Human Behavior*, *29*(4), 1282–1289. https://doi.org/10.1016/j.chb.2013.01.002

Appel, H., Crusius, J., & Gerlach, A. L. (2015). Social Comparison, Envy, and Depression on Facebook: A Study Looking at the Effects of High Comparison Standards on Depressed Individuals. *Journal of Social and Clinical Psychology*, *34*(4), 277–289. https://doi.org/10.1521/jscp.2015.34.4.277

Appel, M., Marker, C., & Gnambs, T. (2020). Are Social Media Ruining Our Lives? A Review of Meta-Analytic Evidence. *Review of General Psychology*, *24*(1), 60–74. https://doi.org/10.1177/1089268019880891

Backhaus, K., Erichson, B., Plinke, W., & Weiber, R. (2016). *Multivariate Analysemethoden*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-46076-4

Baldwin, M., & Mussweiler, T. (2018). The culture of social comparison. *Proceedings of the National Academy of Sciences of the United States of America*, *115*(39), E9067-E9074. https://doi.org/10.1073/pnas.1721555115

Baruffaldi, S. H., Di Maio, G., & Landoni, P. (2017). Determinants of PhD holders' use of social networking sites: An analysis based on LinkedIn. *Research Policy*, *46*(4), 740–750. https://doi.org/10.1016/j.respol.2017.01.014

Baumann, L., & Utz, S. (2021). Professional networking: Exploring differences between offline and online networking. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *15*(1). https://doi.org/10.5817/CP2021-1-2

Bayer, J. B., Triệu, P., & Ellison, N. B. (2020). Social Media Elements, Ecologies, and Effects. *Annual Review of Psychology*, *71*, 471–497. https://doi.org/10.1146/annurev-psych-010419-050944

Berekoven, L., Eckert, W., & Ellenrieder, P. (2009). *Marktforschung: Methodische Grundlagen und praktische Anwendung* (12., überarbeitete und erweiterte Auflage). Gabler Verlag / GWV Fachverlage GmbH Wiesbaden. https://doi.org/10.1007/978-3-8349-8267-4

Blease, C. R. (2015). Too Many 'Friends,' Too Few 'Likes'? Evolutionary Psychology and 'Facebook Depression'. *Review of General Psychology*, *19*(1), 1–13. https://doi.org/10.1037/gpr0000030

Boer, M., Stevens, G. W., Finkenauer, C., & van den Eijnden, R. J. (2022). The complex association between social media use intensity and adolescent wellbeing: A longitudinal investigation of five factors that may affect the association. *Computers in Human Behavior*, *128*, 107084. https://doi.org/10.1016/j.chb.2021.107084

Bourdieu, P. (1986). The forms of capital. In *Handbook of Theory an Research for the Sociology of Education* (pp. 241–258). Greenwood Press.

boyd, d. m., & Ellison, N. B. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, *13*(1), 210–230. https://doi.org/10.1111/j.1083-6101.2007.00393.x

Brandenberg, G., Ozimek, P., Bierhoff, H.-W., & Janker, C. (2019). The relation between use intensity of private and professional SNS, social comparison, self-esteem, and depressive tendencies in the light of self-regulation. *Behaviour & Information Technology*, *38*(6), 578–591. https://doi.org/10.1080/0144929X.2018.1545049

Brenner, S., Aksin Sivrikaya, S., & Schwalbach, J. (2019). Who is on LinkedIn? Self-selection into professional online networks. *Applied Economics*, *52*(1), 52–67. https://doi.org/10.1080/00036846.2019.1638497

Brosius, H.-B., Haas, A., & Koschel, F. (2016). *Methoden der empirischen Kommunikationsforschung*. VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-19996-2

Burke, M., Cheng, J., & Gant, B. de (2020). Social Comparison and Facebook. In R. Bernhaupt, F. '. Mueller, D. Verweij, J. Andres, J. McGrenere, A. Cockburn, I. Avellino, A. Goguey, P. Bjørn, S. Zhao, B. P. Samson, & R. Kocielnik (Eds.), *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–13). ACM. https://doi.org/10.1145/3313831.3376482

Burke, M., & Kraut, R. E. (2016). The Relationship Between Facebook Use and Well-Being Depends on Communication Type and Tie Strength. *Journal of Computer-Mediated Communication*, *21*(4), 265–281. https://doi.org/10.1111/jcc4.12162

Burke, M., Kraut, R., & Marlow, C. (2011). Social capital on facebook. In D. Tan, G. Fitzpatrick, C. Gutwin, B. Begole, & W. A. Kellogg (Eds.), *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 571–580). ACM. https://doi.org/10.1145/1978942.1979023

Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. In E. Mynatt, G. Fitzpatrick, S. Hudson, K. Edwards, & T. Rodden (Eds.), *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1909–1912). ACM. https://doi.org/10.1145/1753326.1753613

Burnell, K., George, M. J., Vollet, J. W., Ehrenreich, S. E., & Underwood, M. K. (2019). Passive social networking site use and well-being: The mediating roles of social comparison and the fear of missing out. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *13*(3). https://doi.org/10.5817/CP2019-3-5

Buunk, A. P., & Gibbons, F. X [Frederick X.] (2007). Social comparison: The end of a theory and the emergence of a field. *Organizational Behavior and Human Decision Processes*, *102*(1), 3–21. https://doi.org/10.1016/j.obhdp.2006.09.007

Buunk, B. P., Collins, R. L., Taylor, S. E., VanYperen, N. W., & Dakof, G. A. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality and Social Psychology*, *59*(6), 1238–1249. https://doi.org/10.1037/0022-3514.59.6.1238

Buunk, B. P., Zurriaga, R., Peiro, J. M., Nauta, A., & Gosalvez, I. (2005). Social Comparisons at Work as Related to a Cooperative Social Climate and to Individual Differences in Social Comparison Orientation. *Applied Psychology*, *54*(1), 61–80. https://doi.org/10.1111/j.1464-0597.2005.00196.x

Caers, R., & Castelyns, V. (2011). LinkedIn and Facebook in Belgium. *Social Science Computer Review*, *29*(4), 437–448. https://doi.org/10.1177/0894439310386567

Carmack, H. J., & Heiss, S. N. (2018). Using the Theory of Planned Behavior to Predict College Students' Intent to Use LinkedIn for Job Searches and Professional Networking. *Communication Studies*, *69*(2), 145–160. https://doi.org/10.1080/10510974.2018.1424003

Carpentier, M., van Hoye, G., Stockman, S., Schollaert, E., van Theemsche, B., & Jacobs, G. (2017). Recruiting nurses through social media: Effects on employer

brand and attractiveness. *Journal of Advanced Nursing*, *73*(11), 2696–2708. https://doi.org/10.1111/jan.13336

Carr, C. T., & Hayes, R. A. (2015). Social Media: Defining, Developing, and Divining. *Atlantic Journal of Communication*, *23*(1), 46–65. https://doi.org/10.1080/15456870.2015.972282

Castillo-de Mesa, J., & Gómez-Jacinto, L. (2020). Connectedness, Engagement, and Learning through Social Work Communities on LinkedIn. *Psychosocial Intervention*, *29*(2), 103–112. https://doi.org/10.5093/pi2020a4

Chen, W., Fan, C.-Y., Liu, Q.-X., Zhou, Z.-K., & Xie, X.-C. (2016). Passive social network site use and subjective well-being: A moderated mediation model. *Computers in Human Behavior*, *64*, 507–514. https://doi.org/10.1016/j.chb.2016.04.038

Cheung, M. W.-L. (2009). Comparison of methods for constructing confidence intervals of standardized indirect effects. *Behavior Research Methods*, *41*(2), 425–438. https://doi.org/10.3758/BRM.41.2.425

Chmielinski, M., Cheung, C. M [Christy M.K], & Wenninger, H. (2020). Coping with Envy on Professional Social Networking Sites. In *Twenty-Third Pacific Asia Conference on Information Systems.* Symposium conducted at the meeting of Pacific Asia Conference on Information Systems, Dubai, UAE.

Cho, V., & Lam, W. (2021). The power of LinkedIn: how LinkedIn enables professionals to leave their organizations for professional advancement. *Internet Research*, *31*(1), 262–286. https://doi.org/10.1108/INTR-08-2019-0326

Choi, S., & Kim, E.-M. (2020). Between Instagram browsing and subjective well-being: Social comparison or emotional contagion? *Media Psychology*, *24*(6), 866–890. https://doi.org/10.1080/15213269.2020.1824120

Chun, T. Y., Lee, D. K., & Park, N. H. (2020). The Effect of Marketing Activities on the Brand Recognition, Brand Familiarity, and Purchase Intention on the SNS of Franchise Companies. *The Journal of Asian Finance, Economics and Business*, *7*(11), 955–966. https://doi.org/10.13106/jafeb.2020.vol7.no11.955

Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social Network Sites and Well-Being: The Role of Social Connection. *Current Directions in Psychological Science*, *27*(1), 32–37. https://doi.org/10.1177/0963721417730833

Cleff, T. (2015). *Deskriptive Statistik und Explorative Datenanalyse*. Gabler Verlag. https://doi.org/10.1007/978-3-8349-4748-2

Coe, J. B., Weijs, C. A., Muise, A., Christofides, E., & Desmarais, S. (2012). Understanding veterinary students' use of and attitudes toward the social networking site, Facebook, to assist in developing curricula to address online

professionalism. *Journal of Veterinary Medical Education*, *39*(3), 297–303. https://doi.org/10.3138/jvme.0212-016R

Cohen-Charash, Y. (2009). Episodic Envy. *Journal of Applied Social Psychology*, *39*(9), 2128–2173. https://doi.org/10.1111/j.1559-1816.2009.00519.x

Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*(10), Article 7, 1–9. https://doi.org/10.7275/jyj1-4868

Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent using social media impact mental health? An eight year longitudinal study. *Computers in Human Behavior*, *104*, 106160. https://doi.org/10.1016/j.chb.2019.106160

Crusius, J., Gonzalez, M. F., Lange, J., & Cohen-Charash, Y. (2020). Envy: An Adversarial Review and Comparison of Two Competing Views. *Emotion Review*, *12*(1), 3–21. https://doi.org/10.1177/1754073919873131

Davis, J., Wolff, H.-G., Forret, M. L., & Sullivan, S. E. (2020). Networking via LinkedIn: An examination of usage and career benefits. *Journal of Vocational Behavior*, *118*, 103396. https://doi.org/10.1016/j.jvb.2020.103396

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

Diener, E. (2006). Guidelines for National Indicators of Subjective Well-Being and Ill-Being. *Applied Research in Quality of Life*, *1*(2), 151–157. https://doi.org/10.1007/s11482-006-9007-x

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Heintzelman, S. J., Kushlev, K., Tay, L., Wirtz, D., Lutes, L. D., & Oishi, S. (2017). Findings all psychologists should know from the new science on subjective well-being. *Canadian Psychology / Psychologie Canadienne*, *58*(2), 87–104. https://doi.org/10.1037/cap0000063

Diener, E., Lucas, R. E., & Oishi, S. (2018). Advances and Open Questions in the Science of Subjective Well-Being. *Collabra. Psychology*, *4*(1). https://doi.org/10.1525/collabra.115

Diener, E., Pressman, S. D., Hunter, J., & Delgadillo-Chase, D. (2017). If, Why, and When Subjective Well-Being Influences Health, and Future Needed Research. *Applied Psychology: Health and Well-Being*, *9*(2), 133–167. https://doi.org/10.1111/aphw.12090

Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D., & Oishi, S. (2009). New Measures of Well-Being. In A. C. Michalos & E. Diener (Eds.), *Social Indicators Research Series. Assessing Well-Being* (Vol. 39, pp. 247–266). Springer Netherlands. https://doi.org/10.1007/978-90-481-2354-4_12

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New Well-being Measures: Short Scales to Assess Flourishing and Positive and Negative Feelings. *Social Indicators Research*, *97*(2), 143–156. https://doi.org/10.1007/s11205-009-9493-y

Dienlin, T., & Johannes, N. (2020). The impact of digital technology use on adolescent well-being. *Dialogues in Clinical Neuroscience*, *22*(2), 135–142. https://doi.org/10.31887/DCNS.2020.22.2/tdienlin

Ding, Q., Zhang, Y.-X., Wei, H., Huang, F., & Zhou, Z.-K. (2017). Passive social network site use and subjective well-being among Chinese university students: A moderated mediation model of envy and gender. *Personality and Individual Differences*, *113*, 142–146. https://doi.org/10.1016/j.paid.2017.03.027

Döring, N., & Bortz, J. (2016). *Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-41089-5

Drentea, P., & Moren-Cross, J. L. (2005). Social capital and social support on the web: The case of an internet mother site. *Sociology of Health & Illness*, *27*(7), 920–943. https://doi.org/10.1111/j.1467-9566.2005.00464.x

Duffy, M. K., Lee, K., & Adair, E. A. (2021). Workplace Envy. *Annual Review of Organizational Psychology and Organizational Behavior*, *8*(1), 19–44. https://doi.org/10.1146/annurev-orgpsych-012420-055746

Duffy, M. K., Scott, K. L., Shaw, J. D., Tepper, B. J., & Aquino, K. (2012). A Social Context Model of Envy and Social Undermining. *Academy of Management Journal*, *55*(3), 643–666. https://doi.org/10.5465/amj.2009.0804

Eid, M., Gollwitzer, M., & Schmitt, M. (2017). *Statistik und Forschungsmethoden: Lehrbuch. Mit Online-Material* (Originalausgabe, 5., korrigierte Aufl.). Beltz. http://nbn-resolving.org/urn:nbn:de:bsz:31-epflicht-1119447

Eisinga, R., Grotenhuis, M. t., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, *58*(4), 637–642. https://doi.org/10.1007/s00038-012-0416-3

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The Benefits of Facebook “Friends:” Social Capital and College Students’ Use of Online Social Network Sites. *Journal of Computer-Mediated Communication*, *12*(4), 1143–1168. https://doi.org/10.1111/j.1083-6101.2007.00367.x

ESOMAR. (2022). *Gender: Best practice recommendations for multi-country work.* (Demographic Series 2022). https://esomar.org/codes-and-guidelines/best-practice-recommendations-for-measuring-international-demographics/demographic-best-practice-recommendation-gender

Farahani, H. A., Kazemi, Z., Aghamohamadi, S., Bakhtiarvand, F., & Ansari, M. (2011). Examining mental health indices in students using Facebook in Iran. *Procedia - Social and Behavioral Sciences*, *28*, 811–814. https://doi.org/10.1016/j.sbspro.2011.11.148

Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015). Social comparisons on social media: The impact of Facebook on young women's body image concerns and mood. *Body Image*, *13*, 38–45. https://doi.org/10.1016/j.bodyim.2014.12.002

Feinstein, B. A., Hershenberg, R., Bhatia, V., Latack, J. A., Meuwly, N., & Davila, J. (2013). Negative social comparison on Facebook and depressive symptoms: Rumination as a mechanism. *Psychology of Popular Media Culture*, *2*(3), 161–170. https://doi.org/10.1037/a0033111

Festinger, L. (1954). A Theory of Social Comparison Processes. *Human Relations*, *7*(2), 117–140. https://doi.org/10.1177/001872675400700202

Florenthal, B. (2015). Applying uses and gratifications theory to students' LinkedIn usage. *Young Consumers*, *16*(1), 17–35. https://doi.org/10.1108/YC-12-2013-00416

Frison, E., & Eggermont, S. (2015). Toward an Integrated and Differential Approach to the Relationships Between Loneliness, Different Types of Facebook Use, and Adolescents' Depressed Mood. *Communication Research*, *47*(5), 701–728. https://doi.org/10.1177/0093650215617506

Frison, E., & Eggermont, S. (2016). Exploring the Relationships Between Different Types of Facebook Use, Perceived Online Social Support, and Adolescents' Depressed Mood. *Social Science Computer Review*, *34*(2), 153–171. https://doi.org/10.1177/0894439314567449

Fromm, S. (2012). *Datenanalyse mit SPSS für Fortgeschrittene 2: Multivariate Verfahren für Querschnittsdaten*. VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-18794-5

Gao, W., Wei, J., Li, Y., Wang, D., & Fang, L. (2023). Motivations for social network site use and users' well-being: mediation of perceived social support, positive self-presentation and honest self-presentation. *Aslib Journal of Information Management*, *75*(1), 171–191. https://doi.org/10.1108/AJIM-08-2021-0224

Gerber, J. P., Wheeler, L., & Suls, J. (2018). A social comparison theory meta-analysis 60+ years on. *Psychological Bulletin*, *144*(2), 177–197. https://doi.org/10.1037/bul0000127

Gerson, J., Plagnol, A. C., & Corr, P. J. (2016). Subjective well-being and social media use: Do personality traits moderate the impact of social comparison on Facebook? *Computers in Human Behavior*, *63*, 813–822. https://doi.org/10.1016/j.chb.2016.06.023

Gerson, J., Plagnol, A. C., & Corr, P. J. (2017). Passive and Active Facebook Use Measure (PAUM): Validation and relationship to the Reinforcement Sensitivity Theory. *Personality and Individual Differences*, *117*, 81–90. https://doi.org/10.1016/j.paid.2017.05.034

Gibbons, F. X [F. X.], & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology*, *76*(1), 129–142. https://doi.org/10.1037/0022-3514.76.1.129

Granovetter, M. S. (1973). The Strength of Weak Ties. *American Journal of Sociology*, *78*(6), 1360–1380. https://doi.org/10.1086/225469

Griffioen, N., van Rooij, M., Lichtwarck-Aschoff, A., & Granic, I. (2020). Toward improved methods in social media research. *Technology, Mind, and Behavior*, *1*(1). https://doi.org/10.1037/tmb0000005

Grissa, K. (2017). How the 'uses and gratifications' theory explains the usage of professional networking sites: comparison between individual members and companies members. In *2017 International Conference On Social Media, Wearable And Web Analytics (Social Media)* (pp. 1–8). IEEE. https://doi.org/10.1109/SOCIALMEDIA.2017.8057359

große Deters, F., & Mehl, M. R. (2012). Does Posting Facebook Status Updates Increase or Decrease Loneliness? An Online Social Networking Experiment. *Social Psychological and Personality Science*, *4*(5). https://doi.org/10.1177/1948550612469233

Guillory, J., & Hancock, J. T. (2012). The effect of Linkedin on deception in resumes. *Cyberpsychology, Behavior and Social Networking*, *15*(3), 135–140. https://doi.org/10.1089/cyber.2011.0389

Ha, Y. W., Kim, J., Libaque-Saenz, C. F., Chang, Y., & Park, M.-C. (2015). Use and gratifications of mobile SNSs: Facebook and KakaoTalk in Korea. *Telematics and Informatics*, *32*(3), 425–438. https://doi.org/10.1016/j.tele.2014.10.006

Haferkamp, N., & Krämer, N. C. (2011). Social comparison 2.0: Examining the effects of online profiles on social-networking sites. *Cyberpsychology, Behavior and Social Networking*, *14*(5), 309–314. https://doi.org/10.1089/cyber.2010.0120

Hancock, J., Liu, S. X., Luo, M., & Mieczkowski, H. (2022). Psychological Well-Being and Social Media Use: A Meta-Analysis of Associations between Social Media Use and Depression, Anxiety, Loneliness, Eudaimonic, Hedonic and Social Well-Being. *SSRN Electronic Journal.* Advance online publication. https://doi.org/10.2139/ssrn.4053961

Hanley, S. M., Watt, S. E., & Coventry, W. (2019). Taking a break: The effect of taking a vacation from Facebook and Instagram on subjective well-being. *PloS One*, *14*(6), e0217743. https://doi.org/10.1371/journal.pone.0217743

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. *Methodology in the social sciences*. Guilford Press.

Hepper, E. G., Gramzow, R. H., & Sedikides, C. (2010). Individual differences in self-enhancement and self-protection strategies: An integrative analysis. *Journal of Personality*, *78*(2), 781–814. https://doi.org/10.1111/j.1467-6494.2010.00633.x

James, T. L., Lowry, P. B., Wallace, L., & Warkentin, M. (2017). The Effect of Belongingness on Obsessive-Compulsive Disorder in the Use of Online Social Networks. *Journal of Management Information Systems*, *34*(2), 560–596. https://doi.org/10.1080/07421222.2017.1334496

Jang, K., Park, N [Namkee], & Song, H. (2016). Social comparison on Facebook: Its antecedents and psychological outcomes. *Computers in Human Behavior*, *62*, 147–154. https://doi.org/10.1016/j.chb.2016.03.082

Janke, S., & Glöckner-Rist, A. (2012). *Deutsche Version der Satisfaction with Life Scale (SWLS).* https://doi.org/10.6102/zis147

Jarman, H. K., McLean, S. A., Paxton, S. J., Sibley, C. G., & Marques, M. D. (2022). Examination of the temporal sequence between social media use and well-being in a representative sample of adults. *Social Psychiatry and Psychiatric Epidemiology.* Advance online publication. https://doi.org/10.1007/s00127-022-02363-2

Joglekar, J., & Tan, C. S. (2022). The impact of LinkedIn posts on employer brand perception and the mediating effects of employer attractiveness and corporate reputation. *Journal of Advances in Management Research*, *19*(4), 624–650. https://doi.org/10.1108/JAMR-10-2021-0343

Johnson, B. (2021). Special Issue of Communication Technology and Well-Being (Part 1). *Journal of Communication Technology*, *4*(1). https://doi.org/10.51548/joctec-2021-003

Johnston, K., Tanner, M., Lalla, N., & Kawalski, D. (2013). Social capital: the benefit of Facebook 'friends'. *Behaviour & Information Technology*, *32*(1), 24–36. https://doi.org/10.1080/0144929X.2010.550063

Jones, J. R., Colditz, J. B., Shensa, A., Sidani, J. E., Lin, L. Y., Terry, M. A., & Primack, B. A. (2016). Associations Between Internet-Based Professional Social Networking and Emotional Distress. *Cyberpsychology, Behavior and Social Networking*, *19*(10), 601–608. https://doi.org/10.1089/cyber.2016.0134

Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark Iv. *Educational and Psychological Measurement*, *34*(1), 111–117. https://doi.org/10.1177/001316447403400115

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, *53*(1), 59–68. https://doi.org/10.1016/j.bushor.2009.09.003

Kelley, T. L. (1927). *Interpretation of educational measurements*. World Book Company.

Kim, W., & Malek, K. (2017). Social networking sites versus professional networking sites: Perceptions of hospitality students. *Journal of Human Resources in Hospitality & Tourism*, *17*(2), 200–221. https://doi.org/10.1080/15332845.2017.1340763

Kjell, O. N. E., & Diener, E. (2021). Abbreviated Three-Item Versions of the Satisfaction with Life Scale and the Harmony in Life Scale Yield as Strong Psychometric Properties as the Original Scales. *Journal of Personality Assessment*, *103*(2), 183–194. https://doi.org/10.1080/00223891.2020.1737093

Kocak, E., Nasir, V. A., & Turker, H. B. (2020). What drives Instagram usage? User motives and personality traits. *Online Information Review*, *44*(3), 625–643. https://doi.org/10.1108/OIR-08-2019-0260

Koroleva, K., Krasnova, H., Veltri, N. F., & Günther, O. (2011). It's all about networking! Empirical investigation of social capital formation on social network sites. In *32nd International Conference on Information Systems (ICIS 2011).* https://doi.org/10.7892/boris.47120

Krasnova, H., Wenninger, H., Widjaja, T., & Buxmann, P. (2013). Envy on Facebook: a hidden threat to users' life satisfaction? *Wirtschaftsinformatik Proceedings*(92).

Krasnova, H., Widjaja, T., Buxmann, P., Wenninger, H., & Benbasat, I. (2015a). Research Note – Why Following Friends Can Hurt You: An Exploratory Investigation of the Effects of Envy on Social Networking Sites among College-

Age Users: [Online Supplement]. *Information Systems Research*(3), 585–605. https://pubsonline.informs.org/doi/suppl/10.1287/isre.2015.0588/suppl_file/isre.2015.0588-sm-appendix.pdf

Krasnova, H., Widjaja, T., Buxmann, P., Wenninger, H., & Benbasat, I. (2015b). Research Note—Why Following Friends Can Hurt You: An Exploratory Investigation of the Effects of Envy on Social Networking Sites among College-Age Users. *Information Systems Research*, *26*(3), 585–605. https://doi.org/10.1287/isre.2015.0588

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet Paradox Revisited. *Journal of Social Issues*, *58*(1), 49–74. https://doi.org/10.1111/1540-4560.00248

Krebs, D., & Menold, N. (2019). Gütekriterien quantitativer Sozialforschung. In N. Baur & J. Blasius (Eds.), *Handbuch Methoden der empirischen Sozialforschung* (pp. 489–504). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-21308-4_34

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N [Natalie], Shablack, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PloS One*, *8*(8), e69841. https://doi.org/10.1371/journal.pone.0069841

Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social Media and Well-Being: Pitfalls, Progress, and Next Steps. *Trends in Cognitive Sciences*, *25*(1), 55–66. https://doi.org/10.1016/j.tics.2020.10.005

Lee, G., Lee, J., & Kwon, S. (2011). Use of social-networking sites and subjective well-being: A study in South Korea. *Cyberpsychology, Behavior and Social Networking*, *14*(3), 151–155. https://doi.org/10.1089/cyber.2009.0382

Lee, J. K. (2022). The effects of social comparison orientation on psychological well-being in social networking sites: Serial mediation of perceived social support and self-esteem. *Current Psychology*, *41*(9), 6247–6259. https://doi.org/10.1007/s12144-020-01114-3

Lee, S. Y. (2014). How do people compare themselves with others on social network sites? The case of Facebook. *Computers in Human Behavior*, *32*, 253–260. https://doi.org/10.1016/j.chb.2013.12.009

Lin, L. Y., Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., Hoffman, B. L., Giles, L. M., & Primack, B. A. (2016). Association between social media use and depression among U.S. Young adults. *Depression and Anxiety*, *33*(4), 323–331. https://doi.org/10.1002/da.22466

Lin, N [Nan]. (2008). A network theory of social capital. In D. Castiglione, J. van Deth, & G. Wolleb (Eds.), *The handbook of social capital* (pp. 50–69). Oxford University Press.

Lin, S., Liu, D., Liu, W., Hui, Q., Cortina, K. S., & You, X. (2021). Mediating effects of self-concept clarity on the relationship between passive social network sites use and subjective well-being. *Current Psychology*, *40*(3), 1348–1355. https://doi.org/10.1007/s12144-018-0066-6

Lin, S., Liu, D., Niu, G., & Longobardi, C. (2022). Active Social Network Sites Use and Loneliness: the Mediating Role of Social Support and Self-Esteem. *Current Psychology*, *41*(3), 1279–1286. https://doi.org/10.1007/s12144-020-00658-8

LinkedIn. (n. d.). *About LinkedIn*. Retrieved May 7, 2023, from https://about.linkedin.com/

LinkedIn Learning. (n. d.). *Product Overview | LinkedIn Learning Solutions*. Retrieved August 25, 2023, from https://learning.linkedin.com/product-overview

LinkedIn Premium. (n. d.). *You've got the advantage: Discover new opportunities with Premium.* Retrieved May 7, 2023, from https://premium.linkedin.com/pm#premium-career

LinkedIn Pressroom. (n. d.). *About Us.: Statistics. Q4*. Retrieved August 5, 2023, from https://news.linkedin.com/about-us#Statistics

LinkedIn Pressroom. (2023). *LinkedIn Business Highlights from Microsoft's FY23 Q3 Earnings*. https://news.linkedin.com/2023/april/linkedin-business-highlights-from-microsoft-s-fy23-q3-earnings

Liu, Q., Niu, G., Fan, C., & Zhou, Z. (2017). Passive use of social network site and its relationships with self-esteem and self-concept clarity: A moderated mediation analysis. *Acta Psychologica Sinica*, *49*(1), 60–71. https://doi.org/10.3724/SP.J.1041.2017.00060

Liu, Y., Ni, X., & Niu, G. (2020). The influence of active social networking services use and social capital on flourishing in Chinese adolescents. *Children and Youth Services Review*, *119*, 105689. https://doi.org/10.1016/j.childyouth.2020.105689

Long, J. S., & Ervin, L. H. (2000). Using Heteroscedasticity Consistent Standard Errors in the Linear Regression Model. *The American Statistician*, *54*(3), 217. https://doi.org/10.2307/2685594

Lou, L. L., Yan, Z., Nickerson, A., & McMorris, R. (2012). An Examination of the Reciprocal Relationship of Loneliness and Facebook Use among First-Year College Students. *Journal of Educational Computing Research*, *46*(1), 105–117. https://doi.org/10.2190/EC.46.1.e

Lup, K., Trub, L., & Rosenthal, L. (2015). Instagram #instasad? Exploring associations among instagram use, depressive symptoms, negative social comparison, and strangers followed. *Cyberpsychology, Behavior and Social Networking*, *18*(5), 247–252. https://doi.org/10.1089/cyber.2014.0560

Ma, S. Q., & Leung, L. (2019). The Impacts of Personality Traits, Use Intensity and Features Use of LinkedIn on Bridging Social Capital. *Applied Research in Quality of Life*, *14*(4), 1059–1078. https://doi.org/10.1007/s11482-018-9635-y

Masur, P. K., Veldhuis, J., & Vaate, N. B. de. (2022). There Is No Easy Answer. In D. Rosen (Ed.), *The Social Media Debate* (pp. 187–202). Routledge. https://doi.org/10.4324/9781003171270-12

Meier, A., & Johnson, B. K. (2022). Social comparison and envy on social media: A critical review. *Current Opinion in Psychology*, *45*, 101302. https://doi.org/10.1016/j.copsyc.2022.101302

Meier, A., & Krause, H.-V. (2022). Does Passive Social Media Use Harm Well-Being? *Journal of Media Psychology*, Article 1864-1105/a000358. Advance online publication. https://doi.org/10.1027/1864-1105/a000358

Meier, A., & Schäfer, S. (2018). Positive Side of Social Comparison on Social Network Sites: How Envy Can Drive Inspiration on Instagram. *Cyberpsychology, Behavior and Social Networking*, *21*(7), 411–417. https://doi.org/10.1089/cyber.2017.0708

Mogaji, E. (2019). Student Engagement with LinkedIn to Enhance Employability. In A. Diver (Ed.), *Employability via Higher Education: Sustainability as Scholarship* (pp. 321–329). Springer International Publishing. https://doi.org/10.1007/978-3-030-26342-3_21

Mojdeh, S., Head, M., & El Shamy, N. (2018). Knowledge Sharing in Social Networking Sites: How Context Impacts Individuals' Social and Intrinsic Motivation to Contribute in Online Communities. *AIS Transactions on Human-Computer Interaction*, 82–104. https://doi.org/10.17705/1thci.00105

Moreno, M. A., Jelenchick, L., Koff, R., Eikoff, J., Diermyer, C., & Christakis, D. A. (2012). Internet use and multitasking among older adolescents: An experience sampling approach. *Computers in Human Behavior*, *28*(4), 1097–1102. https://doi.org/10.1016/j.chb.2012.01.016

Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review*, *110*(3), 472–489. https://doi.org/10.1037/0033-295X.110.3.472

Myers, D. G. (2014). *Psychologie*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-40782-6

Neuman, S. B. (1988). The Displacement Effect: Assessing the Relation between Television Viewing and Reading Performance. *Reading Research Quarterly*, *23*(4), 414. https://doi.org/10.2307/747641

Nikolopoulou, K. (2022, November 16). What Is Self-Selection Bias? | Definition & Example. *Scribbr*. https://www.scribbr.com/research-bias/self-selection-bias/

Orben, A. (2020). Teenagers, screens and social media: A narrative review of reviews and key studies. *Social Psychiatry and Psychiatric Epidemiology*, *55*(4), 407–414. https://doi.org/10.1007/s00127-019-01825-4

Orben, A., Dienlin, T., & Przybylski, A. K. (2019). Social media's enduring effect on adolescent life satisfaction. *Proceedings of the National Academy of Sciences of the United States of America*, *116*(21), 10226–10228. https://doi.org/10.1073/pnas.1902058116

Ozimek, P., & Bierhoff, H.-W. (2019). All my online-friends are better than me – three studies about ability-based comparative social media use, self-esteem, and depressive tendencies. *Behaviour & Information Technology*, *39*(10), 1110–1123. https://doi.org/10.1080/0144929X.2019.1642385

Pang, H. (2021). Unraveling the influence of passive and active WeChat interactions on upward social comparison and negative psychological consequences among university students. *Telematics and Informatics*, *57*, 101510. https://doi.org/10.1016/j.tele.2020.101510

Pantic, I., Damjanovic, A., Todorovic, J., Topalovic, D., Bojovic-Jovic, D., Ristic, S., & Pantic, S. (2012). Association between online social networking and depression in high school students: Behavioral physiology viewpoint. *Psychiatria Danubina*, *24*(1), 90–93. https://hrcak.srce.hr/file/156425

Papacharissi, Z. (2009). The virtual geographies of social networks: a comparative analysis of Facebook, LinkedIn and ASmallWorld. *New Media & Society*, *11*(1-2), 199–220. https://doi.org/10.1177/1461444808099577

Park, S. Y., & Baek, Y. M. (2017). Two faces of social comparison on Facebook: The interplay between social comparison orientation, emotions, and psychological well-being. *Computers in Human Behavior*, *79*, 83–93. https://doi.org/10.1016/j.chb.2017.10.028

Pena, L., Curado, C., & Oliveira, M. (2022). The contribution of LinkedIn use to career outcome expectations. *Journal of Business Research*, *144*, 788–796. https://doi.org/10.1016/j.jbusres.2021.09.047

Peter, C. (2016). *Fernsehen als Zerrspiegel*. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-12886-9

Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, *62*, 155–167. https://doi.org/10.1016/j.chb.2016.03.084

Power, A. (2015). LinkedIn: Facebook for professionals? *British Journal of Midwifery*, *23*(3), 196–198. https://doi.org/10.12968/bjom.2015.23.3.196

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Przybylski, A. K., Nguyen, T. T., Law, W., & Weinstein, N. (2021). Does Taking a Short Break from Social Media Have a Positive Effect on Well-being? Evidence from Three Preregistered Field Experiments. *Journal of Technology in Behavioral Science*, *6*(3), 507–514. https://doi.org/10.1007/s41347-020-00189-w

Przybylski, A. K., & Weinstein, N. (2017). A Large-Scale Test of the Goldilocks Hypothesis. *Psychological Science*, *28*(2), 204–215. https://doi.org/10.1177/0956797616678438

Raab, G. (2010). *Marktpsychologie: Grundlagen und Anwendung* (3., überarbeitete Auflage). *Springer eBook Collection Business and Economics*. Gabler. https://doi.org/10.1007/978-3-8349-6314-7

Rahm, T., Heise, E., & Schuldt, M. (2017). Measuring the frequency of emotions-validation of the Scale of Positive and Negative Experience (SPANE) in Germany. *PloS One*, *12*(2), e0171288. https://doi.org/10.1371/journal.pone.0171288

Rains, S. A., & Brunner, S. R. (2015). What can we learn about social network sites by studying Facebook? A call and recommendations for research on social network sites. *New Media & Society*, *17*(1), 114–131. https://doi.org/10.1177/1461444814546481

Regorz, A. (2018). *Mediatoranalyse bei multipler Regression - Teil 2: Bootstrapping mit PROCESS*. http://www.regorz-statistik.de/inhalte/tutorial_mediator_bootstrapping_process.html

Reimann, L.-E., Ozimek, P., Rohmann, E., & Bierhoff, H.-W. (2021). Post more! The mediating role of social capital between Instagram use and satisfaction with life. *Current Psychology*, 1–15. https://doi.org/10.1007/s12144-021-02579-6

Röll, F. J. (2010). Social Network Sites. In K.-U. Hugger (Ed.), *Digitale Jugendkulturen* (1st ed.). VS Verl. für Sozialwiss.

Ruparel, N., Bhardwaj, S., Seth, H., & Choubisa, R. (2023). Systematic literature review of professional social media platforms: Development of a behavior

adoption career development framework. *Journal of Business Research*, *156*, 113482. https://doi.org/10.1016/j.jbusres.2022.113482

Ryff, C. D., Boylan, J. M., & Kirsch, J. A. (2021). Eudaimonic and Hedonic Well-Being. In M. T. Lee, L. D. Kubzansky, & T. J. VanderWeele (Eds.), *Measuring Well-Being* (92-C4.P285). Oxford University PressNew York. https://doi.org/10.1093/oso/9780197512531.003.0005

Saegert, S., & Carpiano, R. M. (2017). Social support and social capital: A theoretical synthesis using community psychology and community sociology approaches. In M. A. Bond, I. Serrano-García, C. B. Keys, & M. Shinn (Eds.), *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges* (pp. 295–314). American Psychological Association. https://doi.org/10.1037/14953-014

Sagioglou, C., & Greitemeyer, T. (2014). Facebook's emotional consequences: Why Facebook causes a decrease in mood and why people still use it. *Computers in Human Behavior*, *35*, 359–363. https://doi.org/10.1016/j.chb.2014.03.003

Shankleman, M., Hammond, L., & Jones, F. W. (2021). Adolescent Social Media Use and Well-Being: A Systematic Review and Thematic Meta-synthesis. *Adolescent Research Review*, *6*(4), 471–492. https://doi.org/10.1007/s40894-021-00154-5

Shaw, A. M., Timpano, K. R., Tran, T. B., & Joormann, J. (2015). Correlates of Facebook usage patterns: The relationship between passive Facebook use, social anxiety symptoms, and brooding. *Computers in Human Behavior*, *48*, 575–580. https://doi.org/10.1016/j.chb.2015.02.003

Sheldon, P., Antony, M. G., & Ware, L. J. (2021). Baby Boomers' use of Facebook and Instagram: Uses and gratifications theory and contextual age indicators. *Heliyon*, *7*(4), e06670. https://doi.org/10.1016/j.heliyon.2021.e06670

Sievers, K., Wodzicki, K., Aberle, I., Keckeisen, M., & Cress, U. (2015). Self-presentation in professional networks: More than just window dressing. *Computers in Human Behavior*, *50*, 25–30. https://doi.org/10.1016/j.chb.2015.03.046

Slone, A. R., & Gaffney, A. L. H. (2016). Assessing students' use of LinkedIn in a business and professional communication course. *Communication Teacher*, *30*(4), 206–214. https://doi.org/10.1080/17404622.2016.1219043

Smith, R. H. (2000). Assimilative and Contrastive Emotional Reactions to Upward and Downward Social Comparisons. In J. Suls & L. Wheeler (Eds.), *Handbook of Social Comparison* (pp. 173–200). Springer US. https://doi.org/10.1007/978-1-4615-4237-7_10

Smith, R. H., & Kim, S. H. (2007). Comprehending envy. *Psychological Bulletin*, *133*(1), 46–64. https://doi.org/10.1037/0033-2909.133.1.46

Smith, R. H., Parrott, W. G., Diener, E. F., Hoyle, R. H., & Kim, S. H. (1999). Dispositional Envy. *Personality and Social Psychology Bulletin*, *25*(8), 1007–1020. https://doi.org/10.1177/01461672992511008

Smith, S. A., & Watkins, B. (2023). Millennials' Uses and Gratifications on LinkedIn: Implications for Recruitment and Retention. *International Journal of Business Communication*, *60*(2), 560–586. https://doi.org/10.1177/2329488420973714

Smock, A. D., Ellison, N. B., Lampe, C., & Wohn, D. Y. (2011). Facebook as a toolkit: A uses and gratification approach to unbundling feature use. *Computers in Human Behavior*, *27*(6), 2322–2329. https://doi.org/10.1016/j.chb.2011.07.011

Statistische Ämter des Bundes und der Länder. (n. d.). *Drittes Geschlecht: Informationen zum Umgang mit dem Dritten Geschlecht in der amtlichen Statistik*. Retrieved June 4, 2023, from https://www.statistikportal.de/de/methoden/drittes-geschlecht

Steers, M.-L. N., Wickham, R. E., & Acitelli, L. K. (2014). Seeing Everyone Else's Highlight Reels: How Facebook Usage is Linked to Depressive Symptoms. *Journal of Social and Clinical Psychology*, *33*(8), 701–731. https://doi.org/10.1521/jscp.2014.33.8.701

Stoycheff, E., Liu, J., Wibowo, K. A., & Nanni, D. P. (2017). What have we learned about social media by studying Facebook? A decade in review. *New Media & Society*, *19*(6), 968–980. https://doi.org/10.1177/1461444817695745

Streiner, D. L. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, *80*(1), 99–103. https://doi.org/10.1207/S15327752JPA8001_18

Su, R., Tay, L., & Diener, E. (2014). The Development and Validation of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology: Health and Well-Being*, *6*(3), 251–279. https://doi.org/10.1111/aphw.12027

Szreter, S., & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, *33*(4), 650–667. https://doi.org/10.1093/ije/dyh013

Tai, K., Narayanan, J., & McAllister, D. J. (2012). Envy As Pain: Rethinking the Nature of Envy and Its Implications for Employees and Organizations. *Academy of Management Review*, *37*(1), 107–129. https://doi.org/10.5465/amr.2009.0484

Tandoc, E. C., Ferrucci, P., & Duffy, M. (2015). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior*, *43*, 139–146. https://doi.org/10.1016/j.chb.2014.10.053

Tandoc, E. C., & Goh, Z. H. (2023). Is Facebooking really depressing? Revisiting the relationships among social media use, envy, and depression. *Information, Communication & Society*, *26*(3), 551–567. https://doi.org/10.1080/1369118X.2021.1954975

Thorndike, E. L. (1904). *Theory of mental and social measurements*. The Science Press. https://doi.org/10.1037/13283-000

Tifferet, S., & Vilnai-Yavetz, I. (2018). Self-presentation in LinkedIn portraits: Common features, gender, and occupational differences. *Computers in Human Behavior*, *80*, 33–48. https://doi.org/10.1016/j.chb.2017.10.013

Tobback, E. (2019). Telling the world how skilful you are: Self-praise strategies on LinkedIn. *Discourse & Communication*, *13*(6), 647–668. https://doi.org/10.1177/1750481319868854

Trepte, S., & Scharkow, M. (2016). FRIENDS AND LIFESAVERS: How Social Capital and Social Support Received in Media Environments Contribute to Well-Being. In L. Reinecke & M. B. Oliver (Eds.), *The Routledge Handbook of Media Use and Well-Being* (pp. 304–316). Routledge. https://doi.org/10.4324/9781315714752.ch23

Tromholt, M. (2016). The Facebook Experiment: Quitting Facebook Leads to Higher Levels of Well-Being. *Cyberpsychology, Behavior and Social Networking*, *19*(11), 661–666. https://doi.org/10.1089/cyber.2016.0259

Utz, S. (2015). Is LinkedIn making you more successful? The informational benefits derived from public social media. *New Media & Society*, *18*(11), 2685–2702. https://doi.org/10.1177/1461444815604143

Utz, S., & Breuer, J. (2019). The Relationship Between Networking, LinkedIn Use, and Retrieving Informational Benefits. *Cyberpsychology, Behavior and Social Networking*, *22*(3), 180–185. https://doi.org/10.1089/cyber.2018.0294

Vahedi, Z., & Zannella, L. (2021). The association between self-reported depressive symptoms and the use of social networking sites (SNS): A meta-analysis. *Current Psychology*, *40*(5), 2174–2189. https://doi.org/10.1007/s12144-019-0150-6

Valenzuela, S., Park, N [Namsu], & Kee, K. F. (2009). Is There Social Capital in a Social Network Site? Facebook Use and College Students' Life Satisfaction, Trust, and Participation. *Journal of Computer-Mediated Communication*, *14*(4), 875–901. https://doi.org/10.1111/j.1083-6101.2009.01474.x

Valkenburg, P. M. (2022). Social media use and well-being: What we know and what we need to know. *Current Opinion in Psychology*, *45*, 101294. https://doi.org/10.1016/j.copsyc.2021.12.006

Valkenburg, P. M., Beyens, I., Meier, A., & Vanden Abeele, M. M. P. (2022). Advancing our understanding of the associations between social media use and well-being. *Current Opinion in Psychology*, *47*, 101357. https://doi.org/10.1016/j.copsyc.2022.101357

Valkenburg, P. M., Beyens, I., Pouwels, J. L., van Driel, I. I., & Keijsers, L. (2021). Social Media Browsing and Adolescent Well-Being: Challenging the “Passive Social Media Use Hypothesis”. *Journal of Computer-Mediated Communication*, Article zmab015. Advance online publication. https://doi.org/10.1093/jcmc/zmab015

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 : The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, *9*(5), 584–590. https://doi.org/10.1089/cpb.2006.9.584

Valkenburg, P. M., van Driel, I. I., & Beyens, I. (2022). The associations of active and passive social media use with well-being: A critical scoping review. *New Media & Society*, *24*(2), 530–549. https://doi.org/10.1177/14614448211065425

van de Ven, N., Zeelenberg, M., & Pieters, R. (2012). Appraisal patterns of envy and related emotions. *Motivation and Emotion*, *36*(2), 195–204. https://doi.org/10.1007/s11031-011-9235-8

van Dijck, J. (2013). ‘You have one identity’: performing the self on Facebook and LinkedIn. *Media, Culture & Society*, *35*(2), 199–215. https://doi.org/10.1177/0163443712468605

Vecchio, R. P. (2000). Negative Emotion in the Workplace: Employee Jealousy and Envy. *International Journal of Stress Management*, *7*(3), 161–179. https://doi.org/10.1023/A:1009592430712

Verduyn, P., Gugushvili, N., & Kross, E. (2021). The impact of social network sites on mental health: Distinguishing active from passive use. *World Psychiatry : Official Journal of the World Psychiatric Association (WPA)*, *20*(1), 133–134. https://doi.org/10.1002/wps.20820

Verduyn, P., Gugushvili, N., & Kross, E. (2022). Do Social Networking Sites Influence Well-Being? The Extended Active-Passive Model. *Current Directions in Psychological Science*, *31*(1), 62–68. https://doi.org/10.1177/09637214211053637

Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology*, *36*, 32–37. https://doi.org/10.1016/j.copsyc.2020.04.002

Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J., Ybarra, O., Jonides, J., & Kross, E. (2015). Passive Facebook usage undermines affective well-being: Experimental and longitudinal evidence. *Journal of Experimental Psychology. General*, *144*(2), 480–488. https://doi.org/10.1037/xge0000057

Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do Social Network Sites Enhance or Undermine Subjective Well-Being? A Critical Review. *Social Issues and Policy Review*, *11*(1), 274–302. https://doi.org/10.1111/sipr.12033

Vogel, E. A., Rose, J. P., Okdie, B. M., Eckles, K., & Franz, B. (2015). Who compares and despairs? The effect of social comparison orientation on social media use and its outcomes. *Personality and Individual Differences*, *86*, 249–256. https://doi.org/10.1016/j.paid.2015.06.026

Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, *3*(4), 206–222. https://doi.org/10.1037/ppm0000047

Vries, D. A. de, & Kühne, R. (2015). Facebook and self-perception: Individual susceptibility to negative social comparison on Facebook. *Personality and Individual Differences*, *86*, 217–221. https://doi.org/10.1016/j.paid.2015.05.029

Vries, D. A. de, Möller, A. M., Wieringa, M. S., Eigenraam, A. W., & Hamelink, K. (2018). Social Comparison as the Thief of Joy: Emotional Consequences of Viewing Strangers' Instagram Posts. *Media Psychology*, *21*(2), 222–245. https://doi.org/10.1080/15213269.2016.1267647

Wang, J.-L., Wang, H.-Z., Gaskin, J., & Hawk, S. (2017). The Mediating Roles of Upward Social Comparison and Self-esteem and the Moderating Role of Social Comparison Orientation in the Association between Social Networking Site Usage and Subjective Well-Being. *Frontiers in Psychology*, *8*, 771. https://doi.org/10.3389/fpsyg.2017.00771

Warner, M., & Wang, V. (2019). Self-censorship in social networking sites (SNSs) – privacy concerns, privacy awareness, perceived vulnerability and information management. *Journal of Information, Communication and Ethics in Society*, *17*(4), 375–394. https://doi.org/10.1108/JICES-07-2018-0060

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of*

Personality and Social Psychology, *54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Weiber, R., & Mühlhaus, D. (2014). Güteprüfung reflektiver Messmodelle. In R. Weiber & D. Mühlhaus (Eds.), *Springer-Lehrbuch. Strukturgleichungsmodellierung* (pp. 127–172). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-35012-2_7

Weidner, N., O'Brien, K. E., & Wynne, K. T. (2016). Social Media Use: Antecedents and Outcomes of Sharing. In R. N. Landers & G. B. Schmidt (Eds.), *Social Media in Employee Selection and Recruitment* (pp. 79–101). Springer International Publishing. https://doi.org/10.1007/978-3-319-29989-1_5

Wenninger, H., Cheung, C. M [Christy M.K.], & Chmielinski, M. (2021). Understanding envy and users' responses to envy in the context of social networking sites: A literature review. *International Journal of Information Management*, *58*, 102303. https://doi.org/10.1016/j.ijinfomgt.2020.102303

Wenninger, H., Krasnova, H., & Buxmann, P. (2014). Activity Matters: Investigating the Influence of Facebook on Life Satisfaction of Teenage Users. In ECIS 2014 Proceedings (Chair), *22nd European Conference on Information Systems*.

Wenninger, H., Krasnova, H., & Buxmann, P. (2019). Understanding the role of social networking sites in the subjective well-being of users: a diary study. *European Journal of Information Systems*, *28*(2), 126–148. https://doi.org/10.1080/0960085X.2018.1496883

Wiese, C. W., Tay, L., Su, R., & Diener, E. (2018). Measuring Thriving across Nations: Examining the Measurement Equivalence of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology. Health and Well-Being*, *10*(1), 127–148. https://doi.org/10.1111/aphw.12119

Williams, D. (2006). On and Off the 'Net: Scales for Social Capital in an Online Era. *Journal of Computer-Mediated Communication*, *11*(2), 593–628. https://doi.org/10.1111/j.1083-6101.2006.00029.x

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin*, *90*(2), 245–271. https://doi.org/10.1037/0033-2909.90.2.245

Wood, J. V. (1996). What is Social Comparison and How Should We Study it? *Personality and Social Psychology Bulletin*, *22*(5), 520–537. https://doi.org/10.1177/0146167296225009

Yang, C.-C. (2016). Instagram Use, Loneliness, and Social Comparison Orientation: Interact and Browse on Social Media, But Don't Compare. *Cyberpsychology,*

Behavior and Social Networking, *19*(12), 703–708. https://doi.org/10.1089/cyber.2016.0201

Yang, F.-R., Wei, C.-F., & Tang, J.-H. (2019). Effect of Facebook Social Comparison on Well-being: A Meta-Analysis. *Journal of Internet Technology*, *20*(6), 1829–1836. https://doi.org/10.3966/160792642019102006013

Yin, X.-Q., Vries, D. A. de, Gentile, D. A., & Wang, J.-L. (2019). Cultural Background and Measurement of Usage Moderate the Association Between Social Networking Sites (SNSs) Usage and Mental Health: A Meta-Analysis. *Social Science Computer Review*, *37*(5), 631–648. https://doi.org/10.1177/0894439318784908

Yoon, S., Kleinman, M., Mertz, J., & Brannick, M. (2019). Is social network site usage related to depression? A meta-analysis of Facebook-depression relations. *Journal of Affective Disorders*, *248*, 65–72. https://doi.org/10.1016/j.jad.2019.01.026

Yue, Z., Zhang, R., & Xiao, J. (2022). Passive social media use and psychological well-being during the COVID-19 pandemic: The role of social comparison and emotion regulation. *Computers in Human Behavior*, *127*, 107050. https://doi.org/10.1016/j.chb.2021.107050

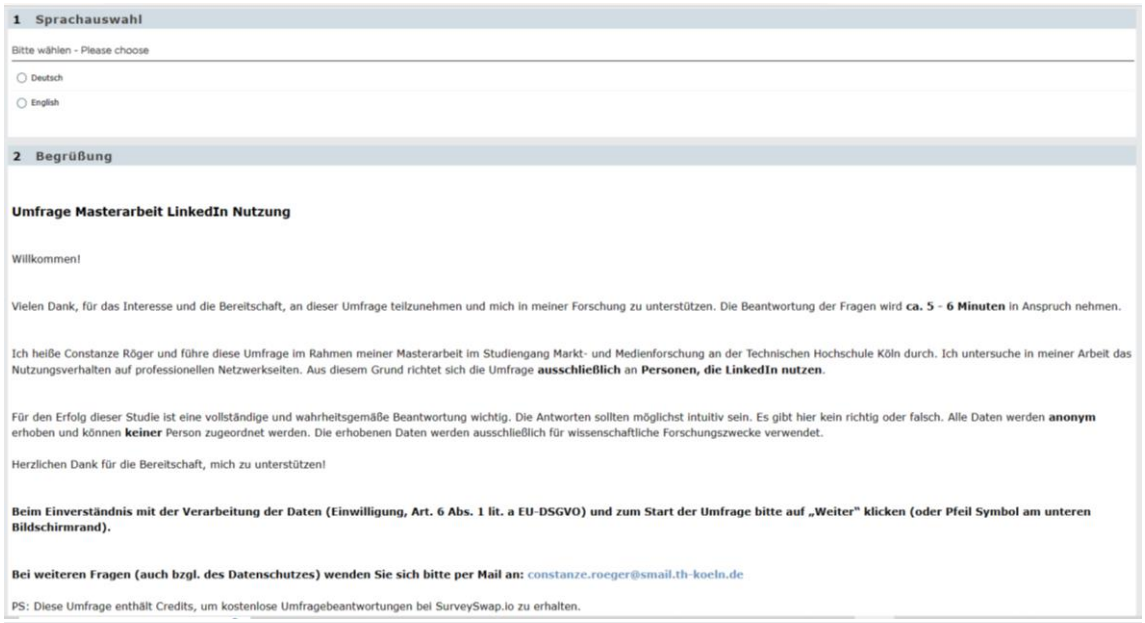
Zhang, Y., & Leung, L. (2015). A review of social networking service (SNS) research in communication journals from 2006 to 2011. *New Media & Society*, *17*(7), 1007–1024. https://doi.org/10.1177/1461444813520477

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal of Consumer Research*, *37*(2), 197–206. https://doi.org/10.1086/651257

Zide, J., Elman, B., & Shahani-Denning, C. (2014). LinkedIn and recruitment: how profiles differ across occupations. *Employee Relations*, *36*(5), 583–604. https://doi.org/10.1108/ER-07-2013-0086

Appendix

Appendix A Screenshots of the conducted survey – German version



1 Sprachauswahl

Bitte wählen - Please choose

- ○ Deutsch
- ○ English

2 Begrüßung

Umfrage Masterarbeit LinkedIn Nutzung

Willkommen!

Vielen Dank, für das Interesse und die Bereitschaft, an dieser Umfrage teilzunehmen und mich in meiner Forschung zu unterstützen. Die Beantwortung der Fragen wird **ca. 5 - 6 Minuten** in Anspruch nehmen.

Ich heiße Constanze Röger und führe diese Umfrage im Rahmen meiner Masterarbeit im Studiengang Markt- und Medienforschung an der Technischen Hochschule Köln durch. Ich untersuche in meiner Arbeit das Nutzungsverhalten auf professionellen Netzwerkseiten. Aus diesem Grund richtet sich die Umfrage **ausschließlich** an **Personen, die LinkedIn nutzen**.

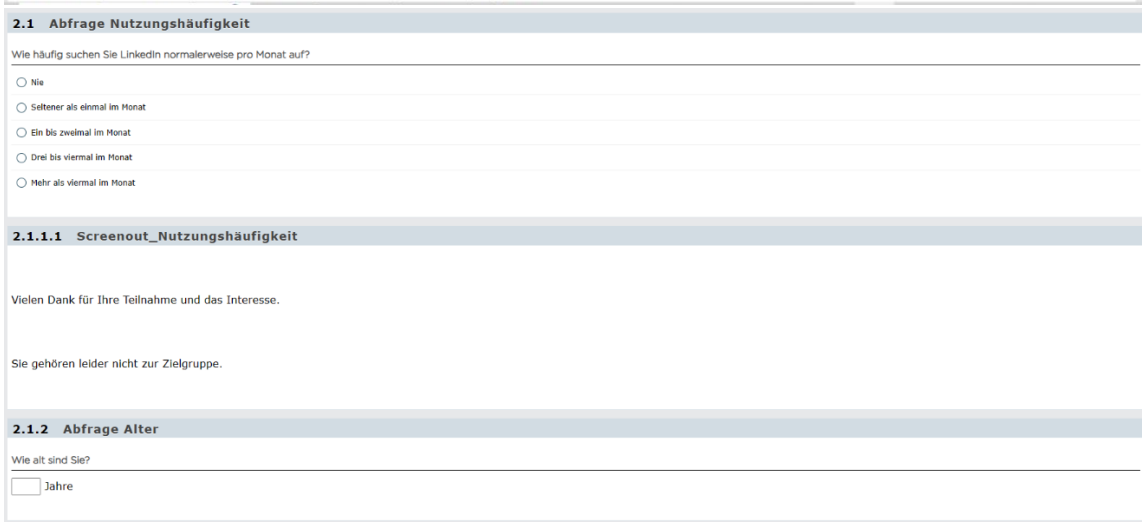
Für den Erfolg dieser Studie ist eine vollständige und wahrheitsgemäße Beantwortung wichtig. Die Antworten sollten möglichst intuitiv sein. Es gibt hier kein richtig oder falsch. Alle Daten werden **anonym** erhoben und können **keiner** Person zugeordnet werden. Die erhobenen Daten werden ausschließlich für wissenschaftliche Forschungszwecke verwendet.

Herzlichen Dank für die Bereitschaft, mich zu unterstützen!

Beim Einverständnis mit der Verarbeitung der Daten (Einwilligung, Art. 6 Abs. 1 lit. a EU-DSGVO) und zum Start der Umfrage bitte auf „Weiter" klicken (oder Pfeil Symbol am unteren Bildschirmrand).

Bei weiteren Fragen (auch bzgl. des Datenschutzes) wenden Sie sich bitte per Mail an: constanze.roeger@smail.th-koeln.de

PS: Diese Umfrage enthält Credits, um kostenlose Umfragebeantwortungen bei SurveySwap.io zu erhalten.



2.1 Abfrage Nutzungshäufigkeit

Wie häufig suchen Sie LinkedIn normalerweise pro Monat auf?

- ○ Nie
- ○ Seltener als einmal im Monat
- ○ Ein bis zweimal im Monat
- ○ Drei bis viermal im Monat
- ○ Mehr als viermal im Monat

2.1.1.1 Screenout_Nutzungshäufigkeit

Vielen Dank für Ihre Teilnahme und das Interesse.

Sie gehören leider nicht zur Zielgruppe.

2.1.2 Abfrage Alter

Wie alt sind Sie?

☐ Jahre

2.1.2.1.1 Screenout Alter

Vielen Dank für Ihre Teilnahme und das Interesse.

Sie gehören leider nicht zur Zielgruppe.

2.1.3 Geschlecht

Sind Sie...?

- ○ weiblich
- ○ männlich
- ○ divers
- ○ keine Angabe

2.1.4 Nutzungsart

Wie oft führen Sie die folgenden Aktivitäten bei der Nutzung von LinkedIn aus?

	1 - Nie	2	3	4	5 - (Fast) immer	Kann ich nicht beurteilen
Durch meinen Newsfeed scrollen.	○	○	○	○	○	○
Beiträge anderer Personen anschauen.	○	○	○	○	○	○
Bekannte per DM (Direkt-Nachrichtenfunktion) kontaktieren.	○	○	○	○	○	○
Die Beiträge von Freunden/Personen kommentieren.	○	○	○	○	○	○
Die Beiträge von Personen/Freunden liken.	○	○	○	○	○	○
Eigene Beiträge posten.	○	○	○	○	○	○
Auf Profile klicken, denen man nicht folgt und diese ansehen.	○	○	○	○	○	○

2.1.5 Subjektives Wohlbefinden_kognitiv

Geben Sie bitte an, inwieweit Sie den folgenden Aussagen zustimmen.

	1 - Stimme gar nicht zu	2	3	4	5	6	7 - Stimme völlig zu	Kann ich nicht beurteilen
In den meisten Bereichen entspricht mein Leben meinen Idealvorstellungen.	○	○	○	○	○	○	○	○
Meine Lebensbedingungen sind ausgezeichnet.	○	○	○	○	○	○	○	○
Ich bin mit meinem Leben zufrieden.	○	○	○	○	○	○	○	○

2.1.6 Subjektives Wohlbefinden_affektiv

Bitte denken Sie daran, als Sie das letzte Mal auf LinkedIn waren. In welchem Ausmaß haben Sie sich ... gefühlt?

	1 - Gar nicht	2	3	4	5 - Sehr stark	Kann ich nicht beurteilen
positiv	○	○	○	○	○	○
negativ	○	○	○	○	○	○
gut	○	○	○	○	○	○
schlecht	○	○	○	○	○	○
angenehm	○	○	○	○	○	○
unangenehm	○	○	○	○	○	○
glücklich	○	○	○	○	○	○
traurig	○	○	○	○	○	○
ängstlich	○	○	○	○	○	○
von Freude erfüllt	○	○	○	○	○	○
wütend	○	○	○	○	○	○
zufrieden	○	○	○	○	○	○

2.1.7 Sozialer Vergleich

Als ich zuletzt auf LinkedIn war...

	1 - Stimme gar nicht zu	2	3	4	5 - Stimme völlig zu	Kann ich nicht beurteilen
... bin ich mir weniger sicher gewesen, über das, was ich bisher im Vergleich zu anderen Personen erreicht habe.	○	○	○	○	○	○
... habe ich festgestellt, dass ich weniger beliebt bin als andere Personen.	○	○	○	○	○	○
... habe ich sehr darauf geachtet, wie ich Dinge im Vergleich zu anderen mache.	○	○	○	○	○	○
... habe ich, wenn ich herausfinden wollte, wie gut ich etwas gemacht habe, das, was ich getan hatte damit verglichen wie gut andere etwas getan hatten.	○	○	○	○	○	○
... habe ich darauf geachtet, wie ich Dinge im Vergleich zu anderen mache und hatte das Gefühl, dass mein Weg der bessere war.	○	○	○	○	○	○
... habe ich geglaubt, dass ich bisher mehr erreicht habe als andere Personen.	○	○	○	○	○	○

2.1.8 Neid

Wie häufig haben Sie die folgenden Gedanken bei der Nutzung von LinkedIn?

	1 - Nie	2	3	4	5	6	7 - Fast immer	Kann ich nicht beurteilen
Die meisten meiner LinkedIn Kontakte, scheinen ihr Leben im Griff zu haben.	○	○	○	○	○	○	○	○
Die Beiträge meiner LinkedIn-Kontakte erhalten mehr Aufmerksamkeit (z. B. Likes, Kommentare usw.) als meine.	○	○	○	○	○	○	○	○
Ich weiß nicht genau warum, aber ich fühle mich auf LinkedIn oft als Außenseiter.	○	○	○	○	○	○	○	○
Es ist ein bisschen nervig auf LinkedIn zu sehen, wie erfolgreich einige meiner Kontakte sind.	○	○	○	○	○	○	○	○
Es ist ein bisschen irritierend zu sehen, wie beliebt andere auf LinkedIn sind.	○	○	○	○	○	○	○	○
Es ist ein bisschen verstörend, wenn ich auf LinkedIn sehe, wie viel andere für ihren Beruf verreisen.	○	○	○	○	○	○	○	○

2.1.9 Bridging Social Capital

Geben Sie bitte an, inwieweit Sie den folgenden Aussagen zustimmen.

	1 - Stimme gar nicht zu	2	3	4	5 - Stimme völlig zu	Kann ich nicht beurteilen
Mit Menschen auf LinkedIn zu interagieren, weckt mein Interesse an Dingen, die außerhalb meiner Heimatstadt geschehen.	○	○	○	○	○	○
Mit Menschen auf LinkedIn zu interagieren, weckt in mir den Wunsch, neue Dinge auszuprobieren.	○	○	○	○	○	○
Mit Menschen auf LinkedIn zu sprechen, weckt in mir Interesse daran, was Menschen, die anders sind als ich, denken.	○	○	○	○	○	○
Mit anderen Menschen auf LinkedIn zu sprechen, macht mich neugierig auf andere Orte in der Welt.	○	○	○	○	○	○
Mit Menschen auf LinkedIn zu interagieren, erlaubt es mir, mich als Teil einer größeren Gemeinschaft zu fühlen.	○	○	○	○	○	○
Mit Menschen auf LinkedIn zu interagieren, gibt mir das Gefühl, mit einem größeren Ganzen verbunden zu sein.	○	○	○	○	○	○
Mit Menschen auf LinkedIn zu interagieren, erinnert mich daran, dass alle Menschen auf der Welt miteinander verbunden sind.	○	○	○	○	○	○
Mit Menschen auf LinkedIn zu interagieren, gibt mir neue Gesprächspartner.	○	○	○	○	○	○
Auf LinkedIn komme ich ständig mit neuen Menschen in Kontakt.	○	○	○	○	○	○

3 Endseite

Geschafft!

Vielen Dank, für die Teilnahme an meiner Umfrage.

Ziel dieser Umfrage ist es, herauszufinden welchen Einfluss Unterschiede im Nutzungsverhalten auf das Wohlbefinden von LinkedIn Nutzer:innen haben.

Bei weiteren Fragen bin ich unter folgender Mailadresse zu erreichen: constanze.roeger@smail.th-koeln.de

Nochmals vielen Dank!

.

Für Nutzer von Survey Swap:

The following code gives you credits that can be used to get free research participants at SurveySwap.io. Go to: https://surveyswap.io/sr/67OG-QFVH-DP0A Or, alternatively, enter the code manually: 67OG-QFVH-DP0A

Für Nutzer von SurveyCircle (www.surveycircle.com):

Der Survey Code lautet: T8YG-QQJ3-P7SW-ZJ1E

Appendix B: Screenshots of the conducted survey – English version

1 Sprachauswahl

Bitte wählen - Please choose

- ○ Deutsch
- ○ English

2 Begrüßung

Survey Masterthesis LinkedIn Use

Welcome!

Thank you for your interest and willingness to participate in this survey. It will take **approximately 5 - 6 minutes** to answer the questions.

My name is Constanze Röger and I am conducting this survey as part of my master's thesis in the Market and Media Research program at Cologne University of Applied Sciences. I am investigating the usage behavior on professional networking sites. For this reason, the survey is aimed **exclusively** towards **LinkedIn users**.

To ensure the success of this study, it is important to answer the questions fully and honestly. You should answer as intuitively as possible. There is no right or wrong here. All data will be collected **anonymously** and **cannot** be assigned to you personally. The collected data will only be used for academic research purposes.

Thank you very much for your willingness to support me!

If you agree to the data processing (consent, Art. 6 para. 1 lit. a EU-DSGVO) and to start the survey, please click on "Continue" (or arrow icon at the bottom of the screen).

If you have any further questions (also regarding data protection), please feel free to contact me at: constanze.roeger@smail.th-koeln.de

PS: This survey contains credits to get free survey responses at SurveySwap.io

2.1 Abfrage Nutzungshäufigkeit

How often do you usually visit LinkedIn during a month?

- ○ Never
- ○ Less than once a month
- ○ Once or twice a month
- ○ Three to four times a month
- ○ More than four times a month

2.1.1.1 Screenout_Nutzungshäufigkeit

Thank you for your participation and support.

Unfortunately, you are not part of this survey's target group.

2.1.2 Abfrage Alter

How old are you?

[ ] years

2.1.2.1.1 Screenout Alter

Thank you for your participation and support.

Unfortunately, you are not part of this survey's target group.

2.1.3 Geschlecht

Are you...?

- ○ female
- ○ male
- ○ another gender
- ○ prefer not to answer

2.1.4 Nutzungsart

When using LinkedIn, how often do you perform the following activities?

	1 - Never	2	3	4	5 - (Almost) always	Can't say
Scroll through my newsfeed.	○	○	○	○	○	○
Look at other people's posts.	○	○	○	○	○	○
Contact acquaintances via DM (direct message).	○	○	○	○	○	○
Comment on friends'/people's posts.	○	○	○	○	○	○
Like people's/friends' posts.	○	○	○	○	○	○
Post my own content.	○	○	○	○	○	○
Click on profiles that you don't follow and view them.	○	○	○	○	○	○

2.1.5 Subjektives Wohlbefinden_kognitiv

Please indicate to what extent you agree with the following statements.

	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree	Can't say
In most ways my life is close to my ideal.	○	○	○	○	○	○	○	○
The conditions of my life are excellent.	○	○	○	○	○	○	○	○
I am satisfied with my life.	○	○	○	○	○	○	○	○

2.1.6 Subjektives Wohlbefinden_affektiv

Please think back to the last time you were on LinkedIn. To what degree have you felt ... ?

	1 - Not at all	2	3	4	5 - Extremely	Can't say
positive	○	○	○	○	○	○
negative	○	○	○	○	○	○
good	○	○	○	○	○	○
bad	○	○	○	○	○	○
pleasant	○	○	○	○	○	○
unpleasant	○	○	○	○	○	○
happy	○	○	○	○	○	○
sad	○	○	○	○	○	○
afraid	○	○	○	○	○	○
joyful	○	○	○	○	○	○
angry	○	○	○	○	○	○
contented	○	○	○	○	○	○

2.1.7 Sozialer Vergleich

The last time I was on LinkedIn...

	1 - Strongly disagree	2	3	4	5 - Strongly agree	Can't say
... I felt less confident about what I have achieved compared to other people.	○	○	○	○	○	○
... I concluded I am not as popular as other people.	○	○	○	○	○	○
... I paid a lot of attention to how I do things compared to how others do things.	○	○	○	○	○	○
... If I wanted to find out how well I have done something, I compared what I have done with how well others have done.	○	○	○	○	○	○
... I paid attention to how I do things versus how others do things and felt my way was better.	○	○	○	○	○	○
... I believed that I had accomplished more than other people had.	○	○	○	○	○	○

2.1.8 Neid

When using LinkedIn, how often are you thinking:

	1 - Never	2	3	4	5	6	7 - Almost always	Can't say
Most of my LinkedIn contacts seem to be on top of things in life.	○	○	○	○	○	○	○	○
The posts of my LinkedIn connections get more attention (e.g. likes, comments etc.) than mine.	○	○	○	○	○	○	○	○
I don't know why, but I usually seem to feel myself as an underdog on LinkedIn.	○	○	○	○	○	○	○	○
It is somewhat annoying to see on LinkedIn how successful some of my connections are.	○	○	○	○	○	○	○	○
It is somewhat disturbing to see how popular some others are on LinkedIn.	○	○	○	○	○	○	○	○
It is somehow disturbing when I see on LinkedIn how much traveling others do in their job.	○	○	○	○	○	○	○	○

2.1.9 Bridging Social Capital

Please indicate to what extent you agree with the following statements.

	1 - Strongly disagree	2	3	4	5 - Strongly agree	Can't say
Interacting with people on LinkedIn makes me interested in things that happen outside of my town.	○	○	○	○	○	○
Interacting with people on LinkedIn makes me want to try new things.	○	○	○	○	○	○
Interacting with people on LinkedIn makes me interested in what people unlike me are thinking.	○	○	○	○	○	○
Talking with people on LinkedIn makes me curious about other places in the world.	○	○	○	○	○	○
Interacting with people on LinkedIn makes me feel like part of a larger community.	○	○	○	○	○	○
Interacting with people on LinkedIn makes me feel connected to the bigger picture.	○	○	○	○	○	○
Interacting with people on LinkedIn reminds me that everyone in the world is connected.	○	○	○	○	○	○
Interacting with people on LinkedIn gives me new people to talk to.	○	○	○	○	○	○
On LinkedIn, I come in contact with new people all the time.	○	○	○	○	○	○

3 Endseite

Congratulations!

Thank you very much for your participation in this survey.

The objective of this survey is to investigate the influence of differences in usage behavior on LinkedIn users' well-being.

For further information or if you have any questions, please don't hesitate to contact me at: constanze.roeger@smail.th-koeln.de

Thanks again!

For Survey Swap users:

The following code gives you credits that can be used to get free research participants at SurveySwap.io. Go to: https://surveyswap.io/sr/67OG-QFVH-DP0A Or, alternatively, enter the code manually: 67OG-QFVH-DP0A

For SurveyCircle users:

The Survey Code is: T8YG-QQJ3-P7SW-ZJ1E

Appendix C: Scales

Table C1

Scale Usage Pattern

	German	English	Original
Source			Hanley et al., 2019, pp. 4–5
Answer options	1 - Nie 5 - (Fast) immer	1 - Never 5 - (Almost) always	1 - Never 5 - Frequently
Question	Wie oft führen Sie die folgenden Aktivitäten bei der Nutzung von LinkedIn aus?	When using LinkedIn, how often do you perform the following activities?	Not stated
P1	Durch meinen Newsfeed scrollen.	Scroll through my newsfeed.	Scroll through my newsfeed.
P2	Beiträge anderer Personen anschauen.	Look at other people's posts.	Look at other people's images.
A1	Bekannte per DM (Direkt-Nachrichtenfunktion) kontaktieren.	Contact acquaintances via DM (direct message).	Contact friends via DM (direct message).
A2	Die Beiträge von Freunden/Personen kommentieren.	Comment on friends'/people's posts.	Comment on friends / people's images.
P3	Die Beiträge von Personen/Freunden liken.	Like people's/friends' posts.	Like people's / friend's images.
A3	Eigene Beiträge posten.	Post my own content.	Post my own photos
P4	Auf Profile klicken, denen man nicht folgt und diese ansehen.	Click on profiles that you don't follow and view them.	Click on profiles that you don't follow and view their images

The column "original" appears blank, when the original scale was used without modification. Modifications made are marked in red.

Table C2

Scale Cognitive Subjective Well-being

	German	English	Original
Source	Janke & Glöckner-Rist, 2012, n. p.		Diener et al., 1985, p. 72 Kjell & Diener, 2021, p. 187
Answer options	1 - Stimme gar nicht zu 7 - Stimme völlig zu	1 - Strongly disagree 7 - Strongly agree	
Question	Geben Sie bitte an, inwieweit Sie den folgenden Aussagen zustimmen	Please indicate to what extent you agree with the following statements.	
SWBc1	In den meisten Bereichen entspricht mein Leben meinen Idealvorstellungen.	In most ways my life is close to my ideal.	
SWBc2	Meine Lebensbedingungen sind ausgezeichnet.	The conditions of my life are excellent.	
SWBc3	Ich bin mit meinem Leben zufrieden	I am satisfied with my life.	

The column "original" appears blank, when the original scale was used without modification. Modifications made are marked in red.

Table C3

Scale Affective Subjective Well-being

	German	English	Original
Source	Rahm et al., 2017, p. 5		Diener et al., 2009, p. 262
Answer options	1 - Gar nicht 5 - Sehr stark	1 - Not at all 5 – Extremely Adaption from Choi and Kim (2020, p. 9) wording only	1 - Very Rarely or Never 5 - Very Often or Always
Question	Bitte denken Sie daran, als Sie das letzte Mal auf LinkedIn waren. In welchem Ausmaß haben Sie sich … gefühlt?	Please think back to the last time you were on LinkedIn. To what degree have you felt ...?	Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below.
SWBa positive	Positiv Gut Angenehm Glücklich Von Freude erfüllt Zufrieden	Positive Good Pleasant Happy Joyful Contented	
SWBa negative	Negativ Schlecht Unangenehm Traurig Ängstlich Wütend	Negative Bad Unpleasant Sad Afraid Angry	

The column "original" appears blank, when the original scale was used without modification. Modifications made are marked in red.

Table C4

Scale Social Comparison

	German	English	Original
Source			Steers et al., 2014, p. 715
Answer options	1 - Stimme gar nicht zu 5 - Stimme völlig zu	1 - Strongly disagree 5 - Strongly agree Adaption of scale from Meier and Schäfer (2018, p. 413)	1 - I disagree strongly 9 - I agree strongly
Question	Als ich zuletzt auf LinkedIn war…	The last time I was on LinkedIn...	TODAY, when I was on Facebook….
SoCoup 1	... bin ich mir weniger sicher gewesen, über das, was ich bisher im Vergleich zu anderen Personen erreicht habe.	... I felt less confident about what I have achieved compared to other people.	
SoCoup 2	... habe ich festgestellt, dass ich weniger beliebt bin als andere Personen.	... I concluded I am not as popular as other people.	
SoCono 1	... habe ich sehr darauf geachtet, wie ich Dinge im Vergleich zu anderen mache.	... I paid a lot of attention to how I do things compared to how others do things.	
SoCono 2	... habe ich, wenn ich herausfinden wollte, wie gut ich etwas gemacht habe, das, was ich getan hatte, damit verglichen wie gut andere etwas getan hatten.	… if I wanted to find out how well I have done something, I compared what I have done with how well others have done.	
SoCodo 1	... habe ich darauf geachtet, wie ich Dinge im Vergleich zu anderen mache und hatte das Gefühl, dass mein Weg der bessere war.	… I paid attention to how I do things versus how others do things and felt my way was better.	
SoCodo 2	... habe ich geglaubt, dass ich bisher mehr erreicht habe als andere Personen.	… I believed that I had accomplished more than other people had.	

The column "original" appears blank, when the original scale was used without modification. Modifications made are marked in red.

Table C5

Scale Envy

	German	English	Original
Source			Krasnova et al., 2015a, p. 4
Answer options	1 - Nie 7 - Fast immer	1 - Never 7 – Almost always	1 - (almost never) 7 - very often
Question	Wie häufig haben Sie die folgenden Gedanken bei der Nutzung von LinkedIn?	When using LinkedIn, how often are you thinking:	When using Facebook, how often are you thinking that:
Envy1	Die meisten meiner LinkedIn Kontakte, scheinen ihr Leben im Griff zu haben.	Most of my LinkedIn contacts seem to be on top of things in life.	Most of my Facebook friends have it better than I do.
Envy2	Die Beiträge meiner LinkedIn-Kontakte erhalten mehr Aufmerksamkeit (z. B. Likes, Kommentare usw.) als meine.	The posts of my LinkedIn connections get more attention (e.g. likes, comments etc.) than mine.	The posts of my Facebook friends get more attention (e.g. “likes”, comments etc.) than mine.
Envy3	Ich weiß nicht genau warum, aber ich fühle mich auf LinkedIn oft als Außenseiter.	I don’t know why, but I usually seem to feel myself as an underdog on LinkedIn.	I don’t know why, but I usually seem to feel myself as an underdog on Face-book.
Envy4	Es ist ein bisschen nervig auf LinkedIn zu sehen, wie erfolgreich einige meiner Kontakte sind.	It is somewhat annoying to see on LinkedIn how successful some of my connections are.	It is somewhat annoying to see on Facebook how successful some of my Facebook friends are.
Envy5	Es ist ein bisschen irritierend zu sehen, wie beliebt andere auf LinkedIn sind.	It is somewhat disturbing to see how popular some others are on LinkedIn.	It is somewhat disturbing to see how popular some others are on Facebook.
Envy6	Es ist ein bisschen verstörend, wenn ich auf LinkedIn sehe, wie viel andere für ihren Beruf verreisen.	It is somehow disturbing when I see on LinkedIn how much traveling others do in their job.	It is somehow disturbing when I see on Facebook how much traveling others can afford.

The column “original” appears blank, when the original scale was used without modification. Modifications made are marked in red.

Table C6

Scale Bridging Social Capital

	German	English	Original
Source			Williams, 2006, p. 602
Answer options	1 - Stimme gar nicht zu 5 - Stimme völlig zu	1 - Strongly disagree 5 - Strongly agree	
Question	Geben Sie bitte an, inwieweit Sie den folgenden Aussagen zustimmen.	Please indicate to what extent you agree with the following statements	
BriSoCa 1	Mit Menschen auf LinkedIn zu interagieren, weckt mein Interesse an Dingen, die außerhalb meiner Heimatstadt geschehen.	Interacting with people on LinkedIn makes me interested in things that happen outside of my town.	Interacting with people online/offline makes me interested in things that happen outside of my town.
BriSoCa 2	Mit Menschen auf LinkedIn zu interagieren, weckt in mir den Wunsch, neue Dinge auszuprobieren.	Interacting with people on LinkedIn makes me want to try new things.	Interacting with people online/offline makes me want to try new things.
BriSoCa 3	Mit Menschen auf LinkedIn zu sprechen, weckt in mir Interesse daran, was Menschen, die anders sind als ich, denken.	Interacting with people on LinkedIn makes me interested in what people unlike me are thinking.	Interacting with people online/offline makes me interested in what people unlike me are thinking.
BriSoCa 4	Mit anderen Menschen auf LinkedIn zu sprechen, macht mich neugierig auf andere Orte in der Welt.	Talking with people on LinkedIn makes me curious about other places in the world.	Talking with people online/offline makes me curious about other places in the world.
BriSoCa 5	Mit Menschen auf LinkedIn zu interagieren, erlaubt es mir, mich als Teil einer größeren Gemeinschaft zu fühlen.	Interacting with people on LinkedIn makes me feel like part of a larger community.	Interacting with people online/offline makes me feel like part of a larger community
BriSoCa 6	Mit Menschen auf LinkedIn zu interagieren, gibt mir das Gefühl, mit einem größeren Ganzen verbunden zu sein.	Interacting with people on LinkedIn makes me feel connected to the bigger picture.	Interacting with people online/offline makes me feel connected to the bigger picture.
BriSoCa 7	Mit Menschen auf LinkedIn zu interagieren, erinnert mich daran, dass alle Menschen auf der Welt miteinander verbunden sind.	Interacting with people on LinkedIn reminds me that everyone in the world is connected.	Interacting with people online/offline reminds me that everyone in the world is connected.
BriSoCa 8 [7 in the original; 8 was omitted]	Mit Menschen auf LinkedIn zu interagieren, gibt mir neue Gesprächspartner.	Interacting with people on LinkedIn gives me new people to talk to.	Interacting with people online/offline gives me new people to talk to.
BriSoCa 9	Auf LinkedIn komme ich ständig mit neuen Menschen in Kontakt.	On LinkedIn, I come in contact with new people all the time.	Online/Offline, I come in contact with new people all the time.

The column "original" appears blank, when the original scale was used without modification. Modifications made are marked in red.

Appendix D: Descriptive Statistics

Descriptive statistics for all scales used

Score / Item	*n*	*M*	*SD*
p_use	526	3.84	0.91
P1	523	4.15	1.11
P2	524	3.96	1.07
P3	525	3.41	1.24
a_use	526	1.89	0.74
A1	523	1.97	0.99
A2	524	1.95	0.98
A3	526	1.75	0.88
SWBc	524	15.75	3.32
SWBc1	522	4.94	1.32
SWBc2	523	5.39	1.21
SWBc3	524	5.45	1.23
SWBa_po	523	18.70	4.72
SWBa1	518	3.38	0.95
SWBa3	518	3.43	0.87
SWBa5	512	3.37	0.92
SWBa7	511	3.02	0.92
SWBa10	504	2.54	1.00
SWBa12	513	3.33	0.98
SWBa_ne	524	10.33	4.84
SWBa2	517	1.95	1.06
SWBa4	517	1.81	1.02
SWBa6	518	1.88	1.07
SWBa8	515	1.63	0.93
SWBa9	513	1.69	1.05
SWBa11	517	1.51	0.90
SWB_to	520	24.11	9.19
SoCo_up	525	2.41	0.93
SoCoup1	505	2.76	1.33
SoCoup2	500	2.32	1.30
SoCono1	521	2.71	1.31
SoCono2	503	2.38	1.26

SoCo_do	521	2.13	0.90
SoCodo1	509	2.19	1.03
SoCodo2	512	2.09	1.02
Envy	526	2.88	1.56
Envy3	519	2.83	1.87
Envy4	519	3.03	1.86
Envy5	507	2.91	1.87
Envy6	491	2.70	1.76
BriSoCa	521	2.73	0.89
BriSoCa1	510	3.04	1.26
BriSoCa2	514	2.93	1.23
BriSoCa3	496	2.87	1.19
BriSoCa4	500	2.73	1.25
BriSoCa5	504	2.51	1.15
BriSoCa6	507	2.47	1.20
BriSoCa7	510	2.80	1.26
BriSoCa8	497	2.70	1.22
BriSoCa9	517	2.58	1.18

Means and standard deviations for each construct were calculated following the test for validity and reliability of the measurements explained in section 5.4. M = mean, SD = standard deviation

Appendix E: Testing for suitability for principal component analyses

Table E1

Correlation matrix usage pattern 1

Variable	1	2	3	4	5	6	7
1 ZP1	1	.562**	.013	.178**	.391**	.072	.108*
2 ZP2	.562**	1	.015	.252**	.450**	.122**	.208**
3 ZA1	.013	.015	1	.370**	.154**	.312**	.029
4 ZA2	.178**	.252**	.370**	1	.442**	.481**	.048
5 ZP3	.391**	.450**	.154**	.442**	1	.291**	.109*
6 ZA3	.072	.122**	.312**	.481**	.291**	1	.021
7 ZP4	.108*	.208**	.029	.048	.109*	.021	1

***. Correlation is significant at the 0.01 level (2-tailed)*

**. Correlation is significant at the 0.05 level (2-tailed)*

Table E2

Anti-image correlation matrix usage pattern 1

Variable	1	2	3	4	5	6	7
1 ZP1	.680[a]	-.459	.019	.002	-.191	.028	.006
2 ZP2	-.459	.675[a]	.064	-.087	-.243	.006	-.165
3 ZA1	.019	.064	.731[a]	-.251	-.021	-.161	-.025
4 ZA2	.002	-.087	-.251	.704[a]	-.291	-.356	.021
5 ZP3	-.191	-.243	-.021	-.291	.782[a]	-.096	-.019
6 ZA3	.028	.006	-.161	-.356	-.096	.727[a]	.013
7 ZP4	.006	-.165	-.025	.021	-.019	.013	.703[a]

a. Measures of Sampling Adequacy (MSA)

Table E3

Communalities usage pattern 1

	Initial	Extraction
ZP1	1	.656
ZP2	1	.725
ZA1	1	.512
ZA2	1	.681
ZP3	1	.594
ZA3	1	.596
ZP4	1	.152

Extraction Method: Principal Component Analysis

Table E4

Rotated component matrix usage pattern 1

	Component	
	1 (Passive)	2 (Active)
ZP1	**.809**	.047
ZP2	**.844**	.107
ZA1	-.123	**.705**
ZA2	.237	**.790**
ZP3	**.619**	.459
ZA3	.035	**.771**
ZP4	.384	-.069

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

Table E5

Anti-image correlation matrix usage pattern 2

Variable	1	2	3	4	5	6
1 ZP1	.670[a]	-.466	.018	.002	-.190	.028
2 ZP2	-.466	.675[a]	.057	-.082	-.249	.005
3 ZA1	.018	.057	.735[a]	-.249	-.020	-.163
4 ZA2	.002	-.082	-.249	.705[a]	-.292	-.355
5 ZP3	-.190	-.249	-.020	-.292	.777[a]	-.095
6 ZA3	.028	.005	-.163	-.355	-.095	.728[a]

a. Measures of Sampling Adequacy (MSA)

Table E6

Communalities usage pattern 2

	Initial	Extraction
ZP1	1	.704
ZP2	1	.728
ZA1	1	.534
ZA2	1	.678
ZP3	1	.607
ZA3	1	.598

Extraction Method: Principal Component Analysis

Table E7

Rotated component matrix usage pattern 2

	Component	
	1 (Passive)	2 (Active)
ZP1	**.838**	-.031
ZP2	**.852**	.043
ZA1	-.088	**.725**
ZA2	.299	**.767**
ZP3	**.668**	.400
ZA3	.093	**.767**

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

Table E8

Correlation matrix cognitive subjective well-being

Variable	1	2	3
1 SWBc1	1	.618**	.728**
2 SWBc2	.618**	1	.640**
3 SWBc3	.728**	.640**	1

***. Correlation is significant at the 0.01 level (2-tailed*)

Table E9

Anti-image correlation matrix cognitive subjective well-being

Variable	1	2	3
1 SWBc1	.705[a]	-.283	-.548
2 SWBc2	-.283	.791[a]	-.362
3 SWBc3	-.548	-.362	.687[a]

a. Measures of Sampling Adequacy (MSA)

Table E10

Communalities cognitive subjective well-being

	Initial	Extraction
ZP1	1	.792
ZP2	1	.725
ZA1	1	.812

Extraction Method: Principal Component Analysis

Table E11

Component matrix cognitive subjective well-being

	Component
	1
ZSWBc1	.890
ZSWBc2	.851
ZSWBc3	.901

Extraction Method: Principal Component Analysis

Table E12

Correlation matrix affective subjective well-being

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 ZSWBa1	1	-.368**	.666**	-.315**	.593**	-.342**	.575**	-.195**	-.291**	.531**	-.104*	.614**
2 ZSWBa2	-.368**	1	-.333**	.709**	-.312**	.652**	-.244**	.622**	.553**	-.138**	.521**	-.331**
3 ZSWBa3	.666**	-.333**	1	-.363**	.643**	-.391**	.596**	-.195**	-.335**	.500**	-.134**	.629**
4 ZSWBa4	-.315**	.709**	-.363**	1	-.306**	.696**	-.186**	.598**	.610**	-.126**	.515**	-.328**
5 ZSWBa5	.593**	-.312**	.643**	-.306**	1	-.358**	.556**	-.166**	-.289**	.490**	-.149**	.590**
6 ZSWBa6	-.342**	.652**	-.391**	.696**	-.358**	1	-.247**	.525**	.528**	-.158**	.464**	-.309**
7 ZSWBa7	.575**	-.244**	.596**	-.186**	.556**	-.247**	1	-.053	-.149**	.614**	-.069	.577**
8 ZSWBa8	-.195**	.622**	-.195**	.598**	-.166**	.525**	-.053	1	.584**	.047	.504**	-.171**
9 ZSWBa9	-.291**	.553**	-.335**	.610**	-.289**	.528**	-.149**	.584**	1	-.117**	.471**	-.274**
10 ZSWBa10	.531**	-.138**	.500**	-.126**	.490**	-.158**	.614**	.047	-.117**	1	.057	.474**
11 ZSWBa11	-.104*	.521**	-.134**	.515**	-.149**	.464**	-.069	.504**	.471**	.057	1	-.146**
12 ZSWBa12	.614**	-.331**	.629**	-.328**	.590**	-.309**	.577**	-.171**	-.274**	.474**	-.146**	1

***. Correlation is significant at the 0.01 level (2-tailed)*

**. Correlation is significant at the 0.05 level (2-tailed)*

Table E13

Anti-image correlation matrix affective subjective well-being

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 ZSWBa1	.920[a]	.149	-.263	-.001	-.165	-.003	-.106	.017	.013	-.174	-.095	-.188
2 ZSWBa2	.149	.901[a]	-.090	-.303	.000	-.215	.073	-.274	-.036	-.009	-.134	.046
3 ZSWBa3	-.263	-.090	.907[a]	.102	-.260	.115	-.198	-.009	.074	-.029	-.060	-.185
4 ZSWBa4	-.001	-.303	.102	.892[a]	-.048	-.337	-.101	-.097	-.202	.033	-.141	.073
5 ZSWBa5	-.165	.000	-.260	-.048	.929[a]	.071	-.092	-.032	.070	-.098	.053	-.192
6 ZSWBa6	-.003	-.215	.115	-.337	.071	.921[a]	.030	-.057	-.057	-.019	-.075	-.052
7 ZSWBa7	-.106	.073	-.198	-.101	-.092	.030	.887[a]	-.030	-.067	-.357	.070	-.168
8 ZSWBa8	.017	-.274	-.009	-.097	-.032	-.057	-.030	.896[a]	-.297	-.098	-.142	.002
9 ZSWBa9	.013	-.036	.074	-.202	.070	-.057	-.067	-.297	.919[a]	.040	-.152	-.003
10 ZSWBa10	-.174	-.009	-.029	.033	-.098	-.019	-.357	-.098	.040	.882[a]	-.109	-.074
11 ZSWBa11	-.095	-.134	-.060	-.141	.053	-.075	.070	-.142	-.152	-.109	.918[a]	.016
12 ZSWBa12	-.188	.046	-.185	.073	-.192	-.052	-.168	.002	-.003	-.074	.016	.935[a]

***. Correlation is significant at the 0.01 level (2-tailed)*
**. Correlation is significant at the 0.05 level (2-tailed)*

Table E14

Communalities affective subjective well-being

	Initial	Extraction
ZSWBa1	1	.696
ZSWBa2	1	.718
ZSWBa3	1	.709
ZSWBa4	1	.747
ZSWBa5	1	.647
ZSWBa6	1	.649
ZSWBa7	1	.667
ZSWBa8	1	.668
ZSWBa9	1	.620
ZSWBa10	1	.609
ZSWBa11	1	.548
ZSWBa12	1	.649

Extraction Method: Principal Component Analysis

Table E15

Rotated component matrix affective subjective well-being

	Component	
	1 (Positive)	2 (Negative)
ZSWBa1	**.807**	-.211
ZSWBa2	-.241	**.812**
ZSWBa3	**.805**	-.246
ZSWBa4	-.211	**.838**
ZSWBa5	**.778**	-.206
ZSWBa6	-.266	**.761**
ZSWBa7	**.816**	-.039
ZSWBa8	-.010	**.817**
ZSWBa9	-.168	**.769**
ZSWBa10	**.777**	.068
ZSWBa11	.033	**.740**
ZSWBa12	**.778**	-.210

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

Table E16

Correlation matrix social comparison

Variable	1	2	3	4	5	6
1 ZSoCoup1	1	.505**	.642**	.558**	.312**	.104*
2 ZSoCoup2	.505**	1	.448**	.423**	.277**	.177**
3 ZSoCono1	.642**	.448**	1	.631**	.425**	.213**
4 ZSoCono2	.558**	.423**	.631**	1	.402**	.228**
5 ZSoCodo1	.312**	.277**	.425**	.402**	1	.532**
6 ZSoCodo2	.104*	.177**	.213**	.228**	.532**	1

***. Correlation is significant at the 0.01 level (2-tailed)*
**. Correlation is significant at the 0.05 level (2-tailed)*

Table E17

Anti-image correlation matrix social comparison

Variable	1	2	3	4	5	6
1 ZSoCoup1	.787[a]	-.280	-.405	-.224	-.018	.081
2 ZSoCoup2	-.280	.872[a]	-.073	-.136	-.033	-.062
3 ZSoCono1	-.405	-.073	.789[a]	-.337	-.207	.024
4 ZSoCono2	-.224	-.136	-.337	.848[a]	-.112	-.055
5 ZSoCodo1	-.018	-.033	-.207	-.112	.727[a]	-.490
6 ZSoCodo2	.081	-.062	.024	-.055	-.490	.622[a]

a. Measures of Sampling Adequacy (MSA)

Table E18

Communalities social comparison

	Initial	Extraction
ZSoCoup1	1	.745
ZSoCoup2	1	.504
ZSoCono1	1	.721
ZSoCono2	1	.661
ZSoCodo1	1	.748
ZSoCodo2	1	.821

Extraction Method: Principal Component Analysis

Table E19

Rotated component matrix social comparison

	Component	
	1 (Upward)	2 (Downward)
ZSoCoup1	**.862**	.044
ZSoCoup2	**.702**	.105
ZSoCono1	**.821**	.217
ZSoCono2	**.779**	.234
ZSoCodo1	.322	**.802**
ZSoCodo2	.029	**.906**

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

Table E20

Correlation matrix envy 1

Variable	1	2	3	4	5	6
1 Zenvy1	1	.301**	.323**	.311**	.285**	.269**
2 Zenvy2	.301**	1	.381**	.398**	.431**	.397**
3 Zenvy3	.323**	.381**	1	.633**	.660**	.529**
4 Zenvy4	.311**	.398**	.633**	1	.664**	.582**
5 Zenvy5	.285**	.431**	.660**	.664**	1	.586**
6 Zenvy6	.269**	.397**	.529**	.582**	.586**	1

***. Correlation is significant at the 0.01 level (2-tailed)*

Table E21

Anti-image correlation matrix envy 1

Variable	1	2	3	4	5	6
1 Zenvy1	.907[a]	-.171	-.116	-.065	-.001	-.044
2 Zenvy2	-.171	.914[a]	-.039	-.062	-.147	-.136
3 Zenvy3	-.116	-.039	.860[a]	-.328	-.340	-.106
4 Zenvy4	-.065	-.062	-.328	.852[a]	-.297	-.283
5 Zenvy5	-.001	-.147	-.340	-.297	.855[a]	-.220
6 Zenvy6	-.044	-.136	-.106	-.283	-.220	.895[a]

a. Measures of Sampling Adequacy (MSA)

Table E22

Communalities envy 1

	Initial	Extraction
Zenvy1	1	.252
Zenvy2	1	.399
Zenvy3	1	.698
Zenvy4	1	.734
Zenvy5	1	.728
Zenvy6	1	.636

Extraction Method: Principal Component Analysis

Table E23

Component matrix envy 1

	Component
	1
Zenvy1	.502
Zenvy2	.632
Zenvy3	.835
Zenvy4	.857
Zenvy5	.853
Zenvy6	.797

Extraction Method: Principal Component Analysis

Table E24

Anti-image correlation matrix envy 2

Variable	1	2	3	4	5
1 Zenvy2	.928[a]	-.058	-.073	-.137	-.156
2 Zenvy3	-.058	.848[a]	-.346	-.346	-.113
3 Zenvy4	-.073	-.346	.837[a]	-.307	-.282
4 Zenvy5	-.137	-.346	-.307	.847[a]	-.204
5 Zenvy6	-.156	-.113	-.282	-.204	.888[a]

a. Measures of Sampling Adequacy (MSA)

Table E25

Communalities envy 2

	Initial	Extraction
Zenvy2	1	.381
Zenvy3	1	.713
Zenvy4	1	.755
Zenvy5	1	.748
Zenvy6	1	.646

Extraction Method: Principal Component Analysis

Table E26

Component matrix envy 2

	Component
	1
Zenvy2	.617
Zenvy3	.844
Zenvy4	.869
Zenvy5	.865
Zenvy6	.804

Extraction Method: Principal Component Analysis

Table E27

Anti image correlation matrix envy 3

Variable	1	2	3	4
1 Zenvy3	.815[a]	-.319	-.386	-.115
2 Zenvy4	-.319	.819[a]	-.287	-.288
3 Zenvy5	-.386	-.287	.806[a]	-.256
4 Zenvy6	-.115	-.288	-.256	.860[a]

a. Measures of Sampling Adequacy (MSA)

Table E28

Communalities envy 3

	Initial	Extraction
Zenvy3	1	.718
Zenvy4	1	.743
Zenvy5	1	.754
Zenvy6	1	.638

Extraction Method: Principal Component Analysis

Table E29

Component matrix envy 3

	Component
	1
Zenvy3	.847
Zenvy4	.862
Zenvy5	.868
Zenvy6	.798

Extraction Method: Principal Component Analysis

Table E30

Correlation matrix bridging social capital

Variable	1	2	3	4	5	6	7	8	9
1 ZBriSoCa1	1	.492**	.493**	.560**	.452**	.471**	.446**	.398**	.318**
2 ZBriSoCa2	.492**	1	.500**	.575**	.490**	.499**	.409**	.433**	.383**
3 ZBriSoCa3	.493**	.500**	1	.514**	.533**	.484**	.432**	.443**	.388**
4 ZBriSoCa4	.560**	.575**	.514**	1	.483**	.514**	.486**	.424**	.341**
5 ZBriSoCa5	.452**	.490**	.533**	.483**	1	.724**	.520**	.537**	.477**
6 ZBriSoCa6	.471**	.499**	.484**	.514**	.724**	1	.509**	.468**	.438**
7 ZBriSoCa7	.446**	.409**	.432**	.486**	.520**	.509**	1	.457**	.374**
8 ZBriSoCa8	.398**	.433**	.443**	.424**	.537**	.468**	.457**	1	.590**
9 ZBriSoCa9	.318**	.383**	.388**	.341**	.477**	.438**	.374**	.590**	1

***. Correlation is significant at the 0.01 level (2-tailed)*

Table E31

Anti-image correlation matrix bridging social capital 1

Variable	1	2	3	4	5	6	7	8	9
1 ZBriSoCa1	.934[a]	-.158	-.142	-.240	-.005	-.097	-.094	-.036	-.024
2 ZBriSoCa2	-.158	.931[a]	-.145	-.272	-.042	-.092	-.025	-.082	-.072
3 ZBriSoCa3	-.142	-.145	.946[a]	-.153	-.171	-.034	-.021	-.084	-.036
4 ZBriSoCa4	-.240	-.272	-.153	.912[a]	-.014	-.089	-.159	-.051	.030
5 ZBriSoCa5	-.005	-.042	-.171	-.014	.877[a]	-.493	-.160	-.142	-.089
6 ZBriSoCa6	-.097	-.092	-.034	-.089	-.493	.885[a]	-.124	-.007	-.071
7 ZBriSoCa7	-.094	-.025	-.021	-.159	-.160	-.124	.950[a]	-.122	-.049
8 ZBriSoCa8	-.036	-.082	-.084	-.051	-.142	-.007	-.122	.900[a]	-.388
9 ZBriSoCa9	-.024	-.072	-.036	.030	-.089	-.071	-.049	-.388	.894[a]

a. Measures of Sampling Adequacy (MSA)

Table E32

Communalities bridging social capital 1

	Initial	Extraction
ZBriSoCa1	1	.501
ZBriSoCa2	1	.552
ZBriSoCa3	1	.522
ZBriSoCa4	1	.562
ZBriSoCa5	1	.649
ZBriSoCa6	1	.626
ZBriSoCa7	1	.514
ZBriSoCa8	1	.521
ZBriSoCa9	1	.423

Extraction Method: Principal Component Analysis

Table E33

Component matrix bridging social capital 1

	Component
	1
ZBriSoCa1	.708
ZBriSoCa2	.743
ZBriSoCa3	.722
ZBriSoCa4	.749
ZBriSoCa5	.805
ZBriSoCa6	.791
ZBriSoCa7	.717
ZBriSoCa8	.722
ZBriSoCa9	.651

Extraction Method: Principal Component Analysis

Table E34

Anti-image correlation matrix bridging social capital 2

Variable	1	2	3	4	5	6	7	8
1 ZBriSoCa1	.929[a]	-.160	-.143	-.240	-.007	-.099	-.096	-.050
2 ZBriSoCa2	-.160	.923[a]	-.147	-.270	-.048	-.097	-.026	-.120
3 ZBriSoCa3	-.143	-.147	.939[a]	-.152	-.175	-.036	-.023	-.107
4 ZBriSoCa4	-.240	-.270	-.152	.908[a]	-.011	-.087	-.159	-.043
5 ZBriSoCa5	-.007	-.048	-.175	-.011	.858[a]	-.503	-.166	-.192
6 ZBriSoCa6	-.099	-.097	-.036	-.087	-.503	.873[a]	-.129	-.038
7 ZBriSoCa7	-.096	-.026	-.023	-.159	-.166	-.129	.940[a]	-.154
8 ZBriSoCa8	-.050	-.120	-.107	-.043	-.192	-.038	-.154	.942[a]

a. Measures of Sampling Adequacy (MSA)

Table E35

Communalities bridging social capital 2

	Initial	Extraction
ZBriSoCa1	1	.522
ZBriSoCa2	1	.563
ZBriSoCa3	1	.537
ZBriSoCa4	1	.589
ZBriSoCa5	1	.651
ZBriSoCa6	1	.635
ZBriSoCa7	1	.525
ZBriSoCa8	1	.486

Extraction Method: Principal Component Analysis

Table E36

Component matrix bridging social capital 2

	Component
	1
ZBriSoCa1	.722
ZBriSoCa2	.750
ZBriSoCa3	.733
ZBriSoCa4	.768
ZBriSoCa5	.807
ZBriSoCa6	.797
ZBriSoCa7	.724
ZBriSoCa8	.697

Extraction Method: Principal Component Analysis