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Abstract

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The Dark Side of Social Media: Systematization and Overview

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Social media is associated with many positive aspects, such as sharing information and media with friends and relatives worldwide. However, in recent years studies have identified a large number of negative effects in connection with social media. This article presents a systematization of this dark side of social media and provides an overview of the identified dark aspects. Furthermore, the authors outline measures that can be taken to counteract these dark aspects.

Keywords: Social media; Dark side; Social media fatigue; Social media literacy; Systematization

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Approximately five billion people worldwide use social media nowadays (Kemp, 2024). Social media allows users to connect and share different types of content (e.g. pictures and videos) and information. Own content is easily uploaded and shared with other users. For many people, social media has become the most important medium for communicating and obtaining information (Kemp, 2024). It is therefore not surprising that many users spend a lot of time on social media (Kemp, 2024). However, besides many positive aspects, there are numerous negative developments that can be associated with social media (Hattingh et al., 2022; Lee et al., 2016; Li et al., 2023; Sands et al., 2020). In recent years, for example, the tone and type of communication on social media have changed drastically. Insults, hostility and threats have increased significantly (Terizi et al., 2021). The negative aspects of social media include for example addiction (D'Arienzo et al., 2019), fake news/misinformation (Apuke & Omar, 2021; Zhang & Ghobarni, 2020), filter bubbles (Flaxman et al., 2016), stalking (Dhir et al., 2021), depression and anxiety (Lin et al. 2016) and social media fatigue (Malik et al., 2021; Ou et al., 2023). Especially for young people and children the consequences of using social media can be very serious (Weir, 2023). Accordingly, the dark aspects of social

media are increasingly being recognized and addressed in society and politics as well as in the scientific literature.

Previous studies have examined individual or a combination of dark aspects, but there have been only a few attempts that provide a more holistic overview. The aim of this article is therefore to present a framework to systematize the dark aspects and to provide an overview of the identified dark aspects. In addition, some important measures will be presented that can help to deal with the dark aspects of social media.

SYSTEMATIZATION OF THE DARK SIDE OF SOCIAL MEDIA

Overview

The dark aspects of social media affect various disciplines, such as psychology, law, medicine and economics. Due to this interdisciplinarity and the large number of influencing factors and consequences, there have only been a few studies that have attempted to provide a holistic picture. One of these studies is the article by Baccarella et al. (2018). The authors propose structuring and investigating the dark aspects of social media with the honeycomb approach of Kietzmann et al. (2011). The honeycomb approach identifies seven functionalities of social media: "sharing", "conversations", "relationships", "reputation", "groups" and "identity". Baccarella et al. (2018) describe the dark side of social media in connection with these functionalities. For example, dark aspects can occur in connection with the "sharing" functionality if inappropriate or offensive content is shared. The authors focus in their study on how dark aspects impact users and their experience on social media (Baccarella et al., 2018). In our approach, we follow this concept (see figure 1). The systematization approach is based on the assumption that social media use and the experience users have on social media can be influenced by dark aspects. In contrast to the work of Baccarella et al. (2018) we structure the influencing factors of the user experience into three categories: 1) user interaction behavior; 2) technical aspects and content, and 3) individual factors and external factors. For example, aggressive user behavior (category user interaction behavior) or filter bubbles (category technology and content) can (negatively) influence the social media experience of users. Furthermore, social media experience is influenced by individual factors (user characteristics and usage behavior) and external factors. These factors influence the

intensity of the dark aspects and the probability that they will occur (e.g. an individual with a lower self-esteem will have a greater chance of being negatively influenced on social media).

The negative (social media) experience caused by this influence can result in psychological and health-related dark aspects. Some of these psychological and health-related consequences may in turn also intensify other dark aspects (e.g. fear-of-missing-out (fomo) may increase the probability of stalking).

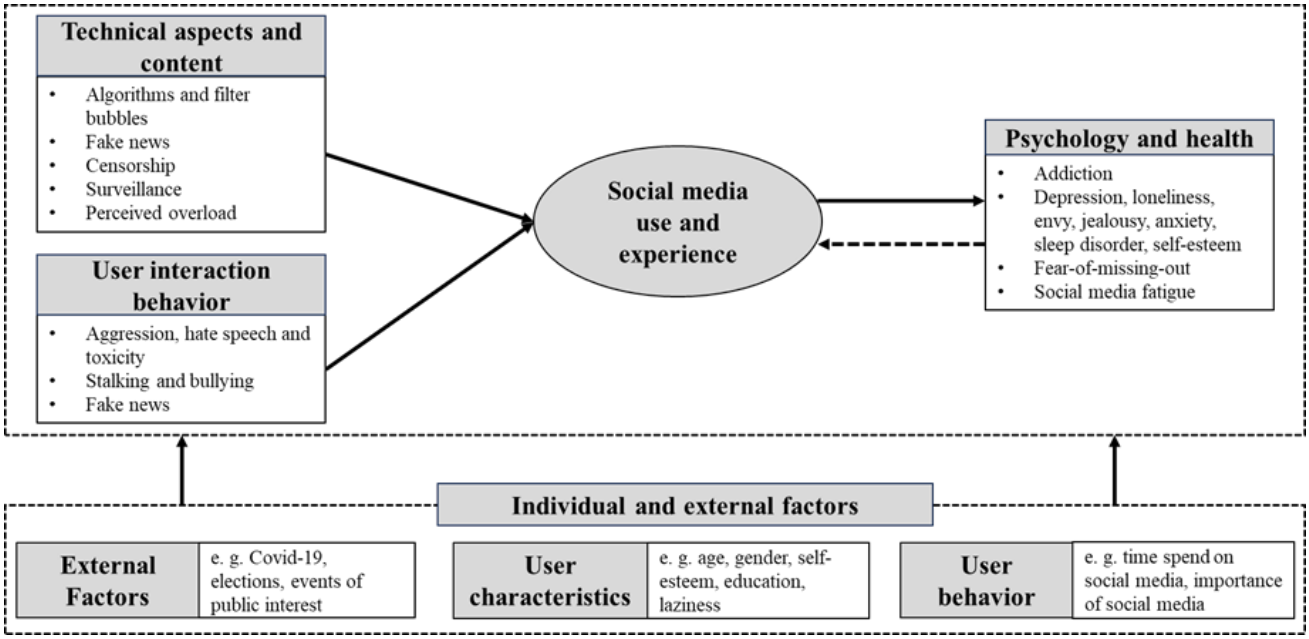

Figure 1. Systematization of dark aspects of social media

Psychology and health

In the first category of our framework we summarize dark aspects that are associated with psychological and health problems. The use of social media and experiences with social media can cause serious psychological and health problems (Table 1).

Table 1
Category psychology and health

Dark aspects	Selected studies
Addiction	Andreassen et al., 2017; Brailovskaia et al., 2020; D'Arienzo et al., 2019; Sheldon et al., 2019; Van den Eijnden et al., 2016
Depression, loneliness, envy, jealousy, anxiety, sleep disorder, self-esteem	Cunningham et al., 2021; Dibb & Foster, 2021; Jan et al., 2017; Jeevar et al., 2023; Kaur et al., 2021; Keles et al., 2020; Lin et al., 2016; Primack et al., 2017; Sheldon et al., 2019; Tandon et al., 2021a; Twenge et al., 2018; Valkenburg et al., 2006; Wu & Srite, 2021
Fear-of-missing-out (Fomo)	Bright & Logan, 2018; Good & Hyman, 2021; Hattingh et al., 2022; Przybylski et al., 2013; Stead & Bibby, 2017; Tandon et al., 2021b
Social media fatigue (SMF)	Bright et al., 2015; Cao & Sun, 2018; Dhir et al., 2018; Dhir et al., 2019; Islam et al., 2020; Logan et al., 2018; Malik et al., 2021; Ou et al., 2023; Pang, 2021; Ravindran et al., 2014; Sunil et al., 2022; Xiao & Mou, 2019; Zhang et al., 2021; Zheng & Ling, 2021

Addiction. A central psychological consequence of social media is addiction (Andreassen et al., 2017; Sheldon et al., 2019). Soper and Miller (1983) describe this type of addiction as behavioral addiction. Behavioral addiction involves "…a compulsive behavioural involvement, a lack of interest in other activities and physical and mental

symptoms when attempting to stop the behaviour" (Soper & Miller, 1983, p. 40). D'Arienzo et al. (2019) identified six types of behavior in relation to social media that may be considered as an addiction: salience (i.e., social media is the most important thing), mood modification (i.e., social media use changes an individual mood), tolerance (i.e., a long time is spent on social media to get desired mood effects), withdrawal symptoms (i.e., effects that occur when reducing or discontinuing use of social media), conflict (e.g. social media use damaging relationships) and relapse (i.e., after a period of abstinence addictive behavior is re-established). An addiction to social media can in turn lead to various psychological problems, such as depression, sleep disorders and reduced self-esteem (Sheldon et al., 2019).

Depression, loneliness, envy, jealousy, anxiety, sleep disorder and self-esteem. Studies have shown that the use and/or experiences of social media use can lead to depression, sleep disorders, loneliness and anxiety (Jeevar et al. 2023). These consequences are often associated with the duration and intensity of use of social media, and the way in which it is used (problematic use of social media) (Cunningham et al., 2021; Keles et al., 2020; Sheldon et al., 2019).

In connection with the use of social media, the dark aspects of envy and self-esteem are also discussed (Wu & Srite, 2021). In most cases, social media presents a "great world" where users share their satisfaction and happiness (e.g. posting pictures of a nice vacation, a professional success, a joyful family experience). In addition, there are pictures that show "perfect" people in a paradise environment. Users may thus present a different image of themselves than is the case in reality. Furthermore, due to filters and other technical measures, content (e.g. images) may not necessarily correspond to reality or may not be as spontaneous as it appears. When users see such information, they compare themselves and their current situation, which can lead to an envious reaction (Liu & He, 2021). Younger people in particular can also be exposed to "false" ideals (such as beauty ideals), which in turn can affect their self-perception and self-esteem.

Fomo. Fomo is a phenomenon that is often discussed in connection with the dark side of social media (Tandon et al., 2021a; Tandon et al., 2021b). Przybylski et al. (2013, p. 1841) define fomo as a "pervasive perception that others may have positive experiences in which one does not participate, [...] characterized by the desire to be permanently

connected to what others are doing." Fomo is influenced by several things such as individual factors (e.g. age and gender, emotional stability, life satisfaction), the influence of friends and family and user behavior (Oberst et al., 2017; Przybylski et al., 2013; Stead & Bibby, 2017; Tandon et al., 2021a). Fomo can lead to compulsive social media use or SMF. In the context of individual well-being, Fomo can cause anxiety, addiction, depression, loneliness and stress (Tandon et al., 2021a).

SMF. The constant and sometimes compulsive use of social media and the overwhelming amount of information mean that more and more people feel exhausted and tired as a result of using social media (Ou et al., 2023). These negative reactions (e.g. fatigue, exhaustion) as a result of social media use are referred to as SMF. Pang (2021) defines SMF as: "...self-regulated and adverse emotional experience that includes feelings of tiredness, disappointment, boredom, burnout, loss of interest, or decreased usage of SNSs [social networking sites] and decreased motivation." There are various factors influencing SMF (Xiao & Mou, 2019; Zheng & Ling, 2021). For example, studies have found that privacy concerns have a significant impact on SMF (Bright et al., 2015; Dhir et al., 2019; Logan et al., 2018). Pang (2021) and Zhang et al. (2021) were able to show in their studies that perceived information overload triggers SMF. Studies also investigated the consequences of SMF. One major consequence of SMF identified in a number of studies is reduced social media use or even withdrawal (Cao & Sun, 2018; Ou et al., 2023; Ravindran et al., 2014). In addition, studies have shown that SMF reduces academic performance (Malik et al., 2021), increases the sharing of unverified information (Islam et al., 2020), and can cause negative psychological consequences such as emotional exhaustion, depression and anxiety (Dhir et al., 2018; Pang, 2021).

User interaction behavior

How users interact and generally behave on social media has a major influence on the experience that users have while using it. In this context, the dark aspects of stalking, bullying, aggression, hate speech, toxicity and fake news are discussed in this subchapter (Table 2).

Table 2
Category user interaction behavior

Dark aspects	Selected studies
Aggression, hate speech and toxicity	Farkas et al., 2018; Hamilton, 2012; Matamoros-Fernández & Farkas, 2021; Pascual-Ferrá et al., 2021; Terizi et al., 2021; Twenge & Campbell, 2003
Stalking and bullying	Cao et al., 2020; Dhir et al., 2021; Geiring, 2017; Ouwerkerk & Johnson, 2016; Tandon et al., 2021b
Fake news	See section "Technical aspects and content"

Aggression, hate speech and toxicity. Many interactions on social media are increasingly characterized by growing aggressiveness (Terizi et al., 2021). This applies not only to topics that tend to be explosive or controversial, but also to more trivial matters (e.g. food). This aggressiveness is partly reinforced by some mechanisms of social media, for example, being able to act anonymously or at least with a false name. Hamilton (2012, p. 6) summarizes the significance of aggressive communication as follows: "Aggressive language, with its penchant to reverberate over social media, can damage the self-concept of its victims. Verbal aggression threatens to destroy civil discourse in groups and large organizations. It polarizes factions toward extremism, bringing strife and ultimately paralysis to institutions. Between cultures, verbal aggression can spiral out of control, leading to bloodshed or even full-scale war. In short, the incendiary effects of excessive verbal aggression represent an imminent danger to civilized society." Aggression can take different forms on social media and is usually also part of other darker aspects of user behavior, such as bullying or stalking. Verbal aggression can focus on a specific topic or on an individual. On the one hand, posts can aggressively discuss or comment on certain actions (e.g. a political measure, the cancellation of an event, a company action). On the other hand, very specific individuals or groups can be aggressively attacked verbally. This is increasingly common among politicians, for example. Pascual-Ferrá et al. (2021) address

toxicity and verbal aggression on social media in their study. The authors define toxicity in the context of online discussions as "a rude, disrespectful, or unreasonable comment that is likely to make you leave a discussion." (Pascual-Ferrá et al., 2021, p. 3). In their study, Pascual-Ferrá et al. (2021) specifically examine the influence of toxicity and verbal aggression on Twitter in connection with the request to wear a mask during the Covid-19 pandemic. They were able to show that mask opponents in particular communicated with a very high level of toxicity and aggression.

Studies have shown that individual characteristics such as narcissism in combination with perceived social rejection are strong influencing factors of aggressive behavior (Okada, 2010; Twenge & Campbell, 2003).

Stalking and bullying. Social media stalking is described by Dhir et al. (2021, p. 1375) as "...intentional or unintentional information-seeking about others on the social media platforms." It is important to note that, unlike online stalking, social media stalking does not have to be fundamentally negative (Dhir et al., 2021, p. 1375: The authors define online stalking as "...a perpetrator's recurrent intrusive behavior, which is not welcomed by his or her victims and causes a sense of fear, as it embodies implicit or explicit threats."). Social media stalking describes the tendency of users to look at other profiles, monitor other users via their profiles, and collect information about them while spending a large part of their time on social media (Dhir et al., 2021). Although this describes a behavior in which other profiles are regularly viewed, this does not necessarily have to be done with a negative intention. Ultimately, it is a basic idea of most social media platforms that users look at or follow other users. Dhir et al. (2021) describe social media stalking in this form as a good part of online stalking. Due to the abundance of personal information and easy access to this information on social media, users become more susceptible to surveillance and privacy violations, so intentional or unintentional social media stalking can become problematic. As part of online stalking, this surveillance of victims can quickly lead to threats and frequent contact.

Easy access to personal information, and in particular the simple and uncomplicated ways of sharing and disseminating content and information, have led to a sharp increase of bullying on social media. Bullying is a systematic form of behavior aimed at violating the dignity of a person and creating an environment characterized by

intimidation, hostility, humiliation, degradation or insults (Geiring, 2017). Bullying can originate from one person, but also from several people. As mentioned at the beginning, social media makes it possible to quickly and easily upload and share homemade videos or images that contain sexual, violent or humiliating content about a person. Comments or entries on profile pages can be used to publicly attack and insult "victims". Other forms mentioned by Geiring (2017) include voting campaigns (where, for example, a picture of a victim is uploaded and others are asked to rate the appearance of this person), happy slapping (the victim is beaten up by the perpetrators and the video of this is shared on social media), and the creation of fake profiles under the victim's name. The effects of social media bullying can be serious. Victims suffer from psychological problems and physical limitations, some of which are so severe that victims undergo trauma and personality changes, which in turn can lead to suicide or suicide attempts (Geiring, 2017). Compared to bullying in the real (analog) world, social media bullying sometimes takes even more serious forms, as the perceived anonymity on the internet reduces the inhibition threshold of some perpetrators and the fear of punishment is often lower (Geiring, 2017). In addition, content on social media is difficult to delete and can spread very quickly.

Technical aspects and content

This dimension is intended to summarize dark aspects that are directly or indirectly related to technical conditions, such as algorithms, or to content, such as fake news (see Table 3).

Table 3
Category technical aspects and content

Dark aspects	Selected studies
Algorithms and filter bubbles	Flaxman et al., 2016
Fake news	Apuke & Omar, 2021; Bastick, 2021; Colliander, 2019; Di Domenico et al., 2021; Islam et al., 2020; Kaplan, 2020; Laato et al., 2020; Talwar et al., 2019; Zhang & Ghobarni, 2020
Censorship	Dal & Nisbet, 2022; Pilipets & Paasonen, 2022; Tai & Fu, 2020
Surveillance	Fuchs & Trottier, 2015; Trottier, 2011; Van der Schyff et al., 2020; Van der Schyff & Flowerday, 2019
Perceived overload	Hattingh et al., 2022; Liu & He, 2021; Lee et al., 2016; Pang, 2021

Algorithms and filter bubbles. Due to the large amount of information and content on social media, most platforms use algorithms to tailor the information and content to users, i.e., a kind of pre-selection is carried out. Essentially, the aim is to show users the information and content that the algorithm knows is of interest to them (e.g. by considering what content was previously of interest to the user and their friends). Since many people tend to consume information and content that corresponds to their ideas and values (Flaxman et al., 2016), that means that only content that corresponds to these ideas is selected and displayed by the algorithm. This creates so-called filter bubbles or echo chambers. This may also be unproblematic to a certain extent, for example if the interest is in cat videos and the user is in a cat video filter bubble. It becomes problematic when users adopt polarized positions on certain (problematic) topics by only obtaining information for themselves and exchanging information within a closed community that subscribes to their ideas (Di Domenico et al., 2021).

Fake news. In recent years, the spread of false information, so-called fake news, has increased significantly (Apuke & Omar, 2021; Di Domenico et al., 2021). In principle, fake

news is not a new phenomenon, but the spread of fake news through social media has increased significantly, which is related to the mechanisms of social media (including quick and uncomplicated sharing of (false) content, easy provision of (false) content, no or hardly any verification of content). Furthermore, the latest developments in artificial intelligence have a large impact on the possibilities of creating and distributing fake news (Kaplan, 2020). Fake news is defined by Apuke and Omar (2021, p. 2) as "...untrue information, including myths, rumors, conspiracy theories, hoaxes as well as deceptive or erroneous content intentionally or unintentionally disseminated on social media platforms." The sharing and dissemination of fake news is not limited to humans, but is increasingly also being carried out by non-human "users" (e.g. social bots) (Di Domenico et al., 2021). In the case of human users, a distinction can be made between those who intentionally (users consciously decide to share fake news) or unintentionally share and spread fake news (users are not aware that it is fake news and share it) (Di Domenico et al., 2021). Depending on the information or content, the consequences of sharing and spreading fake news can be harmless. However, fake news can also have serious negative consequences, particularly in the areas of health (e.g. the Covid-19 pandemic), politics (e.g. elections) and society. Fake news can lead to panic reactions, damage the image of individuals and organizations, or generally lead to wrong or negative actions (Di Domenico et al., 2021). In addition to the consequences resulting from the spread of fake news, studies have also investigated the reasons why users spread fake news. Studies found that SMF, fomo, laziness, information overload and a lack of ability to verify information are reasons why users share fake news (Khan & Idris, 2019; Laato et al., 2020; Talwar et al., 2019).

Censorship. Another dark aspect is the increasing censorship of content or, in some countries, even the banning of entire social media platforms. Essentially, this is about content being influenced and controlled by institutions, groups or individuals. Content may not be made available or may be deleted after it is posted. Institutions include governments in particular, but also the social media platforms themselves. Censorship does not necessarily have to be negative, as the (motive) reasons for intervening in social media can be very diverse. For example, interventions in connection with illegal content can certainly be seen as positive. However, the large-scale censorship and influence on

social media in some especially non-democratic countries are critical. In general, there is a very fine line between more or less justified censorship and interference with freedom of expression. As social media is also a global phenomenon, the assessment of whether something is justifiably or unjustifiably censored is also strongly influenced by country-specific factors. In addition, the mechanisms used by most large social media platforms to delete or prevent unwanted content also repeatedly lead to problems (Pilipets & Paasonen, 2022).

Surveillance. Social media allows organizations and governments to monitor users and collect a wide range of data about them. Fuchs and Trottier (2015, p. 127) define social media surveillance as: "...a techno-social process in which human actors make use of surveillance technologies for monitoring human activities on social media." From the perspective of organizations and social media platforms (whose business model is essentially based on the collection and sale of data), the main aim is to collect data about users in order to better understand their (purchasing) behavior, interests and needs. In many cases, extensive user profiles are created on this basis. Due to the large number of interactions and actions in social media, extremely accurate profiles are created in this aggregated form (van der Schyff et al., 2020). The data and profiles are subsequently used for personalized advertising offers or individualized products, for example. However, ratings are also created about users. This happens, for example, with insurance companies that adjust tariffs in some countries on the basis of observed user behavior. In addition to companies, social media is also monitored by governments or government-related organizations (van der Schyff et al., 2020). Governments can monitor individual users or groups of users and monitor their opinions, attitudes and possible actions (e.g. protests). In many cases, such surveillance is carried out in the context of combating crime and terrorism (Fuchs & Trottier, 2015). Regardless of whether surveillance is carried out by companies or governments, it is problematic for various reasons. Such surveillance and, in particular, the linking of data to profiles, is an invasion of the user's privacy. Above all, most users are not even aware of how information is collected and used (van der Schyff et al., 2020). In addition, the amount of data about an individual user makes it possible to control and influence their behavior (e.g. purchasing and voting behavior) (van der Schyff et al., 2020).

Perceived overload. Perceived overload on social media caused by content, communication and system features represents a major factor influencing the user experience of social media (Pang, 2021). Content overload refers to the overwhelming volume of media that users encounter, which often leads to difficulty in processing information effectively and making informed decisions. Communication overload, on the other hand, involves the intense frequency of social interactions and notifications that demand continuous attention and engagement. Another reason for perceived overload can be the complex options offered by the platforms. Platforms often offer new options and possibilities and change continuously. Users may perceive these functions as too complicated or even unnecessary (Zheng & Ling, 2021).

Studies have shown that perceived overload is linked to increased stress and anxiety levels among users and can also lead to SMF (Bright et al., 2015; Cao & Sun, 2018; Lee et al., 2016; Pang, 2021).

Individual and external factors

The individual dark aspects of social media are influenced by several factors. The intensity of the dark aspects depends on individual and external factors. In this context, the usage behavior of social media plays an important role. For example, studies found that the intensity or duration of use is an important influencing factor. In addition to usage behavior, studies have identified a number of user characteristics that influence the dark aspects of social media (e.g. socio-demographic and psychological aspects). External factors also have a direct or indirect influence on the dark aspects of social media. These include events, developments and occurrences that affect communication on social media or that are the subject of content (such as fake news) on social media. For example, content and information on social media during some elections or the Covid-19 pandemic had a major impact on many users on social media and were simultaneously influenced by social media (Apuke & Omar, 2021). Table 4 provides an overview of selected studies related to these three areas.

Table 4
Category individual and external factors

Dark aspects	Selected studies
User behavior	Brailovskaia et al., 2020; Coyne et al., 2020; Cunningham et al., 2021; Elhai et al., 2016; Elhai et al., 2020; Marttila et al., 2021; Oberst et al., 2017
User characteristics	Bastick, 2021; Colliander, 2019; Di Domenico et al., 2021; Islam et al., 2020; O´Day & Heimberg, 2021; Ouwerkerk & Johnson, 2016; Przybylski et al., 2013; Skues et al., 2012; Tandon et al., 2021a; Zhang & Ghobarni, 2020
External factors	Apuke & Omar, 2021; Gioia et al., 2021; Islam et al., 2020; Pascual-Ferrá et al., 2021

User behavior. A large number of studies have examined various aspects of user behavior in connection with the dark side of social media. A factor that is frequently examined is the duration of use. The basic assumption here is that very high levels of social media use can lead to negative consequences. However, the results in this context are rather contradictory. For example, some studies have demonstrated a correlation between usage duration and psychological consequences (Cunningham et al., 2021; Elhai et al., 2020; Elhai et al., 2016), while other studies have been unable to demonstrate this or only to a very limited extent (Coyne et al., 2020; Keles et al., 2020). In addition to the duration of use, the importance that social media has for a user can influence any negative consequences. The basic assumption here is that there is a higher risk of negative effects for users who perceive social media as the most important medium for information, entertainment and communication. Such users tend to rely more heavily on the information in social media, but at the same time are often in a corresponding filter

bubble. The high importance of social media also contributes to the fact that users are more likely to be afraid of missing out, which in turn can encourage addiction. Another influence on the dark aspects of social media in connection with user behavior is the respective platform and its possibilities and formats. This includes the functionalities of the platform, the user structure of the platform, and the thematic focus of the platform (e.g. focus on specialist topics or entertainment). For example, the short video formats on TikTok and the algorithm, i.e., the way in which the content is displayed to users, have a strong influence on the duration and intensity of use of social media.

User characteristics. Besides the users' behavior, a number of individual factors influence the dark aspects of social media. These individual factors include socio-demographic factors, psychological factors, physiological factors, and factors that describe the user's environment, such as family and friends. Socio-demographic factors such as age and gender, have been integrated as direct or indirect variables in many studies. The results are different and sometimes contradictory (e.g. whether gender has an influence). For some dark aspects, an influence could be determined, whereas for other dark aspects this was not present or only very weak. In addition to socio-demographic factors, various psychological factors are addressed in research. These include, for example, loneliness, self-confidence, motives, laziness and narcissism (O'Day & Heimberg, 2021; Ouwerkerk & Johnson, 2016). Another important influencing factor is the user's social environment. Studies have shown that users with little social support from family, friends, neighbors or acquaintances tend to have more mental health problems, such as depression and anxiety, and that this can have an influence on social media use and experience (Keles et al., 2020).

External factors. In addition to the factors that are more or less directly related to the social media user, there are also external factors that lead to or influence dark aspects of social media. The external factors category includes events that are of interest to larger sections of society and affect them directly or indirectly. These include, in particular, political events (e.g. elections), crises, economic events or even social "scandals" involving people of public interest. Fake news, aggression, fomo and SMF are probably the most important and most frequently investigated consequences of these external factors (Gioia et al., 2021; Pascual-Ferra' et al., 2021).

MEASURES TO DEAL WITH THE DARK SIDE OF SOCIAL MEDIA

Dealing with the dark aspects of social media requires actions by different actors on different levels to define and implement measures. These actors include platform operators, politicians, public institutions (e.g. schools and universities) and parents.

Education and social media literacy

Probably the most important area for dealing with the dark side of social media is education and social media literacy. In addition to the fundamental promotion of education in general, the promotion of skills related to media in general and specifically to social media is essential (Wendt et al., 2023). Tamplin et al. (2018) define social media literacy as "...critical thinking about social media which includes being empowered with the knowledge and skills to analyze, evaluate, produce, and participate in social media." Research has identified cognitive and technical skills as major components of social media literacy (Schreurs & Vandenbosch, 2021). In addition, social participation and interaction skills should be developed and supported (Wendt et al., 2023). Some political institutions for example have created the first initiatives in this regard (e.g. the European Skills Agenda or the Digital Education Action Plan). However, building and promoting social media skills is a major task for a number of stakeholders and needs time to be developed. Appropriate measures should be considered for children and young adults (Wendt et al., 2023; Weir, 2023). In addition to public institutions such as schools and universities, parents are crucial actors.

Legal and political measures

In order to address the negative consequences of social media, many countries are trying to develop and apply legal measures. Because social media is a global phenomenon, national legislation is often limited and the design and implementation of legal measures is difficult. In addition, implementation often depends on the cooperation of the platform operators (e.g. identifying users or deleting content). Another fundamental problem is the balancing act between freedom of expression and the protection of personal rights. The legal and generally politically driven measures include for example measures to protect user data and personal rights and measures against hate speech and violence.

Technical and platform-related measures

The third category of possible measures comprises various technical measures that can be used to deal with the dark aspects of social media. Some of these technical measures are related to legal or political requirements (e.g. measures taken by platforms in connection with the protection of user data). In recent years, directly or indirectly influenced by political or legal frameworks, most social media platforms have introduced or expanded various technical measures to counter the dark side of social media. These include technical measures to better protect user data, to allow users to report other aggressive and disturbing users and to report potential fake news. For example, platforms have introduced their own teams that check facts and delete posts if necessary. Some platforms have also introduced technical measures to protect young users.

There are also other technical options to counteract some of the darker aspects of social media. For example, there are a number of apps designed to help users to better control their usage and the time spent on social media.

THEORETICAL AND PRACTICAL IMPLICATIONS

Due to the complexity and the high number of possible dark aspects there are only a few studies which have tried to give an overall view on the topic. Baccarella et al. (2018) highlight that more research is needed that provide classification frameworks. Our conceptual framework therefore contributes to the existing literature by providing an attempt to structure the different aspects. The framework provides further insights into the relationships between the different dark aspects and is an attempt to better understand their complexity.

An overview and deeper understanding of the dark side of social media are important for the different actors involved in preventing the dark aspects. Knowledge about the different drivers and consequences of the dark side of social media will allow the different actors to better develop measures to handle and prevent the dark aspects. It can help for example with the development of media education programs in schools and universities. Even with regard to (private) individuals, knowledge about the dark side is crucial. Although there is a growing awareness of the dark side, many individuals continue to use social media in an unhealthy way, uploading pictures of their children

without consent, not meeting their friends in reality anymore, and sharing information that they are not sure is fake or not.

LIMITATIONS AND FUTURE RESEARCH

The developed conceptual framework provides an overview of the wide range of dark aspects of social media. However, there are some limitations. Even though the framework covers major dark aspects that are frequently discussed in literature there are still aspects that are not covered. For example, the category of external factors provides only a limited overview of possible factors. Another limitation is the issue that some factors can be both an influencing factor and a consequence. For example, depression can be an influencing factor (e.g. depression leads to problematic social media use) (O'Day & Heimberg 2021) or a consequence (e.g. negative experiences on social media lead to depression). For some dark aspects, there are different results depending on whether there is a direct influence on another variable or a moderating influence. Furthermore, there are factors that can be considered individually (e.g. as an influencing factor) or are a direct component of another dark side (e.g. aggressiveness can be considered individually as an influencing factor, but is also an essential feature of the dark side of bullying). Finally, it is not always possible to precisely assign the different dark aspects to a specific category or to distinguish them from another category (e.g. fake news: on the one hand, fake news is an aspect that can be seen in connection with content; on the other hand, fake news is also the result of user behavior). Future research should further investigate the relationship between the different dark aspects, the influence of the individual and external factors (e.g. cultural differences), and the measures used to deal with the dark side of social media.

CONCLUSION

While social media offers great opportunities for connectivity and engagement, it also poses significant risks. This paper has outlined a systematization framework to categorize the dark aspects of social media. These dark aspects are categorized into psychological and health-related issues, user interaction behavior, technical and content-related factors, and individual and external aspects. The framework not only highlights the different and complex nature of these factors but also underlines the critical need for

strategies to mitigate their negative impacts. The proposed framework offers a holistic understanding of these dark aspects, contributing to the literature by providing a structured approach to studying the complexities of social media's dark aspects (Baccarella et al., 2018).

The framework presented in this paper has significant implications for various stakeholders, including researchers, policymakers, educators, social media platforms, and individual users. For researchers, the conceptual framework offers a foundation for further investigations of the interconnectedness of different dark aspects of social media (Baccarella et al., 2018). Policymakers can use the insights to develop more effective regulations that balance freedom of expression with the need to protect individuals from harm (Zhang & Ghobadi, 2020). For example, the European Union's General Data Protection Regulation (GDPR) and the Digital Services Act (DSA) have been implemented to protect user data and regulate harmful content on social media platforms (Turillazzi et al., 2023).

A crucial aspect of addressing dark aspects of social media is enhancing social media literacy among users. Social media literacy involves equipping individuals with the knowledge and skills to critically analyze, evaluate, and engage with content on social platforms. This literacy is particularly important for young people, who are among the most vulnerable to the negative effects of social media. Initiatives such as the "Be Internet Awesome" campaign by Google and the European Digital Education Action Plan emphasize the need for comprehensive education that covers not just the technical skills required to navigate social media, but also the cognitive and social skills needed to critically assess the information and interactions online (European Union, 2024; Google, 2024). Social media literacy also includes understanding the risks associated with online behavior, such as oversharing personal information, engaging with misinformation, and the psychological impact of social comparison. By fostering these skills, educators and institutions can empower users to engage with social media in healthier, more informed ways, and therefore reducing issues like social media addiction, misinformation spread, and online harassment. For example, Guess et al. (2020) confirmed in their large-scale study that social media literacy interventions are effective fighting misinformation.

Social media platforms are also encouraged to adopt technical measures that prevent or mitigate negative behaviors and content. For instance, platforms like Facebook have introduced fact-checking tools, trust rankings and algorithms to detect and reduce the spread of misinformation (Pennycook & Rand, 2019). Finally, for individual users, the awareness of these dark aspects can foster more mindful and healthier social media usage, reducing the risks associated with overuse or misuse (D'Arienzo et al., 2019).

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