1. Introduction

“Health is created and lived by people within the settings of their everyday life; where they learn, work, play, and love.” This famous dictum of the Ottawa Charter, published by the World Health Organization (WHO) (1986) is an early basis of the settings-based approach to health promotion. More than two decades later, the settings approach has become firmly integrated within international health promotion theory, policy, and practice. A settings approach views the physical, organizational, and social contexts in which people are found as the objects of intervention (Poland et al., 2009). Other than traditional prevention strategies, which are directed at an individual’s behavior, the settings approach endorses a socio-ecological model of health and aims to integrate a commitment to health within the structures and processes of social systems. A plethora of health promotion programs and networks oriented to such settings have emerged, covering, above all, work sites, communities and schools. The Healthy Cities network is probably the best-known international example of the WHO healthy settings initiative (Dooris, 2004). The settings approach has also expanded to include other types of settings such as islands, universities, and prisons (Green et al., 2000; Poland et al., 2009). Within the last years, however, a further site has evolved in which people ‘learn, work, play and love’: the Internet, and in particular the online social networking sites (SNS) such as Facebook or MySpace (Boyd and Ellison, 2007).

By today, the internet has reached near ubiquity and is generally regarded as an indispensable communication tool throughout the developed world (Bennett and Glasgow, 2009). The standard on which the internet is now based is known as “Web 2.0”: web applications allow end users to interact and collaborate as content creators, rather than the one-directional exposition to positive references to risk behavior by peers may render the SNS environment detrimental to health, SNS may allow people to create their own content and therefore foster participation. However, those health promotion projects delivered on SNS up until today solely relied on health education directed at end users. It remains unclear how health promotion on SNS can meet other requirements of the settings approach (e.g. building partnerships, changing the environment). As yet, one should be cautious in terming SNS a ‘setting’.

Among adolescents, online social networking sites (SNS) such as Facebook are popular platforms for social interaction and may therefore be considered as ‘novel settings’ that could be exploited for health promotion. In this article, we examine the relevant definitions in health promotion and literature in order to analyze whether key characteristics of ‘settings for health promotion’ and the socio-ecological settings approach can be transferred to SNS. As many of our daily activities have shifted to cyberspace, we argue that online social interaction may gain more importance than geographic closeness for defining a ‘setting’. While exposition to positive references to risk behavior by peers may render the SNS environment detrimental to health, SNS may allow people to create their own content and therefore foster participation. However, those health promotion projects delivered on SNS up until today solely relied on health education directed at end users. It remains unclear how health promotion on SNS can meet other requirements of the settings approach (e.g. building partnerships, changing the environment). As yet, one should be cautious in terming SNS a ‘setting’.

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than 65 have an active role in SNS. US data also show that all education levels, ethnic groups and household income categories are represented in SNS in similar shares (Brenner and Smith, 2013). Global data show, however, that in some world regions Internet usage and hence SNS usage is marginal, especially on the African continent (16%). In other regions like the Middle East, Latin America and Asia, SNS usage varies between 27 and 42% (Miniwiatts Marketing Group, 2012).

Over the last decade, the Internet has also been used to deliver public health interventions across a wide range of conditions and population segments (Bennett and Glasgow, 2009; Gold et al., 2012). However, health interventions directed to the general population (not to a certain patient group) have mainly used traditional Web 1.0 channels, such as health education websites (Bennett and Glasgow, 2009; Freeman and Chapman, 2008). In contrast to the one-way information flow of Web 1.0 services, the interactive element of SNS provides a more sophisticated channel for health communication. SNS form an ‘environment for social interaction’ via the internet and thus might be seen as a special kind of ‘setting’, as is illustrated in a compelling way in a recent analysis: ‘Imagine there is a centre that the vast majority of young people go to most days of the week for several hours a day. Young people at this centre are seeking health related and wellbeing information, but there are no health promotion workers... This describes the current situation if we conceptualise the social media environment as a setting.’ (Centre for Health Promotion and Women’s and Children’s Health Network, 2012). Also other authors call online SNS ‘novel’ or ‘virtual settings’ (Gold et al., 2012; Green et al., 2000). However, whether SNS such as Facebook can be conceptualized as settings at all has not been rigorously examined yet. In addition, very little has been published about how SNS, if understood as a setting, might be exploited for health promotion interventions (Gold et al., 2012), and what special setting characteristics need to be considered.

Therefore, in this article, we intended to

1. analyze whether features of SNS correspond to essential characteristics of ‘settings for health promotion’
2. examine how essential characteristics of the settings approach to health promotion can be transferred to SNS

We will do this by identifying a range of key characteristics of both a ‘setting’ and the ‘settings approach’ as they have been promoted in corresponding health promotion definitions. For each of these key features, we will then draw on the existing evidence in the scientific literature in order to discuss if SNS qualify for a setting for health promotion and if the settings approach may be applicable to SNS. Based on the results of this list of setting characteristics and health promotion evidence, we will conclude by shortly discussing the arguments in support and against the idea of SNS as novel settings for health promotion.

We are well aware that SNS are only one form of applications provided by Web 2.0. Other social media technologies that are highly popular as well include Internet forums, weblogs, wikis, virtual game worlds, and podcasts, to name only a few. However, we decided to focus exclusively on SNS. In order to analyze a form of social media with regard to its potentially being a ‘setting for health promotion’, it is important to comprehensively understand the ‘environment’ (i.e. the technical features that influence the interaction), the activities performed in this environment, the norms and codes of conduct that have evolved within this context, and the group of people using this form of media. These aspects may vary substantially between different Web 2.0 applications, a fact which would have rendered the analysis overly complex. We mainly refer to SNS such as Facebook and MySpace, because most information, research and evidence available apply to these platforms.

2. Do characteristics of ‘Settings for Health Promotion’ apply to SNS?

The settings approach has its main roots in the Ottawa Charter for Health Promotion, and has developed over the past 25 years to become a key element of public health strategy. It has been influenced by ecological theory which holds that the individual’s functioning is mediated by behavior–environment interaction (Green et al., 2000). Definitions for settings for health promotion are abundant. We searched position papers, monographs/edited books, and review articles that featured healthy settings, and selected seven definitions which have proven to be of relevance in the last decades’ discourses on settings in health promotion: they stem from different years, different organizations, different professions, and vary in breadth and dimension of the conceptualization of a ‘setting’, see Table 1.

The definitions of the WHO (as published in the Ottawa Charter and the Health Promotion Glossary) are the core of almost all definitions available; some definitions extend the original definition, spell out some aspects in more detail or emphasize certain criteria. We are well aware that the selected definitions do not represent a complete collection, but believe that it is sound to limit the number of definitions to be analyzed because (1) across these definitions, a sufficiently broad number of different, but repeatedly

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Setting for health promotion: Selected definitions and/or descriptions.</th>
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<tr>
<td>(1) A behavior setting is a place where most of the inhabitants can satisfy a number of personal motives, where they can achieve multiple satisfactions. (Barker, 1968)</td>
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<td>(2) Health is created and lived by people within the settings of their everyday life, where they learn, work, play, and love. (World Health Organization, 1986)</td>
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<td>(3) The place or social context in which people engage in daily activities in which environmental, organizational and personal factors interact to affect health and wellbeing. A setting is also where people actively use and shape the environment thus can create or solve problems relating to health. Settings can normally be identified as having physical boundaries, a range of people with defined roles, and an organizational structure. (World Health Organization, 1998)</td>
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<tr>
<td>(4) Settings may be defined as spatial, temporal and cultural domains of face-to-face interaction in everyday-life. A setting refers to a socially and culturally defined geographic and physical area of factual social interaction, and a socially and culturally defined set of patterns of interactions to be performed while in the setting. A setting represents a frame of face-to-face, social interaction among human beings, the meaning of which is socially and culturally shared within the particular group of people being a part of the setting for a certain period of time. (Wenzel, 1997)</td>
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<td>(5) Settings are organizations that are accepted as a social entity due to their structure and assignment. (World Health Organization, 1998)</td>
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<td>(6) Settings can be conceptualized as both (a) physically bounded space-times in which people come together to perform specific tasks (usually oriented to goals other than health) and (b) arenas of sustained interaction, with pre-existing structures, policies, characteristics, institutional values, and both formal and informal social sanctions on behavior. (Green et al., 2000)</td>
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<td>(7) The setting is a social context which is relatively permanent and of which its members have a consciousness. This context can be expressed by a formal organization (e.g. school), regional situation (e.g. community), similar conditions of life (e.g. senior citizens) or common values and preferences (e.g. religion). (Bundeszentrale für gesundheitliche Aufklärung, 2003)</td>
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named core features occurred, and (2) we experienced a conceptual saturation, i.e. no more new features were identified when further definitions were analyzed, because these further definitions were mostly referring back to one of the definitions selected before. The key features that are attributed to a setting for health promotion throughout these various definitions are that a setting:

- Offers social context and social interaction.
- Is a geographical locus / has physical boundaries.
- Is an integral part of everyday life.
- Allows for the pursuit of various personal professional or leisure time activities.
- Displays policies and an organizational structure.
- Is based on shared values, norms, sanctions and/or a code of conduct.
- Has an influence on health and well-being.
- Is permanent and/or consistent.

In the following paragraphs, we describe each of these characteristics and analyze whether it applies to SNS such as Facebook or MySpace. For a summary, see Table 2.

### 2.1. Social interaction

*About this characteristic.* The terms ‘social context’ or ‘interaction’ can be considered as a core characteristic of a setting (Green et al., 2000; Wenzel, 1997; World Health Organization, 1986, 1998). In the socio-ecological perspective, the environments that shape human behavior and health include family, peer groups and social environment just as well as the physical environment (McLeroy et al., 1988).

*Does this apply to SNS?* SNS basically consist of ‘connections’ between users (Boyd and Ellison, 2007), information exchange, and multidirectional conversations. People mainly use these platforms to (a) get to know people, (b) stay in contact with friends, (c) share and discuss content and photographs with others (Brandzaeg and Heim, 2009; Joinson, 2008; Raacke and Bonds-Raacke, 2008; Urista et al., 2009). Young people also negotiate intimate relationships online, including flirting, breaking up, and sexual encounters (Pascoe, 2011). In addition, SNS have also been described to be used to bully and harass others (Daine et al., 2013). Therefore, social interaction is a criterion that applies very well to online social media – although this interaction differs from traditional face-to-face interactions. On SNS, people produce social relationships and interpretations of reality only by exchanging written information back and forth, whereas social interaction in real life relies to a great extent on a much more immediate exchange of nonverbal communicative signals.

### 2.2. Geographical locus and physical boundaries

*About this characteristic.* Many, though not all, definitions define a setting as having physical boundaries (Green et al., 2000; Wenzel, 1997; World Health Organization, 1998). The conception of a spatially bounded place is also reflected in the ‘typical’ setting examples that are mentioned throughout the health promotion literature: schools, work places, communities, universities.

<table>
<thead>
<tr>
<th>Key feature</th>
<th>To be found in definition no (according to Table 1)</th>
<th>Applicable to SNS?</th>
<th>Limitations</th>
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<tbody>
<tr>
<td>Offering social context and social interaction</td>
<td>(3), (4), (5), (6), (7)</td>
<td>Yes; social interaction is a core characteristic of SNS</td>
<td>Interaction only consists of written/text- and image-based communication</td>
</tr>
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<td>Being a geographical locus / having physical boundaries</td>
<td>(1), (3), (4), (6)</td>
<td>No; SNS have neither spatial nor virtual boundaries, but allow their users to form their own individual social network</td>
<td>No other behavior than communication is possible in the SNS. Risky health behavior that is normally targeted in health promotion, e.g. substance abuse, is not taking place in a SNS (just reported about)</td>
</tr>
<tr>
<td>Being an integral part of everyday life</td>
<td>(2), (3), (4)</td>
<td>Yes; the majority of young adults in developed countries use SNS daily for 0.5–2 hrs</td>
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<tr>
<td>Allowing pursuit of various personal professional or leisure time aims and activities</td>
<td>(1), (2), (5), (6)</td>
<td>Yes; users are active co-creators of content, and pursue activities such as staying in touch with friends, receiving and sharing information, negotiating (intimate) relationships</td>
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<td>Displaying an organizational structure and policies</td>
<td>(3), (5), (6), (7)</td>
<td>Yes; - SNS have terms of use that govern the interaction of its users - SNS have common technical features which structure and organize interaction, e.g. users’ profiles, options for posting text and photographs, and applications for giving feedback.</td>
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<td>Basing on shared values, norms, sanctions and/or a code of conduct</td>
<td>(3), (4), (6), (7)</td>
<td>Partly; social sanctioning happens via (semi-)public feedback, and result in SNS users striving to be compliant to peer norms. Users employ strategies that present themselves attractive to the audience ('impression management').</td>
<td>There is little research on the values, norms, and roles that shape the activities in SNS.</td>
</tr>
<tr>
<td>Influence on health and well-being</td>
<td>(2), (3)</td>
<td>Partly; some 'environmental aspects of SNS may be detrimental to their users' health, e.g. online advertising of legal drugs, other users' positive display of risky / self-destructive behavior, public display of negative feedback, cyber bullying</td>
<td>There is only scarce evidence whether the context of SNS affects the health of its users.</td>
</tr>
<tr>
<td>Permanence and/or consistency</td>
<td>(5), (6), (7)</td>
<td>Partly; - Level of SNS: some SNS such as Facebook have long been heavily used platforms for social interaction - Level of users: some groups and networks established on SNS are remarkably stable.</td>
<td>- Level of SNS: In general, use and popularity of SNS are dynamic and ever-changing processes. - Level of users: many networks undergo rapid changes</td>
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</table>
Does this apply to SNS? If this common notion was followed strictly, SNS would not qualify as a 'setting'. However, there are hints that geographically defined spaces are not a *sine qua non* for a setting. Indeed, some health promotion initiatives explicitly address the fact that geographical mobility and commuting has become an integral part of our everyday life: For example, Collins and Kears (2001) documented the negative health effects of traffic congestion and traffic injuries around New Zealand’s largest primary school and identify the need for health promotion to address the issue of safe commuting to and from the school setting (2001). Apart from this increasing importance of geographical mobility in between settings, according to Rosenbrook, a community of values or similarity of life conditions may function as a substitute for a formal, geographically bound organization (Bundeszentrale für gesundheitliche Aufklärung, 2003). Also Chappell et al., 2006 put forward an ‘alternative conceptualization of community’ in health promotion, in which relational elements or shared attributes can replace geographic proximity (2006). In fact, the last decade’s shift of many of our working and living conditions to the cyberspace may render it necessary to re-define the terms of ‘place’ and ‘environment’, because they may be perceived differently today as in the 1980s when the settings approach was first promoted. Green et al. point out that the ‘locatedness of traditionally spatially well-defined settings such as work and school’ begin to disintegrate, as people work from home, engage in distance education etc. (2000). The greater challenge, though, is the fact that SNS do not only lack physical boundaries, but also virtual boundaries. SNS are not a fix, ‘closed’ group of individuals registered for an online community, but each user has his or her own network of ‘friends’ that he or she is sharing his or her information with. The average Facebook user is reported to have 190 connections (Ugander et al., 2011), and the scope of friends may be widening or changing every day. On the other hand, it is a common phenomenon that groups of individuals who are virtually interconnected form a social group in the real ‘offline’ world as well, e.g. students of a certain study program of a certain town (Boyd and Ellison, 2007).

2.3. Integral part of everyday life

**About this characteristic:** Some definitions, especially those issued by the WHO, refer to the setting as being a platform for daily activities (Wenzel, 1997; World Health Organization, 1986, 1998).

**Does this apply to SNS?** This characteristic has become true for SNS for large populations in developed countries, especially young people. ‘For many of us, Facebook has become a part of daily life’ (Cassidy, 2012). This corresponds to results from many surveys. 77–88% of 14–19-year-olds in Germany use Facebook (Busemann and Gscheidle, 2012; Ebert et al., 2011). Users of SNS usually log in daily, and spend an average of 0.5–2 h a day communicating on the respective site (Cassidy, 2012; Hargittai and Hsieh, 2010; Joinson, 2008; Raacke and Bonds-Raacke, 2008).

2.4. Pursuit of various personal tasks, activities, motives

**About this characteristic:** According to many definitions, individuals play an active role in a setting by engaging in personal activities (Baric and Conrad, 1999; Barker, 1968; Green et al., 2000; Poland, 1998). The Ottawa Charter names for these activities: learn, work, play, love (World Health Organization, 1986). The activities may be directed at gaining satisfaction, or related to a personal task or goal.

**Does this apply to SNS?** Web 2.0. allows users to generate and distribute information, and therefore actively pursuing activities and fulfilling tasks. The main activities pursued on SNS are – apart from organizing for real life activities – getting to know people, staying in touch with friends, receiving, sharing and discussing information, and increasing one’s popularity (Joinson, 2008; Raacke and Bonds-Raacke, 2008; Urista et al., 2009). More passive motives are named as well, e.g. monitoring the life and activities of others (Brandtzaeg and Heim, 2009). Whereas the activities pursued in SNS may be manifold, there is one limitation: all these activities consist of communication. No other behavior than communication is possible in the SNS. Individuals do not smoke, drink or exercise in Facebook; they might just tell their friends on Facebook that they smoked, drank, or exercised. This important characteristic needs to be considered when identifying the personal behaviors that can be targeted if SNS were used for health promotion interventions.

2.5. Organizational structure, norms, codes of conduct

**About this characteristic:** Almost all definitions of a setting name the constitutive criterion of organizational structures and/or pre-existing policies (Green et al., 2000; Poland, 1998; World Health Organization, 1998). Settings are ‘co-ordinated social entities’ (Baric and Conrad, 1999) with defined roles, institutionalized values and social norms, and both formal and informal social sanctions on behavior (Green et al., 2000; Poland, 1998; World Health Organization, 1998).

**Does this apply to SNS?** Every SNS has its own applications and rules that shape the possible interactions (and thereby the codes of conduct that may evolve). SNS usually publish detailed policies (e.g. terms of use), which govern the interaction of its users by asking them to make certain commitments e.g. relating to registration, content sharing, privacy, safety, protection of (copy)rights or advertisements. In addition, almost all SNS dispose of similar technical features that can be understood as their ‘organizational structure’. The backbone of a SNS consists of visible individual profiles of its users. SNS also encourage their users to continuously ‘post’ messages and photographs on their profiles, e.g. describing what they are currently doing (Boyd and Ellison, 2007). Facebook or MySpace profiles thus serve as a stage on which users can make (semi-)public presentations of themselves. Users may strive to portray themselves in a positive light (Zywica and Danowski, 2008) and therefore employ strategies that assist in presenting themselves as attractive to the audience, known as ‘impression management’ in social psychology (Goffman, 1959; Rosenberg and Egbert, 2011). Since this self-image is subject to constant sanctioning via public feedback, it is important to the SNS user to be perceived as compliant to peer norms (Loss et al., 2013). The ‘like button’, a Facebook feature, is an organizational component that may enhance this process of social sanctioning. With the click of the ‘like button’ referring to a report or photograph, Facebook users indicate approval in a quick and easy form of social interaction (Wilson et al., 2012). The number of a user’s friends’ clicks on the ‘like button’ is publicly displayed on one’s profile (‘x people like this’), a feature that increases social pressure for everyone to join a competition for popularity (Zhao et al., 2008). However, we only just begin to understand the norms, sanctions and codes of conduct that may shape the activities in SNS. It is also noteworthy that some authors describe SNS to be quintessentially commercial platforms, as site owners make substantial profits through the accessing of commercially branded products and services, and by selling user data and advertising space to commercial interests. The structural characteristics of SNS, i.e. sharing of content, interactivity and virtual relationships, provide new vehicles for marketing of products damaging to health, e.g. alcohol (McCreanor et al., 2013), see also 2.6.

2.6. Influence on health and well-being

**About this characteristic:** The WHO describes a setting as the “... place or social context ...in which environmental, organizational
and personal factors interact to affect health and well-being.” (1998). If there was no link between the setting and the health (behavior) of its members, it would be useless to change the setting’s environment, a core concept of health promotion.

Does this apply to SNS? There is only scarce evidence yet on how the social or organizational context of sites such as Facebook affects the health of its users. Social media use as such, as it normally includes sedentary behavior in front of computers or smartphones, may increase physical inactivity. Besides this obvious tangible health effect, we identify the following ‘environmental’ aspects within the communication processes of SNS that may have an impact on the health (behavior) of their users:

1. Commercial marketing: Young people are exposed to a huge amount of advertising online, e.g. videos for tobacco brands, alcohol beverages and fast food restaurants. Alcohol brands set up their own Facebook sites that have been shown to have millions of ‘friends’, develop applications (e.g. texting a drink to a friend) and activities such as interactive games and competitions. In addition, they post statements on SNS that work to normalize alcohol in the everyday life of SNS users. Key features of alcohol marketing include the blurring of user-generated material and brand promotion. Research on social media marketing, however, still remains in a developmental stage (McCreanor et al., 2013; Nicholls, 2012), and there is very limited research on the effect that this advertising has on young people’s risk behavior and public health outcomes (Centre for Health Promotion and Women’s and Children’s Health Network, 2012; McCreanor et al., 2013).

2. Display of risk behavior: References to alcohol or substance use, unhealthy eating or sexual behavior are prevalent among adolescents’ MySpace and Facebook profiles (Egan and Moreno, 2011; Loss et al., 2013; Moreno et al., 2010). Adolescents who observe SNS ‘friends’ engaging in risk behavior without experiencing negative consequences may be more likely to adopt the behaviors portrayed (Moreno et al., 2010). SNS references may be particularly potent influences because they are created and displayed by peers. Moreno et al. found that on U.S.-American MySpace profiles, only 2% of reports on alcohol drinking referred to negative consequences such as hangovers (Moreno et al., 2010). Also a German study implies that due to the public nature of the communication, young people utilize their reports about risk behavior (e.g. consumption of alcohol and unhealthy food) as a form of positive self-presentation; risk behavior was always portrayed as a funny, sociable and/or admirable activity (Loss et al., 2013). The health of SNS users may be challenged by interaction on SNS since their engagement in online self-presentation, fostered by ‘like buttons’ and other feedback options, blanks out any critical assessments of risky health behavior. This may play a role in normalizing risk behavior within young people’s lives, contributing to intoxigenic environments on SNS (McCreanor et al., 2013). Some social media platforms even actively promote dangerous or self-destructive behavior, e.g. by sharing self-harm techniques or supporting anorectic eating disorders. SNS like Facebook appear to be a relevant channel for young females suffering from anorexia nervosa to exchange disease-related ideas. However, this explicit promotion of anti-health behavior can mainly be found on specific internet forums or groups, less in ‘normal’ SNS communication (Daine et al., 2013; Teufel et al., 2013).

3. Public display of interpersonal feedback, cyber-bullying: An ‘environmental’ structure of SNS that can be linked to possible health effects is the publicly visible interpersonal feedback to a friend’s post (e.g. comments, or clicks on the ‘like button’). There are hints in the literature that public feedback on an individual’s actions or messages is a predictor of self-esteem and well-being. For adolescents who predominantly received negative feedback on their profiles, the use of SNS had negative effects on their well-being (Valkenburg et al., 2006). In the worst case, SNS can be used to bully or harass peers. There is increasing evidence that cyber-bullying via email, SNS or other media has a significant influence on self-harm and may even increase rates of attempted suicide (Daine et al., 2013).

2.7. Permanence/sustainability

About this characteristic: Some definitions declare permanence or sustainability as a constitutive characteristic of a setting (Baric and Conrad, 1999; Bundeszentrale für gesundheitliche Aufklärung, 2003; Green et al., 2000). This is important for interventions to have the chance to achieve long-term results and sustainably improve the setting’s environment and the health of its members.

Does this apply to SNS? Discussing the aspect of permanence for SNS is complex. Use and popularity of social media platforms vary; new platforms are created and trends are changing rapidly. However, sites such as Facebook and MySpace have remained strong leaders in the field for about 10 years already (Centre for Health Promotion and Women’s and Children’s Health Network, 2012). The medium of SNS as such can be expected to stay a relevant communication platform for years to come. If, in terms of permanence, the group level of users is considered, some SNS groups are remarkably stable, whereas others are characterized by rapid dynamics and changes.

3. Can core features of the Settings approach be transferred to SNS?

In health promotion practice, the term ‘settings approach’ is used to describe a variety of different intervention strategies. In some cases, a settings approach is designed as using geographical sites for health education, such as lifestyle modification programming in certain settings. Others focus on a meaningful shift of the organizational and social environment, bringing about new policies and structural change (Dooris, 2004; Wenzel, 1997; Whitelaw et al., 2001). Ideally, health promotion initiatives using a settings approach endorse both – promoting individual health behavior as well as changing the structural or physical characteristics of the setting itself. For example, a public health campaign on the health risks of extensive sun exposure in schools may include educating children on proper sun protecting behavior as well as providing a supportive built environment with sun shades in the school yard (Collins et al., 2006). On the conceptual level, however, the literature suggests that a certain degree of consensus of the core features of the settings approach to health promotion exist (Dooris, 2006; Whitelaw et al., 2001): it is based on a socio-ecological view of health, which holds that health promotion seeks to empower people by giving them control over the behavioral and/or environmental determinants of their health, and thus moves beyond using the setting as a mere route for distributing educational materials (Dooris, 2004; Green et al., 2000; King, 1998). This corresponds to the original concept of Healthy Settings, the approach that was put forward by the World Health Organization (2013). We searched position papers, monographs/edited books, and review articles that featured the settings approach in health promotion in general. Again, the essential description can be attributed to the World Health Organization (2013); in addition, we analyzed 4 further definitions or descriptions (Dooris, 2004; King, 1998; Poland et al., 2009; Whitelaw...
et al., 2001) which are cited and re-iterated throughout the health promotion literature (see Table 3).

Across these definitions, we identified the following key features of a settings approach to health promotion:

- Addressing individuals within the setting and building upon their capacities/skills.
- Changing the physical environment, organizational and social structure and/or policies.
- Building partnerships within the setting, developing links to other settings or to the wider community.
- Seeking participation of setting members and employing strategies to empower them.

In the following paragraphs, we briefly explain each of these characteristics and discuss how it might be transferred to health promotion interventions delivered on SNS (see also Table 4).

3.1. Addressing individuals within the setting and building upon their capacities/skills

**About this characteristic:** Although settings are more than ‘convenient locations for reaching target groups’ (King, 1998), addressing and informing individuals within a setting is usually part of the health promotion approach. The settings approach may not primarily intend to change behaviors, but addresses underlying competencies and skills of the setting’s members (King, 1998; Poland et al., 2009; Whitelaw et al., 2001).

**Can this be transferred to SNS?** In the literature describing the potential of SNS for health promotion, new social media are predominantly meant to be used for disseminating health messages among broad audiences with the aim of education and behavior change (Apatu et al., 2013; Korda and Itani, 2013; Thackeray et al., 2008). However, the special characteristics of SNS may allow to move beyond being ‘only another output channel’ (Thackeray et al., 2012) when addressing individuals

- **Interaction with target group:** Social media offer the opportunity to initiate an ongoing exchange of ideas and experiences about certain health concerns or preventive services among the SNS members (Thackeray et al., 2012). Examples of health promotion interventions that were delivered on Facebook (e.g. on HIV prevention or sexual health), focused on not only broadcasting information, but also on interacting and engaging with the target group (Bull et al., 2011; Gold et al., 2012): ‘…two-way interaction [is] a important … feature of health promotion interventions in this medium’ (Gold et al., 2012). Through this active engagement, interventions on SNS may help building personal skills, e.g. in health literacy, or health care-related interactions (Centre for Health Promotion and Women’s and Children’s Health Network, 2012; Korda and Itani, 2013).

- **Word of mouth:** SNS encourage users to share content and thus may foster word of mouth communication (Korda and Itani, 2013; Thackeray et al., 2012), i.e. ‘the act of consumers providing information to other consumers’ (Freeman and Chapman, 2008). On SNS, users can recommend a certain site or link, e.g. a preventive video on YouTube, to their friends and may thus become champions for certain causes (Thackeray et al., 2012). If health content is passed along to more and more ‘friends’, this can result in an exponential spread among users (similar to ‘viral marketing’) – ‘the greatest success one can have on a social networking site’ (Gold et al., 2012). Some videos promoting health behavior have managed to ‘go viral’, e.g. the emotional video spot ‘Embrace Life’ by Sussex Safer Roads, although these are exceptions (Gold et al., 2011). On the other hand, public health experts warn that health messages might become distorted when they are distributed and changed by social media users (Jones, 2011).

Those few published interventions addressing individuals in order to change health behavior (or other behavior, e.g. reducing energy consumption) through SNS were all set up in a similar way: first, the researchers created a special site on Facebook or MySpace – in one case using fictional characters – on which they posted content on the (health) issue addressed, e.g. regular updates and videos (Bull et al., 2011; Gold et al., 2012; Mankoff et al., 2007). Second, the intervention was promoted and participants recruited, mainly in the offline world by utilizing ‘traditional’ methods of promotion, such as approaching youth on community college campuses, and/or advertising in local city or college newspapers. The participants were requested to become a ‘fan’ of the health

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**Table 3**

Settings approach in health promotion: Selected definitions and/or descriptions.

1. A settings approach to health promotion ... organizes it in relation to the **environment** in which people live, work, and play ... [it] views the physical, organizational and social contexts in which people are found as the objects of inquiry and intervention, and not just the people contained in or defined by that setting. (Poland et al., 2009)

2. The settings-based approaches to health promotion involve a **holistic and multi-disciplinary method** which integrates action across risk factors. Healthy Settings key principles include community participation, partnership, empowerment and equity. Actions often involve some level of organizational development, including changes to the physical environment or to the organizational structure, administration and management. Settings can also be used to promote health as they are vehicles to reach individuals, to gain access to services, and to synergistically bring together the interactions throughout the wider community. (World Health Organization, 2013)

3. A number of key features are accepted as central to setting activity: ... as well as acting to develop personal competencies, there is a desire to act in various ways on policies, re-shape environments, build partnerships, bring about sustainable change through participation, and develop empowerment and ownership of change throughout the setting (Whitelaw et al., 2001)

4. The settings approach ... involves addressing the range of physical, social, organizational and cultural factors influencing health in an environment. Settings are therefore more than convenient locations for reaching target groups: they are also social systems that can support health and provide avenues for changing social systems, not just individuals. The outcomes ... include changes in environments, policy, skills and organizational processes, as well as changes related to specific health problems. (King, 1998)

5. A common way of understanding the settings approach is by separating out three key elements: creating supportive and healthy working and living environments; integrating health promotion into the daily activities of the setting; and developing links with other settings and with the wider community. It is also clear that the approach has a number of particular characteristics: (1) The approach is multidisciplinary, rooted in a socio-ecological understanding of health and uses ‘whole system’ thinking and working...

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promoting SNS site. Once enrolled, they received multiple updates to their own SNS page, and could post comments on the health promotion page in reaction to any update (Bull et al., 2011; Mankoff et al., 2007). Authors point out that one needs to intensely interact with the target group (Bull et al., 2011; Gold et al., 2011), e.g. by responding to comments, posing questions or launching polls. However, there is so far no evidence if these interventions have an effect on health behavior or health outcome.

3.2. Changing the physical environment, organizational and social structure and/or policies

About this characteristic: The settings approach aims at changing those environmental, structural and political conditions of the setting that influence health and/or make it difficult for people to behave in a healthy way (Dooris, 2004; King, 1998; Whitelaw et al., 2001). The importance of creating supportive environments for health builds on the Sundsvall Statement issued by the WHO in 1991 (Haglund et al., 1996).

Can this be transferred to SNS? There are hardly any reports about how interventions can succeed in changing the environment, the technical and organizational features of SNS. We found only one study whose aim could be categorized as ‘changing the environment of SNS’. In this study by Moreno et al. (2009), young adults with a publicly available MySpace profile were asked to a) eliminate all references to risky sexual behavior or substance abuse, and b) change profile security to ‘private’. The intervention could motivate a proportion of users to remove risky sex references, and to change their profile security. Whether these changes eventually resulted in a better health of the user’s network remains unclear. Health promotion also faces many challenges with regard to brand-authored social media marketing, because regulatory strategies are hard to implement in an environment such as SNS, which are essentially unregulated and possibly uncontrollable (McCreaor et al., 2013; Nicholls, 2012).

3.3. Building partnerships within the setting, developing links to other settings or to the wider community

About this characteristic: Building partnerships with and obtaining commitment of direct stakeholders of a setting is important in order to negotiate entry into this setting, facilitate organizational changes, and transfer ownership (Gillies, 1998; Kreuter et al., 2000; Parcel et al., 2000; Poland et al., 2009). In terms of Healthy Schools, for example, these stakeholders are students, teachers, school nurses, caterers, and parents (Dooris, 2004; Parcel et al., 2000). Dooris (2004) also points out that ‘whilst different settings are in some senses discrete, they are also interconnected…. and one setting may be located within the context of another.’ Therefore, it is important to link setting-based projects to initiatives within other settings as well as with the wider community – e.g. by implementing networks between workplaces, health and social care, and cities.

Can this be transferred to SNS? Research on how partnerships for health promotion could be established in SNS is limited. This is certainly due to the fact that it is more difficult to make out certain groups of stakeholders, as compared to schools or communities. Beside the SNS users and their ‘friends’, the only other stakeholders that can be identified within social media are public or private organizations that have their own Facebook or MySpace

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**Table 4**

Transferability of the settings approach’s features to social networking sites (SNS).

<table>
<thead>
<tr>
<th>Key feature</th>
<th>To be found in definition no (according to Table 3)</th>
<th>Transferable to SNS?</th>
<th>Experience from practice</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressing individuals within the setting and building upon their capacities/skills</td>
<td>(1), (2), (3), (4)</td>
<td>Yes; SNS can be a tool to reach and educate certain audiences and engage users in sharing and distributing health messages (word of mouth)</td>
<td>Sample projects mainly focused on broadcasting information plus interacting with the target group (two-way communication)</td>
<td>– In order to reach individuals via SNS, one needs their consent to be part of their personal network; recruitment in the offline world seems necessary – health messages might get distorted when distributed by SNS users</td>
</tr>
<tr>
<td>Changing the physical environment, organizational and social structure and/or policies</td>
<td>(1), (2), (3), (4), (5)</td>
<td>Unclear. Approaches might need to target display of risk behavior technical applications and social norms that enhance positive presentation of risk behavior sanctions by public feedback options</td>
<td>One project motivated MySpace users to eliminate references to risky sexual behavior or substance abuse.</td>
<td>There is a lack of reports on how the ‘environment’ and organizational features of SNS can be changed for better health.</td>
</tr>
<tr>
<td>Building partnerships within the setting, developing links to other settings or to the wider community</td>
<td>(2), (3), (5)</td>
<td>Unclear. Public or private organizations with a health focus (e.g. driving safety groups) that have their own SNS presence may be a partner for health promotion projects.</td>
<td>– So far, the participation achieved by health promotion projects on SNS is limited to consulting with the users</td>
<td>– It is difficult to identify stakeholders or key players on SNS that could serve as partners. – The decision-makers, i.e. the corporations that own the SNS websites, will be hard to reach</td>
</tr>
<tr>
<td>Seeking participation of setting members and employing strategies to empower them</td>
<td>(2), (3), (5)</td>
<td>Partly; As SNS users actively create and disseminate content, projects can use SNS as a tool for participation and engagement. SNS can link people with common interests and could be used to organize online and offline activities and/or protests on health issues, thus fostering users’ empowerment</td>
<td>– Two-way interaction alone does not comply with participation as defined by health promotion theory, as it does not include assuming responsibility and power</td>
<td></td>
</tr>
</tbody>
</table>
Empowerment is defined as gaining understanding and control over personal, social, and political forces in order to improve one’s life situations (Wallerstein, 2006; Zimmerman, 1995). Can this be transferred to SNS? Web 2.0 offers a potential for public health practitioners to engage with citizens in a multidirectional way. SNS allow people to be content contributors and may therefore be an arena for active participation (Centre for Health Promotion and Women’s and Children’s Health Network, 2012; Thackeray et al., 2012). However, it seems that the level of participation achieved by current health promotion projects on SNS is limited to the users’ feedback to health messages, or to consulting with users on health messages (Bull et al., 2011; Gold et al., 2012). Two-way communicative interaction alone does not necessarily correspond to the concept of participation as described above, which includes assuming responsibility and initiating actions by users. According to the famous ladder of participation put forward by Arnstein in the 1960s (Arnstein, 1969), consultation alone would be categorized as ‘tokenistic participation’.

On the other hand, the recent political revolutions in the Middle East brought attention to the use of SNS for the mobilization of social movement (Laverack, 2013; Schwarz, 2011). The use of contemporary small media, including SNS such as Facebook or Twitter, mobile telephony, and e-mails, promoted the bonding of people in repressive regimes and contributed to initiating collective actions, which lead to the wave of political unrest in the Middle Eastern region known as ‘Arab Spring’ (Sreberny, 2012). Indeed, SNS have a potential to link people with common interests or concerns and thus to mobilize people to promote a particular (offline) cause together with others (Jones, 2011; Schwarz, 2011). In general, the Internet can facilitate online social movement activism and protest, by tactics such as online petitioning, boycotting, and e-mailing campaigns (Schwarz, 2011), as was shown by protests against Facebook’s ban of breastfeeding photography (Khan, 2008). SNS can also be used to organize offline actions on health or related issues (Laverack, 2013), thus fostering participation and empowerment of users – with regard to the offline setting. Examples include user-driven SNS groups on issues such as driving safety or climate change (Apatu et al., 2013; Mankoff et al., 2007). In addition, some websites like GoFundMe and YouCaring help users connect to social media like Facebook to solicit donations in the area of medical expenses. This online version of ‘crowdfunding’ has been successful in raising money for health-related campaigns, although mostly for individual medical bills (Sisler, 2012). These SNS activities are bottom-up movements which have been started off by affected or concerned users. It is unclear yet whether and how public health professionals can initiate, as a health promotion strategy, comparable forms of active participation, empowerment and community action around a specific health issue.

4. Discussion

Can SNS such as Facebook be viewed as a ‘novel setting’ for health promotion – in its socio-ecological sense? We found that despite the increasing interest in the potential of Web 2.0 technology for health promotion, research and evaluation on the use of SNS for health promotion is limited. We summarize our findings by putting together the arguments in favor of and against such a view.

4.1. SNS as a setting for health promotion: pro

Many of our working and living conditions have shifted from geographically bounded locations to the cyberspace within the last years, e.g. working from home, distance learning, or spending leisure time in online communities. Therefore, 30 years after the Ottawa Charter, the terms of ‘place’ and ‘environment’ may need to be re-defined with regard to the healthy settings concept; social interaction and a community of interests may gain more importance when defining a ‘setting’ for health promotion. Especially among adolescents, websites such as Facebook are favorite communicative platforms for social interaction and the pursuit of certain personal tasks, e.g. sharing information and getting to know people. The individuals’ activities on SNS are shaped by a structure of technical services and applications, which allow posting personal information and pictures, giving feedback and publicly commenting on posts of other users. These structural features can be regarded to form the ‘environment’ of the setting of SNS. This environment can affect the health of users, e.g. if users of a SNS are regularly exposed to their friends’ references to risky or self-destructive behavior, especially if it is portrayed in an attractive way, if they share links to SNS sites or online ads from dangerous consumption industries, or if it is a platform for cyber-bullying. Health promotion interventions can use SNS, e.g. by setting up a Facebook site on a health-related issue and enrolling participants to become ‘fans’ of this site, and can thereby not only distribute health messages, but also initiate an exchange of ideas among SNS users. This can foster active participation and critical consciousness and develop skills of users. Taking the experiences of online activism as well as organizing offline protests, e.g. in the Arab world, SNS may even have the potential for health promoters to empower users so that they get mobilized to advocate for a common health concern in joined action. Therefore, interventions on SNS may address skills development, participation and empowerment among participants – essential elements of settings based health promotion. From this point of view, SNS seem to be an attractive new setting for health promoters.
4.2. SNS as a setting for health promotion: contra

The millions of SNS users worldwide do not, even on a regional or socio-demographic level, form a collective entity that might represent a community of interests or a setting with a closed membership. Therefore, health promotion interventions can only reach individuals who might (or might not) transfer health information to their respective individual network contacts, but it cannot reach fix ‘groups’ tied together by shared interests or spatial boundaries. In addition, the only activity that people pursue on SNS is written communication. In consequence, if we took the settings approach seriously, then the only personal behaviors that health promotion interventions could address in SNS were those practiced in the very setting, i.e. wording, communication styles as well as relationships, with the indirect aim of enhancing empowerment, self-esteem, and well-being (Valkenburg et al., 2006). Most published SNS interventions, however, focus on the underlying health-related behaviors that SNS users communicate about – e.g. drinking – which are practiced in the offline world. Using online social media in order to address offline health behavior is probably only just consequential, because the well-known health promotion strategies that are meant to make the setting itself a healthier place – e.g. building partnerships, changing the political and environmental structures – can hardly be applied to SNS. Besides the individual users, there is hardly any other stakeholder or decision-maker that can be allied with for capacity building – if one is not to approach the companies running the SNS. Therefore, within the realm of SNS, health promoters are restricted to mere communication to end-users. It remains to be shown whether this communication can succeed in getting users involved in active participation for health issues, or successfully empowers users so they can take action in favor of their health online or offline.

5. Conclusion

Especially in terms of adolescents and young adults, SNS are too important a communicative social venue to be completely neglected by health promoters. The opportunities of Web 2.0 technologies hold great promise, but also raise many questions for traditional health promotion. Social networking methods have begun to appear on many health promotion sites run by public health organizations, and SNS have proven to be ideal for encouraging partnerships? Crit. Publ. Health 14, 37–49.


References