

# Can Social Media Use Be More Health-Promoting? Description and Pilot Evaluation of a School-Based Program to Increase Awareness and Reflection on the Use of Social Media

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## Abstract

Social media plays a significant role in adolescents' lives, with both positive and negative effects. Implementing interventions to mitigate the negative aspects and enhance the positive ones could improve adolescents' well-being. Unfortunately, there is a scarcity of evidence-based interventions available. To fill this gap, we have developed a school-based program based on combining evidence-based and consensus-based approaches, incorporating input from adolescents, school personnel, researchers, and municipal advisers. This paper describes the program's content and principles, and presents the results from a pilot evaluation, which assesses feedback from pupils and teachers, thereby informing potential enhancements and the program's overall significance. The intervention description encompasses theoretical perspectives, behavior change techniques, and procedural details. Pupils ( $n = 266$ ; 16 + years) evaluated the program concerning satisfaction, relevance, importance, and usefulness through a questionnaire. Additionally, exploratory focus group interviews were conducted with seven teachers and eleven pupils to gather their perspectives on the program's relevance, impact, and potential changes to the theme-based teaching. Results from the pilot showed an average score of 7.3/10 for overall satisfaction with the program. Sub-questions assessing perceived relevance, engagement, and usefulness averaged between 6.7 and 7.5. Gender differences were observed, with boys tending to rate the program lower than girls. In focus group interviews, the pupils expressed increasing awareness of their own and others' social media use, that the topic was important and exciting, and that the program generally worked well. The pupils' evaluation indicates the need for this kind of program described in this study.

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Data Availability Statement included at the end of the article



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### Plain Language Summary

Social media is a big part of adolescents' lives and may have both positive and negative effects. We want to find ways to make the negative effects less and the positive effects stronger so that adolescents feel better overall. Since there are few proven methods to address this, we created a program for schools that combines different approaches and ideas from adolescents, teachers, researchers, and community workers. In this paper, we explain what the program is about and how it was received by pupils and teachers to make it even better. We provide a detailed program description and theories about how it can impact their well-being to make sure that other people can understand and replicate our program, to avoid wasting time and resources on ineffective interventions. We asked pupils questions to see what they thought about the program. We also talked to teachers and pupils in small groups for more detailed feedback. The results showed that pupils were generally satisfied with the program. They thought it was relevant, engaging, and useful. Boys rated it slightly lower than girls. In the conversations with teachers and pupils in focus groups, they told us that the program made them more aware of how they use social media and its impact. Overall, the pupils' evaluation of the program showed a need for this kind of intervention. However, we still need to evaluate the program's potential positive effects.

### Keywords

social media, adolescents, mental health, health-promoting program, social media literacy, evaluation, program description

### Introduction

The use of social media has increased substantially since it was introduced at the turn of the millennium, and almost all adolescents in high-income countries use various social media platforms several times a day (Eurostat, 2021; Pew Research Center, 2022). Although the evidence for an overall negative effect of social media use on mental health and well-being is mixed (Valkenburg et al., 2022), research has pointed to specific activities, experiences, and motivations for social media use that seem to be negatively linked to well-being. Examples of this includes upward social comparison (Nesi & Prinstein, 2015; Schmuck et al., 2019; Skogen et al., 2021; Verduyn et al., 2020), feedback-seeking (Nesi & Prinstein, 2015), negative experiences (Primack et al., 2018; Skogen et al., 2023), and digital stress (Nick et al., 2022). Social media use has also been associated with higher levels of depression and anxiety (Karim et al., 2020; Keles et al., 2020), and lower life-satisfaction and self-esteem (Huang, 2022). Other aspects of social media use may conversely contribute positively to adolescents' well-being, through for instance social connectedness and by receiving social support (Erfani & Abedin, 2018; Kysnes et al., 2022; Manago et al., 2012; Ostic et al., 2021), as well as offering readily available health information (Eysenbach, 2009). The variability in reported associations between social media use and mental health outcomes could be explained by different mediators or moderators, for example, digital stress (Steele et al., 2020), or with pattern or type of social media use, for example, more passive or active forms of engagement

(Keum et al., 2023; Verduyn et al., 2017) or with private or public social media use (Kingsbury et al., 2021).

Several publications have explicitly argued for the need for intervention programs to address and minimize potential risks and leverage potential benefits of social media (Fardouly & Vartanian, 2016; Keum et al., 2023; Kross et al., 2021; Marciano & Viswanath, 2023; Webster et al., 2021). Adolescence is a central phase of development, where physical, cognitive, emotional, and social changes occur, and lasting attitudes, values, and coping strategies are formed (Patton et al., 2016). Thus, health-promoting work aimed at adolescents can be pivotal in influencing attitudes and behavior that promote good mental health throughout the life course. Furthermore, health promotion efforts should be implemented where adolescents actually spend their time, which means that the most important arenas for health promotion efforts are outside the health services, such as at school, at home, or even on social media. The school environment is considered an optimal place to facilitate critical thinking about social media use and to encourage healthy online relationships (Webster et al., 2021). Educational programs that increase *social media literacy* can be beneficial, especially when they also target negative consequences such as peer comparison and excessive need for online feedback (Chua & Chang, 2016).

Social media literacy is a concept based on media literacy, but integrating elements focused on catching particularities, characteristics, and implications of social media (Polanco-Levicán & Salvo-Garrido, 2022). This includes social interactions, the possibility of creating content, the large amount of information that circulates, content filtering, and recommendation technology, which all can have

different difficulties related to it. The difficulties related to social media use can include challenges such as managing privacy settings, recognizing, and avoiding online scams and misinformation, understanding the impact of online behavior on personal reputation, and navigating complex social dynamics and cultural norms within online communities. While it is crucial with strategies to protect against damaging trends or risky behaviors, it is also important to acknowledge that social media offers benefits and opportunities that one can benefit from with more knowledge and competence (Polanco-Levican & Salvo-Garrido, 2022; Schreurs & Vandenbosch, 2020). Thus social media literacy is defined by Schreurs and Vandenbosch (2020): “the extent to which cognitive and affective structures are present among users to ensure the risks of interactions with social media content are mitigated and the opportunities are maximized” (Schreurs & Vandenbosch, 2020, p. 3). In this context, cognitive structures refer to the mental processes and abilities used to navigate and understand social media content, such as attention, perception, memory, and reasoning. Meanwhile, affective structures encompass emotional responses and motivational aspects of social media use, such as attitudes, beliefs, values, and goals. Together, these structures help individuals mitigate the risks associated with social media use and maximize the opportunities for positive experiences. Examples of risky behaviors include using social media platforms to harass or bully other users, oversharing personal information that could lead to identity theft or privacy violations, posting content that could damage their reputation or future opportunities, or sending sexually explicit messages, photos, or videos through social media which could lead to unintended consequences. On the other hand, social media can provide various benefits and opportunities for users, such as expanding their social network, receiving social support and a sense of belonging through connecting with friends and peers. Other positive aspects include educational opportunities like access to educational resources and engaging in online learning communities, getting exposure to diverse perspectives and ideas from around the world which can promote empathy and understanding. Additionally, social media serves as a source of entertainment or a creative outlet for users to express themselves through photography, art, or music, which can be soothing or boost self-esteem and confidence. Lastly, users can leverage social media platforms to advocate for social justice causes, raise awareness about important issues, and connect with like-minded individuals. While social media literacy is a relatively new concept, several studies demonstrate that social media literacy or similar constructs tend to exhibit more positive social media usage and experience better health outcomes (e.g., Festl, 2021; Livingstone, 2014; Rosen et al., 2013; Schreurs & Vandenbosch, 2020).

Even though interventions to reduce negative aspects and promote positive aspects of social media use could

potentially be beneficial for adolescents’ well-being, there is a lack of health-promoting interventions aimed at adolescents’ use of social media in general. Most interventions conducted so far have been relatively narrow in their scope by only targeting problematic social media use or specific adverse outcomes. For example, some behavioral cognitive therapy programs that address problematic social media use have shown promising results in reducing social media addiction (Hou et al., 2019) and improving life satisfaction (Zhou et al., 2021). However, to counteract problematic social media use, Lahti et al. (2024) recommend both universal and targeted interventions. Others have proposed interventions for preventing specific health outcomes, such as reducing risk factors for eating disorders (McLean et al., 2017), or improving body image and well-being (Gordon et al., 2020). Interestingly, several interventions have focused on reducing or eliminating social media time, even though it is uncertain whether time spent on social media impacts health (Radtke et al., 2021). To our knowledge, neither of these nor other evidence-based programs are available that seek to reduce the negative aspects and promote the positive aspects of social media use in general, which could positively influence adolescents’ well-being. On the other hand, there exist some measures that are even broader. The Media and Digital Literacy Academy of Beirut, for example, offers a curriculum integrating essential digital competencies and research skills with diverse social, political, and economic topics, which are guided by studies of Arab youth’s media use, digital activism, prevalent media-related disorders and trends in the region (Abu-Fadil et al., 2016). However, this is aimed at universities and not primary schools. Other programs focus on specific challenges such as detection of fake news (e.g., Guess et al., 2020) or cyber safety (e.g., Higdon, 2022; Lee & Hancock, 2023a), which may overlook many aspects of the psychosocial and everyday part of being on social media. It is argued that interventions to improve people’s experiences with social media should be flexible enough to account for how social media use and mental health vary between and within individuals (Lee et al., 2023). In light of these considerations, a new manualized educational-based program named “Youth on Social Media” was developed, consisting of two sessions to be completed in a class setting. The program was developed based on quantitative and qualitative data regarding the challenges and opportunities adolescents face on social media, in collaboration with adolescents. Providing a comprehensive description of the program is crucial as it can increase the replicability of the study and reduce research waste, a significant issue in clinical trials (Chalmers & Glasziou, 2009; Glasziou et al., 2014). Proper reporting of interventions can also help readers and researchers understand the context and

potential impact of the intervention on public health, as well as identify areas for improvements, which support evidence-based policy and practice. Therefore, having a detailed description of an intervention can help improve its implementation and quality (Conn, 2012).

The present paper will (1) describe the content and core principles of the newly developed program; and (2) present the main results from a pilot of the program with respect to whether it was perceived as useful, relevant, and engaging, and discuss the potential significance of the program. By using both quantitative and qualitative approaches, this evaluation will be able to get a general picture of how the pupils received the manualized educational-based program, but also provide insight into necessary improvements to the program (Fitzpatrick, 2021).

## The New Program

This section details the development of a novel social media literacy program designed to address the gaps in existing programs. The program's main goal is to improve users' critical thinking and digital citizenship skills, through interactive and experimental learning activities, fostering awareness of their own and others' social media use and how this impact their regulation. Furthermore, theoretical perspectives that help explain why this program potentially can contribute to better mental health are discussed. However, the theories were "retrofitted," as the development was both knowledge-based and consensus-based (with adolescents and adults).

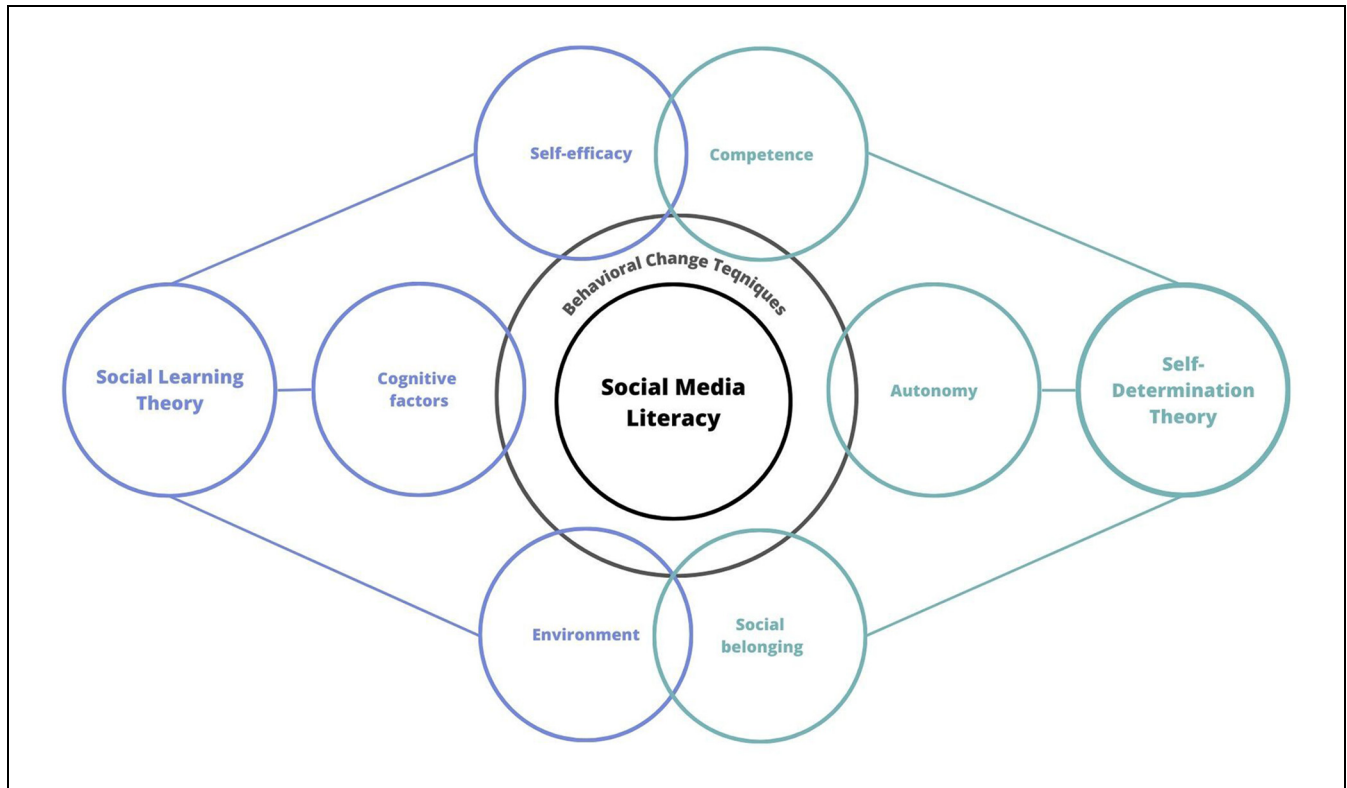
### Theoretical Perspectives

**Social Media.** In the present project, a wide definition of social media formed an important backdrop: "Social media employ mobile and web-based technologies to create highly interactive platforms via which individuals share, co-create, discuss, and modify user-generated content" (Kietzmann et al., 2011). As such, this definition encompasses a wide variety of social media platforms and does not limit the project to specific types of social media (e.g., social networking sites such as Facebook). This broad definition of social media was central in the development of the program in the innovation project, as it enables the program to remain relevant across a range of settings and audiences. By not focusing on specific social media platforms, the program can be adapted to meet the needs and preferences of individual participants, making it more flexible and customizable. This approach also allows the program to remain up-to-date as new social media platforms emerge, ensuring its long-term relevance and impact, and providing opportunities for participants to share their personal experiences and perspectives on social media use. Additionally, since

social media often follows the same application logic and, therefore, requires a similar set of skills, it is necessary to develop knowledge and skills that are flexible and transferable (Festl, 2021).

**Health-Promotion.** It is suggested that social media literacy can maximize the opportunities and minimize or prevent the risks of social media use, thus encouraging more health-promoting use of social media (Polanco-Levican & Salvo-Garrido, 2022; Schreurs & Vandenbosch, 2020). Social media literacy might improve by increasing awareness and reflection on the use of social media and how the use of social media influences adolescents' everyday lives, as well as skills to use social media in a more health-promoting way.

Two theories are particularly relevant in understanding how the current program might successfully be health-promoting for adolescents through increasing social media literacy, which is outlined in Figure 1. According to Self-Determination Theory (SDT), maintaining a behavior over time will depend on whether the person acquires values and skills for change, which is influenced by the extent to which three psychological needs are met: social belonging, autonomy, and competence (Ryan & Deci, 2000). Satisfaction with these psychological needs seems to be the basis for psychological well-being in all cultures (Ryan & Deci, 2008). Social media use can facilitate these psychological needs through communication and interaction with others. SDT may thus provide insight into why adolescents fervently and frequently use social media (West et al., 2023). Festl (2021) also describes how SDT is related to social media literacy. Regarding competence, users demonstrate expertise in basic aspects like functional and structural social media knowledge and awareness of how it works. Autonomy needs manifest in adolescents' self-competencies, which can be categorized into four sub-dimensions: evaluative competencies (e.g., critically reflecting on social media posts), motivational competencies (e.g., using social media to fulfill the need for social contact), emotional competencies (e.g., utilizing social media for excitement during moments of boredom), and creative competencies (e.g., expressing one's identity through posting pictures). Lastly, the need for social relatedness signifies the innate desire to connect with others. Adolescents' social competencies reflect this need and comprise four sub-dimensions: participatory competencies (e.g., refraining from online harassment), communicative competencies (e.g., discussing online experiences with friends), educational competencies (e.g., teaching others how to use new applications), and moral competencies (e.g., practicing honesty in online interactions) (Festl, 2021). The current program aims to fulfill the psychosocial needs of adolescents through the following methods: providing them with a voice and sense of



**Figure 1.** A summary of relevant theoretical perspectives for improving social media literacy through the new program.

ownership, fostering cohesion by establishing connections with others, and delivering both knowledge and practical application opportunities.

Furthermore, social psychologist Alan Bandura's work on Social Learning Theory has been vital in understanding cognitive development in the context of social and environmental factors (Bandura, 1977b). According to Bandura, the individual has a self-system that allows one to control one's thoughts, emotions, motivation, and actions. This is shaped by their knowledge, expectations, and attitudes, which refer to cognitive factors. The developed program can potentially influence these elements in the person's self-system and ultimately behavior. A fundamental concept in this model is self-efficacy, which is about the individual's assessment of their ability to plan and carry out tasks in a specific situation and, thus, behavior change (Bandura, 1977a). Moreover, collective efficacy, when a group of people believes in their combined ability, is associated with better outcomes in various domains, including increased academic achievement, higher creativity and productivity in workplaces, and reduced violence in communities (Bandura, 1993; Donohoo, 2018). In addition, the environment shapes our personality and behavior, and we acquire knowledge and experiences in a community with others (Bandura, 1977b). This means that people's behavior will be reinforced or modified through the consequences of their

actions and others' responses to their behavior, which is relevant both on social media and in a classroom. This implies that peer pressure can arise in class or via social media, influencing positive and negative health behavior. On the other hand, teachers are key role models as a source of influence and set the standard of expectation at school. The teacher's feedback is also important for learning and shaping a new behavior, as constructive behavior and abilities must be positively reinforced, and corrective or negative reinforcement is where the behavior needs to be shaped in a more positive direction. This is particularly relevant in a school setting because collective efficacy is a major contributor to the school's culture, that influence how they together feel, think, motivate themselves, and behave (Donohoo, 2018). Thus, our program can influence the attitudes and coping beliefs of the whole class environment, which can in turn lead to action for better outcomes on social media.

**Behavioral Change Techniques.** Before the effectiveness of an intervention can be evaluated, it must be well-specified (Michie et al., 2013). Unfortunately, as interventions to change behavior are usually complex and involve many interacting components, it is often challenging to identify these components, replicate the interventions in research, implement them in practical applications, and synthesize them in systematic literature reviews. Nevertheless,

researchers highlight that this is necessary to better understand the effects and mechanisms of behavior change measures and to gather knowledge to inform the development of more effective interventions (Michie et al., 2013). Michie et al. (2013) therefore propose to specify behavior change techniques (BCTs), which they define as “an observable, replicable, and irreducible component of an intervention designed to change or redirect causal processes that regulate behavior; that is, a technique is proposed to be an ‘active ingredient’ (e.g., feedback, self-monitoring and reinforcement)” (p. 82). They have identified and described 93 different techniques that can be used in interventions and argue that identifying the presence of BCTs in intervention descriptions makes it possible to identify BCTs associated with effective interventions. An example is the theme “goal and planning,” which includes techniques such as setting goals, making an action plan, or creating a contract. Many of the techniques align with several behavioral change theories, including Self-Determination Theory and Social Learning Theory.

A key objective of the “Youth on Social Media”-program is to increase social media literacy by raising awareness of adolescents’ own use of social media, which in turn is a prerequisite for changing adolescent’s social media use to be more health-promoting. In this program, some potential BCTs are included, for example, related to the clusters of information generation, social support, behavior comparison, and outcome comparison. More specifically, adolescents can gain information about the health-, social-, and emotional consequences of social media use, draw attention to others’ social media use to allow comparison with their own use, and generate pros and cons with different use of social media. However, with the result of being more aware, it could be that the pupils, on their own initiative, will use more BCTs, like relating to feedback and monitoring, goal and planning, associating, reward and threat, antecedents, self-belief, or regulation. For example, this could mean that they set a goal for how much time they spend on social media or restricts it to certain times of day (goal and planning), regularly check their usage pattern in the settings the phone or app offers (feedback and monitoring), do something they appreciate, or buy something they wish for if they attain their goal (reward and threat). The relevant theoretical perspectives for improving social media literacy through the new program are summarized in Figure 1, and influencing awareness, norms, and attitudes is likely to promote positive behavioral change (Bosnjak et al., 2020).

### **Program Development**

The new program is developed by Bergen Municipality in collaboration with the Norwegian Institute of Public Health (NIPH), Vestland County Council, and the

University College of Western Norway. The development of the program was inspired by health promotion and the intervention mapping approach (Fernandez et al., 2019), which emphasizes the importance of systematically planning and implementing interventions to promote health. This approach includes a needs assessment, where the issue in question (i.e., the role of social media for adolescents’ mental health and well-being) was mapped out using theory and qualitative and quantitative data. This includes literature reviews of existing knowledge about the relationship between social media and mental health and well-being (Schønning et al., 2020), and focus group interviews and surveys investigating how adolescents today live their lives on social media and how this is related to their mental health (Hjetland, Schønning, Aasan, et al., 2021; Hjetland, Schønning, Hella, et al., 2021; Norwegian Institute of Public Health, 2022; Skogen et al., 2021). The collected data formed the knowledge base for the development of the program.

Seven adolescents (age range 15–18) formed a student engagement group that were involved in the development of the program from 2019 to 2022. The group provided feedback on the material used for the qualitative and quantitative data collection, they participated in workshops during program development, and they tested and provided feedback on the content of the program. This kind of co-design has the potential to make programs more engaging and satisfying, as well as make them more useful for users (Thabrew et al., 2018). Others also advocate that it would be beneficial to involve adolescents in the planning and development stages of creating guidelines related to social media use, through a collaborative and user-focused approach to increase their relevance and effectiveness (West et al., 2023). Furthermore, employees of the municipality and teachers were key in transforming the knowledge into practice, and to make sure the program is best suited to the adolescents in terms of pedagogy. Two project schools have contributed with both access to teachers and pupils, and both schools had a dedicated teacher who was hired the entire project period to coordinate contributions from both pupils and school personnel. For example, they have given input on testing the survey and different variants of the program, and about the focus group interviews that were carried out at the project schools. They also have had early results presented and were able to give feedback on the program. The dedicated teacher from each school also contributed directly to the development of the program.

Specifically, the program developed is a manualized educational-based program, and the goal is to increase social media literacy by aiming to:

- (1) Promote positive and health-promoting use of social media, and

- (2) Increase awareness and reflection on the use of social media and how the use of social media contributes to influencing adolescents' everyday lives

The first goal relates to the cognitive structures that users need to ensure risk are mitigated and opportunities are maximized. The second goal aims to increase the cognitive and effective structures among users.

### *The Content and Procedure*

The manualized educational-based program is based on an interdisciplinary perspective with a particular emphasis on academic and social learning and development. Two elements that are essential prerequisites for the teaching content are: (1) Pupils are actively participating and conscious of their learning; "to learn to learn"; and (2) Pupils will acquire competence and understanding through reflection and critical thinking.

The program is closely linked to the learning objectives in the overall part of the curriculum for the subjects of Norwegian and social studies in upper secondary school. Still, it should be easy to transfer to other school systems, given its main focus on awareness and critical thinking. To be in accordance with the Norwegian curriculum, the target group is the first year for study specialists and the second year for vocational subjects. The teachers are responsible for implementing the manualized educational-based teaching, and they receive detailed instructions on how to implement it. However, the pupils are encouraged to actively contribute. The first part of the program was designed to spark the pupil's curiosity by presenting thought-provoking content that encourages critical thinking on the subject matter. The second part focused on empowering the pupils students to take charge of their learning experience by providing autonomy to explore topics of personal interest or need.

Overall, the manualized educational-based program consists of two sessions to be completed within an approximately 3-week interval:

Session 1 (two school hours á 45–60 min, depending on the school): Consists of a set of statement exercises and a review of theme discussions related to themes covered by videos. The selection of themes for the content is based on qualitative interviews with adolescent's lived experiences of using social media, covering both positive and negative aspects (Hjetland, Schonning, Hella, et al., 2021). See Table 1 for the themes that formed the basis for the session. The main objective of the first session is to «Promote reflection and critical thinking concerning the use of social media and promote positive and health-promoting use of social media». Specifically, the first part of the

**Table 1.** Themes From Qualitative Interviews With Adolescent's Lived Experience on Social Media (Hjetland, Schonning, Hella, et al., 2021), That Formed the Basis for the Exercises.

Theme/subtheme
1. Interpersonal consequences of social media
1.1 Expanding the social world
1.2 Different rules apply
1.3 People behave worse on social media
2. Personal consequences of social media use
2.1 There are pros and cons of being connected
2.2 Social hierarchies are on display
2.3 Upward social comparison
2.4 The visibility and permanency of content
2.5 Use on the expense of other things
3. Motivations affecting use
3.1 An unmissable social arena
3.2 Self-presentation and impression management
3.3 From fun to addiction
3.4 A way to dodge what is difficult
3.5 Awareness and regulation of own use

session includes the teacher introducing the theme, exploring the pupils' social media use, and watching some theme videos with related reflection questions. The second part consists of an exercise with positive and negative claims about social media (e.g., "It's easier to communicate with friends through social media" and "Likes and nice comments make me feel good," see Supplemental Table 1 for list of all statements), where the pupils are asked to agree or disagree with each claim, to make them reflect on their attitudes and their own choices related to social media, as well as contributing to an active interest for the topic. The teacher was given the list of statements to consider, and they could use any of them or other statements in the exercise. The session also includes class discussion and small group discussion. For details of the first session, see Supplemental Table 2.

Session 2 (seven school hours á 45–60 min): The second session consist of using mixed learning methods, and the main objective is to «Acquire and apply competence to cope with challenges and seize opportunities related to social media as a social arena». Specifically, pupils first explore and reflect on what they and others can do to create a more positive social environment on social media. Then they discuss how social media is portrayed in the media, gender differences, the role social media use can have on life outside social media, etc. Furthermore, they will make a product (e.g., a film clip for TikTok or YouTube, a podcast, blog post, a written text, or similar) with examples of how and why life on social media can be health-promoting, based on existing research literature and their own experiences and attitudes related to social media use. The pupils are encouraged to

**Table 2.** Summary Statistics of the Evaluation Across Gender.

Characteristic	Boys, N = 134 <sup>a</sup>	Girls, N = 116 <sup>a</sup>	p-Value <sup>b</sup>
Overall relevance	6.73 (2.13)	7.31 (2.24)	<b>.027</b>
Relevance (group discussions)	6.63 (2.17)	7.18 (2.06)	.060
Engaging (statement exercises)	6.44 (2.12)	7.29 (2.13)	<b>.002</b>
Engaging (group discussions)	6.48 (2.22)	7.01 (2.14)	.075
Perceived usefulness	7.11 (2.22)	7.96 (2.00)	<b>.001</b>
Overall satisfaction	6.89 (1.90)	7.79 (1.99)	<b>&lt;.001</b>
Average rating (summed average score of all above items)	6.72 (1.59)	7.43 (1.65)	<b>&lt;.001</b>

Note. Bold indicates statistically significant differences between boys and girls. 16 were omitted from this table due to missing information regarding gender.

<sup>a</sup>Mean (SD).

<sup>b</sup>Wilcoxon rank sum test.

share the results with the others, and the teacher decides in what form and in which way the requirements for assessment should take place (e.g., grades or oral feedback). More details of the second session are provided in Supplemental Table 3. The description given here is of the final version of the program, including minor modifications based on the pilot evaluation. The modifications were mostly related to the linguistic aspects of the description for teachers and pupils (e.g., using words easier to understand, shorter sentences etc.).

The resources (videos, statistics, media articles) and detailed instructions for the teachers are all available on a dedicated website (Ung på SoMe, n.d.), which is also accessible to all other stakeholders. For a health promotion intervention to have a high level of scalability, the program must have the potential for substantially expanded reach and system adoption and be delivered at an acceptable cost (Milat et al., 2013). The program's readily available resources and the integration with the school curriculum contribute to this. Furthermore, for the intervention to have this "scalability," it must also have robust evidence for effectiveness and be acceptable to the target groups and setting (Milat et al., 2013). Findings of the latter will be presented in the present paper.

### Pilot Evaluation

As social and behavioral interventions become increasingly complex, it is important to know the extent to which the intervention's components are actually implemented, to identify the key components of an intervention that are effective, to identify for whom the intervention is effective, and to identify under what conditions the intervention is effective (Linnan & Steckler,

2022). Process evaluation is an assessment of the implementation of an intervention and is useful in understanding the dynamics of a trial and optimizing study efficacy (Linnan & Steckler, 2022). Thus, we have in this paper described the program in detail above (including the development process, procedure, theoretical underpinnings, and identification of possible behavioral change techniques) and will now further examine the pupils' and teachers' perceived relevance, usefulness, and engagement of the program. We will also explore the health-promoting potential of the program.

## Material and Methods

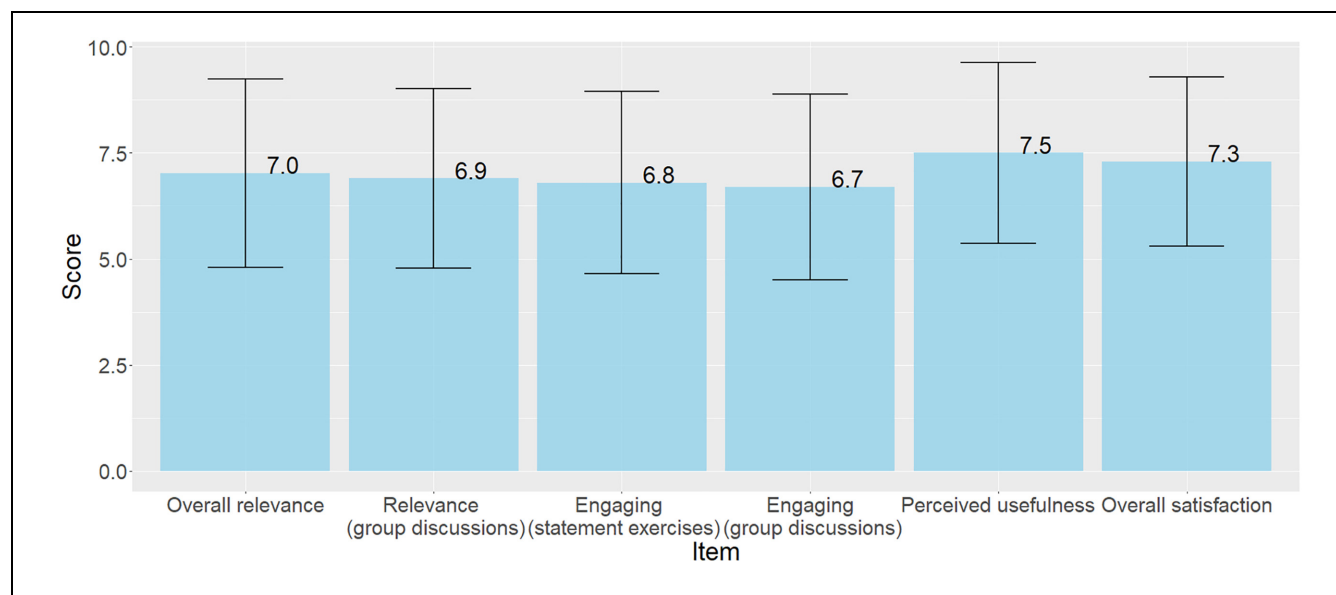
### Exploring the Relevance, Usefulness, and Engagement

Two project schools in the second largest city of Norway (Bergen) have piloted the manualized educational-based teaching. In September 2021, pupils ( $n = 266$ ; aged 16 + years, 44% girls, 50% boys, and 6% non-binary/missing information) completed and evaluated the program. The pupils evaluated it using a questionnaire on the program's relevance, importance, and usefulness (see Table 4 in Supplemental). They were asked to rate every item from 0 (worst) to 10 (best). During the spring of 2022, exploratory focus group interviews were conducted to gain deeper insights into the subjective experiences and perspectives of participants, complementing the quantitative data collected through the questionnaire. Combining these methods provides a more comprehensive understanding of how the program was received and the context it was implemented. Two interviews were with teachers (four and three in each group), and two interviews were with pupils (six and five in each group), each lasting approximately 45 min. The focus of the interviews was on the perceived relevance and impact of the manualized educational-based program, and what should be changed or omitted to improve the program further.

### Statistical Analysis

Descriptive analyses were carried out using R version 4.2.2 (R Core Team, 2021) and RStudio version 2022.07.1 + 554 (RStudio Team, 2022). The items are presented in mean and standard deviation (SD). Gender differences were estimated by Wilcoxon rank sum test, and the results are presented with means (SD), Cohen's  $d$  effect size, and 95% confidence intervals (95% CI) are presented in-text for the average rating when comparing boys and girls. The gender variable included a non-binary option, which was selected by seven participants. While these individuals are included in the overall mean in figure 2, their small sample size precluded any statistically meaningful comparisons with male and female participants.





**Figure 2.** Mean score of the pupils perceived the program in terms of relevance, engagement, and usefulness. Range 0 (worst) to 10 (best). The error bars represent mean  $\pm$  SD.

### Qualitative Analysis

Reflexive thematic analysis (TA) was used to explore the participants' experiences. As recommended by Braun and Clarke (2019) the analysis was conducted stepwise by first reading and re-reading the material, then drafting ideas for potential themes. Identifying relevant codes that were later compared and discussed; and the codes were sorted into tentative themes; and reviewed against the transcribed interviews and further discussed. Lastly the themes were defined and given final names. This approach is similar to previous qualitative analyses in the project (Hjetland, Schonning, Aasan, et al., 2021; Hjetland, Schonning, Hella, et al., 2021). The process was guided by the research questions, in that the material relevant for social media use and the manualized educational-based program was coded.

### Ethics

Participation in the evaluation of the manualized educational-based program was voluntary. All participants received information about the purpose and use of the information collected and gave their informed consent. For the participants in the questionnaire survey, there were minimal costs associated with this, as answering the questionnaire was estimated to take a maximum of 10 min. The focus groups were recorded (audio only) and transcribed. The study has been subject to a preliminary assessment by the Regional Ethics Committee (REK) in Norway and assessed not to be health research (REK#497924), as well as assessed in a risk-and-vulnerability analysis, including ethical perspectives, by

Vestland County Municipality (case number 2021/49301). The data collection and handling of data is in accordance with General Data Protection Regulation (GDPR) and internal requirements from the Norwegian Institute of Public Health.

## Results

### The Survey

Results from the pilot showed an average score of 7.0 ( $SD = 2.2$ ) for the relevance of the program's overall topic (social media and well-being) and 6.9 ( $SD = 2.1$ ) for the different sub-themes in the group discussions. How engaging the program was perceived was rated 6.8 ( $SD = 2.2$ ) for the statement exercise and 6.7 ( $SD = 2.2$ ) for the group discussions. Overall usefulness was rated 7.5 ( $SD = 2.1$ ), and they rated to enjoy the session overall to 7.3 ( $SD = 2.0$ ). The results are presented in Figure 2. There were some gender differences; boys tended to rate the program lower than girls, with an average score of 6.7 ( $SD = 1.7$ ) for boys compared to 7.4 ( $SD = 1.6$ ) for girls,  $p < .001$  (see Table 2). The effect size for the average rating was Cohen's D 0.43 (95% CI 0.18–0.69), ranging from 0.24 ("Engaging (group discussions)") to 0.46 ("Overall satisfaction",  $p < .001$ ) in favor of the girls. The effects sizes of individual items were all small-to-medium.

### Themes Across Interviews

**Themes Related to Practical Improvement of the Sessions.** The main purpose of the focus group interviews was to identify and elaborate on key elements that need to be

present to ensure a successful implementation and desired effect of the sessions. In addition, the purpose was to find elements with a scope for enhancement. Across focus groups, five themes directly related to improvement emerged. The emergent themes are summarized below.

**Course Content.** Generally, the focus groups expressed that the topic and content of the sessions were relevant and liked by most pupils. Both pupils and teachers mentioned that the topic was important because social media is a large part of the adolescents' life, and everyone can relate to it and have experiences with it, regardless of differences in how they use it or their background.

*I think it was very relevant because you get an insight into our own lives on social media, and the fact that there is a big difference in our use compared to older generations. (Participant 1)*

It was also mentioned that the pupils make a greater effort in tasks if the topic is exciting and relevant. Examples of particularly interesting topics were how social media is portrayed in the media, bullying, and being ostracized. The adolescents were also engaged in how the whole society was set up to use the phone, that you fall outside of society if you do not use social media, and how the apps are designed to make you "addicted." However, some of the topics in the sessions could be a bit boring or repetitive, making it challenging to maintain interest. Some pupils said the tasks were not always relevant for young people, especially when they were implemented in a convoluted way. It appeared to the teachers that the pupils were tired of the on-sided focus on the pitfalls and negative side effects of social media.

*I feel there is an expectation that you should be somewhat critical of social media. (Participant 2)*

*I am very much of the opinion that you should be critical, because it can have such big consequences. But it is important to know that there is a positive side to the internet as well, or to social media. (Participant 3)*

Across the focus groups, many of them said it was easier to find negative things than positive things, but it seemed like a good challenge to turn it around. Which topics are most relevant will vary from class to class according to the teachers.

**Learning Activities.** The pupils stated that how the sessions were carried out was very important in terms of how interesting and engaging the content was for the adolescents. They expressed that they needed it to be interactive and dynamic and said they would become disengaged if it became too tedious. However, they also reported that they experienced the level of tediousness in

the sessions differently. It was highlighted as positive that there were a variety of tasks and several different approaches to keep them engaged. The pupils especially thought it was a good approach to be able to address several sides of an issue and the fact that some of the tasks are designed to get people to argue their case. Both pupils and teachers mentioned the group discussions as an excellent way to attract the interest of the class and enable reflective interaction.

*I think it [discussions] was engaging because you get a lot of different opinions, which you can either agree with and tell why or why you disagree with. That, in a way, I don't know, it was easier for people to follow when there is something to talk about and reflect on then. It was engaging. (Participant 2)*  
*There were a lot of different types of tasks that always kept you sharp, and I think that's a good thing. (Participant 3)*

The pupils and teacher also thought the program was inclusive, as everyone in the class participated to a greater or lesser degree.

*It's like people who don't usually participate that much in the classes, I felt, participated more and sort of showed their opinions. So it was like everyone participated. (Participant 4)*

The perspective was that the oral discussions should not be graded, as it was easier to be involved when there were no wrong answers and a free flow of conversations. However, when there was no assessment of their work in the sessions, pupils were more laid back, and several pupils thought it should be stricter than it was. For example, some sort of demands on them as pupils seemed important to make them perform better, whether it was to hand in something and be graded or that the teacher went around checking their notes or discussions. On the other hand, the grades could have made the sessions more stressful. Nevertheless, the pupils were more devoted when they felt it was an interesting topic and something they had mastered.

**Manualized Versus Flexible.** For both teachers and pupils, a certain freedom of choice was important, but it was unclear what degree of freedom was intended. It was a common thread that the sessions should have clearer instructions about framework, structure, and content. Many adolescents described the tasks as very open-ended but wanted instead to have more specific instructions and explanations in a more straightforward language, or examples to make it easier to get to grips with what it was all about and what was expected from them. The teachers also mentioned the disadvantages in that it was too unclear. For example, the two sessions could be hard to separate from each other. If there were different teachers in the two sessions/subjects, they had to talk to each

other to avoid it becoming too repetitive, as some pupils found it to be. Some of the teachers solved this by merging the sessions into a more interdisciplinary matter, which worked well if they found a common thread and other learning objectives that also could be supported in the project. This demonstrates that specificity must not come at the expense of flexibility, which also was supported by the pupils. They expressed that it was better to decide from the list of topics themselves and delve into it, which part of the program sets out to do. Furthermore, the flexibility in the type of “end-product” also seemed wise, as some were fonder of discussions, while others may prefer to write an individual text or make a media-based presentation. All in all, the program could be improved via clarification, but without becoming too rigid. Additionally, the tasks were set up so that they immerse themselves in a topic they are interested in (which is positive) but may not get other perspectives (which is something they might miss).

**The Teacher as a Facilitator.** From all focus groups, the importance of the teacher’s role as a facilitator for the program emerged as a theme. This was especially prominent in the two adolescent focus groups. How the teacher sets out, presents, and explains the task is pivotal for a successful implementation—“the how” question of didactics. Furthermore, the adolescents highlighted the need for clear involvement from the teacher when the theme-based teaching was introduced in the classroom and described how the theme-based teaching fits into the overall teaching plan—factors related to the “what and why” questions of didactics. Although the pupils in many cases know more about social media than the teachers, there was an expectation that the teacher should be the facilitator for keeping the discussions alive. Specific suggestions included a higher level of integration into the rest of the teaching plan and more precise instructions and clarification before the start of the theme-based teaching—to both teachers and pupils. For the teachers, it was essential to be included in the planning process to feel ownership of the program and take on the role of facilitator.

**Timing.** The timing of the implementation emerged as a theme in the focus groups, both in terms of time in life and time of the school year. Several mentioned that the beginning of the year was a good starting point to create rules and a good class environment, but not so early that they do not know each other as they potentially are part of a new class. Too late in the school year is not ideal for getting engaged, as there are more demands related to exams and other deliverables when the school year nears its end. The pupils and teachers agreed that the first semester was most ideal. They also thought that the two sessions should be closer in time to facilitate continuity.

The pupils believed that the program would be relevant for all age groups, including secondary and upper secondary school.

**Potential Benefits.** In addition to themes related to improvement, two overarching themes related to the potential benefits of the theme-based teaching emerged and are briefly presented below.

**Awareness and Regulation.** Several pupils mentioned that they got an understanding of their own and other people’s use of social media through the theme-based learning. Some of them experienced surprising insights, for example, concerning their own time spent using social media. It also felt good for some of them to share similar experiences.

*When you see that people agree with you, and kind of exactly understand your feelings, and identify with your experiences, it sort of becomes like this: oh yes, but then I’m not alone in that, and it is actually a nice feeling to be able to know that.*  
(Participant 5)

The pupils had become more attentive to how much they felt influenced by social media, including what beliefs they have about different topics in society, and how strong reactions they may experience from various interactions on social media (e.g., how sensitive they are when “others answer with the wrong emoji” or they have been “left on read” [i.e., to read someone’s message and not give any response]). The described insights could possibly lead to more awareness and reflection on their everyday use of social media. For example, after the sessions, some of the adolescents explained that they focus more on being present in social settings by using their phone less when they are with their friends, or they make sure everyone is included in groups on social media. It also seems that more pupils have become more aware of various aspects of social media that they had not thought about before. The program allowed for discussions about the positive aspects of social media, which could have value by itself. Having an openness to both positive and negative aspects could facilitate reflections related to the stereotypes that are often associated with social media and provide them with a more positive attitude and open-minded understanding to others’ social media use. However, the teachers wondered whether the program reaches everyone, particularly those needing it most, and whether any potential positive effects persist over time. The teachers speculated that the awareness would only last a few weeks and that many did not feel it was relevant for themselves, even if it was. In contrast, the pupils expressed a stronger belief in the universal reach of the program.

*Collective Awareness and Dialogue.* This topic is related to the shared experiences and common understanding that were discovered through talking together about what they experienced or how they perceived different topics of social media. This contributed to more consideration of each other's use instead of judgment. The sharing of experiences and reflections related to social media use was thought to increase awareness in the class. Also, the pupils' highlighted that going through the program as a class could form the basis for a common cultural thread in the class regarding social media use. There seemed to be a consensus that the program had promoted a better class environment by involving and engaging all pupils, as well as that they enjoyed the program, and experienced mastery. Some said the class was more united. The program also facilitated a shared understanding ("class rules") on phone use in class, which the teachers saw as valuable in other subjects and the rest of the school year. Furthermore, the adolescents said it was important to talk about social media, which could contribute to a better dialogue with parents or teachers. The program could thus facilitate a greater understanding of adolescents' situations related to social media.

*And something that I think is important is that we tell parents, teachers, and the elderly how we experience social media compared to them. Because it's somewhat difficult for them to understand our situation, when they don't know what we experience on the various apps, how we deal with things, and what affects us. (Participant 1)*

## Discussion

The aim of this paper was to describe the development, rationale, and practical implementation of a manualized educational-based program, and whether the program is viewed as relevant, useful, and engaging by the pupils and teachers.

The newly developed program is education-based with thematic teaching and class discussions, where the goal is to increase awareness and reflection related to social media use. The learning objectives are directly related to the curriculum and consist of sessions with statement exercises, themed discussions in groups, and immersion in a task with an optional final product. The program has been developed in collaboration with users, the research environment, and the municipal authorities and is supported by previously published literature as well as both qualitative and quantitative data specifically collected for the project. As such, the program's foundation is both consensus- and evidence-based.

The pupils rated the relevance, engagement, and usefulness of the program as highly positive. The result from the interviews supports that the pupils think social media is an important and exciting topic, and that the program

generally worked well. Nevertheless, the practical implementation had some potential for improvement, such as setting a better framework for teachers and making it even more engaging and apt for the pupils. The teachers agreed that the program could have been more concrete, but it was positive that it is somewhat open so they can have greater ownership of it. The pupils asked for more specific guidelines on how to do the tasks, but also mentioned that they liked the freedom of choice. Some preferred to write, some to discuss orally, and others to make a media product. Especially the discussions and the different approaches were seen as positive. However, they were not all in agreement on how engaging the suggested themes were. Furthermore, most pupils think their quality of work is better if demands are placed on them, but that assessment with grades should be optional. Results from the focus group interviews demonstrated that the adolescents were reflective about social media, and the adolescents expressed that they had become more aware of their own and other people's use after the program. Based on the pilot results and consultation with teachers and resource group members, we made minor adjustments to the program. These include clearer instructions for both teachers and pupils, a reduced time lag between sessions 1 and 2 (now 3 weeks), and revisions to the reflection questions for greater clarity. We have also clarified the teacher's role as a moderator in the included instructions. The program described in this paper is the updated version. All in all, the program was tested to be acceptable to the target group and setting and we received helpful feedback for improvement, which contributes to improving the scalability of the program.

## *The Health-Promoting Potential*

Based on the conversations with pupils and teachers, the program seemed to make adolescents more aware and reflective of their own and others' use of social media, which may influence how they use social media. The pupils mentioned several potential benefits in the interviews, like being open to other people's experiences and awareness of ways of being on social media provides fertile ground for increased understanding as well as potential prosocial interaction. They also mention the opportunities to get social support both on and off social media. In addition, the common approach to social media in the class could potentially also lead to more prosocial behavior. This might reflect an improved social media literacy and a more health-promoting use of social media. However, it was beyond the scope of this study to investigate the specific effects of the program.

Adolescence is a period of development, including biological, cognitive, social, and identity-wise, and social media use has potentially important effects on the normal

development process in relation to all these aspects (Hur & Gupta, 2013). Even if adolescents are getting less and less influence from their parents in favor of more from their peers both online and offline, parents still have a central role. For example, adolescents are more likely to have successful social relationship formation when having parents who give advice about relationships (Parke & Ladd, 2016). The degree of family closeness and attachment remains a major determinant of adolescents' adjustment and serves as a protective factor against unhealthy behaviors like smoking, drinking, and using drugs (Adams, 2005). However, the parents' ability to advise on social conflicts and situations online is limited by their lack of familiarity and experience with social media (Subrahmanyam & Greenfield, 2008). This lack of experience may increase the distance between the adolescent and parents (Hur & Gupta, 2013), resulting in parents having less influence on how to be a good "digital citizen." The pupils in our interviews confirmed that parents did not always understand their online social world and expressed that they missed interest and conversations about this. Therefore, this program can potentially contribute to putting such discussions on the agenda. Furthermore, teachers can also serve as models for children and adolescents in their social media use and lead class discussions on digital citizenship, which our program could facilitate.

During adolescence, it is further important for young people to have an environment that fosters autonomy in regulating their behavior, as this helps them successfully transition to adulthood (West et al., 2023). Considering the pervasive and important role social media plays in the lives of adolescents, their social media use could substantially impact adolescents' fulfillment of autonomy (West et al., 2021, 2023), which in turn influences well-being. However, research examining the social media context concerning adolescents' autonomy is scarce. Results from a qualitative study revealed that social media contributes to adolescents encountering unique experiences regarding their autonomy development (West et al., 2023). Adolescents expressed several aspects supporting autonomy, including promoting self-governance, facilitating choice fullness, and developing a sense of self. They also expressed factors suppressing autonomy, including external forces motivating use, fostering compulsive and non-intentional use, and affordances of social media threatening personal control. Based on this, the authors suggest that it would be beneficial to educate young people on the implicit factors, such as social norms and dopamine-triggering rewards, that can undermine their autonomy when using social media. In addition, being mindful of social media use can help adolescents become more aware of activities or interactions undermining their autonomy (West et al., 2023). These are aspects that our program can support.

Adolescents are similarly connected to their online world as to their offline world (Reich et al., 2012; Wright & Li, 2011). If the program can contribute to a positive attitude and behavior online, it is reasonable to believe that it can affect attitude and behavior offline and therefore reinforce each other. Specifically, the program can make the pupils discuss thinking ahead before posting an unkind message or comment or being mindful not to exclude someone from the social platform. The program can also influence them to act more actively and prosocially, such as saying something kind, complimenting others, comforting them, or offering help or support. The pupils did in fact mention the opportunities to get social support on and off social media, which aligns with the program's intentions to promote a more positive and health-promoting use of social media and increase awareness of its impact on adolescents' lives. Furthermore, the program could contribute to a positive collective awareness, and both pupils and teachers confirmed that the program did improve the peer culture. One of the reasons the program is set to early in the first semester is because it could contribute to developing a positive social environment in the class early on and lead to more collective prosocial behavior. However, the class environment could also influence how the individuals perceive the program's implementation, their thoughts about the themes covered, and their general attitudes toward the program.

### *Other Similar Interventions*

To our knowledge, no similar health-promoting program focusing on social media use in general has been implemented and evaluated earlier. However, there are some similarities to programs that specifically address problematic social media use or programs that target specific adverse outcomes. One example is a mindfulness-based intervention for clinicians that address problematic social media use among adolescents (Weaver & Swank, 2019). That intervention aims to use three axioms of mindfulness (intention, attention, and attitude) to help increase awareness and regulation of social media use. Their approach is more individualistic and relevant for counseling than our program. However, many of the principles are similar, for example being more aware of their reasoning around their own and others' actions on social media, being more aware of their feelings related to social media use, and being more present in the moment. Although results from the trial mentioned have not yet been published, other studies have shown that mindfulness can mediate the relationship between social media engagement and depression (Jones et al., 2022). Furthermore, there has also been conducted a self-help intervention that addresses reflection around the social media use of college students with social media addiction. The intervention

consisted of cognitive reconstruction and daily record of thoughts, emotions, and behaviors related to social media use, and the intervention group significantly reduced their social media addiction, better emotional state and higher level of learning engagement, compared to the control group (Hou et al., 2019). Our program shares some similarities to the first stage of that intervention, which consisted of questions for reflection on their social media use. This includes how much time they spend on social media, what other meaningful things they could do with that time, the benefits of not using social media, why did they use it, and the adverse effects of social media use. They were also asked to list the advantages and disadvantages of reducing social media use. However, the intervention differs in that the participants were asked to use this list as a daily reminder, as well as the use of diaries. An additional intervention that shares some of these principles includes a series of self-guided reflective writing exercises to help individuals develop a more agentic and positive social media mindset (Lee & Hancock, 2023b). Like our program, it had questions to reflect on social media's advantages and ways to improve its use. However, the approach was individual and written, and targeted for university- and college students instead of group discussion in senior high school. The intervention also included a personalized plan for supporting their own agentic social media use, and the results showed success in cultivating more adaptive mindsets, more agentic social media use, and improved psychological well-being (Lee & Hancock, 2023b). Lee and Hancock (2023a) argue that having an agentic mindset is an important precursor to obtaining benefits from social media, while literacy can enhance individuals' ability to translate self-efficacy into action. They explain that social media literacy allows people to make informed and intentional decisions about how they engage with social media and how they think about and interact with others on social media.

Another intervention for adolescents aimed to increase social media literacy and reduce risk factors for eating disorders in 12-year old's (McLean et al., 2017). The intervention consisted of three 50-min lessons to increase social media literacy relating to different aspects of social media. This included the influential and targeted nature of advertising, critique of digitally manipulated images, reducing appearance comparisons, developing resilience to upward comparison, reducing the frequency of peer appearance-related commenting, and reducing the focus on and importance of appearance in interactions. In their pilot study, the intervention group had favorable effects compared with the control group regarding body image, disordered eating, and media literacy (McLean et al., 2017). A program delivered at

schools aiming to increase social media literacy related to body image and well-being (Gordon et al., 2020) has also been developed. In that program, the four lessons include topics related to a critique of social media advertising, how real the life on social media is, interacting with friends on social media, and creating positive social media. Creating positive social media entails developing awareness of the positive impact social media can have on social issues, exploring ways to create representative social media profiles, and how to reduce focus on appearance in personal presentation on social media. The program was tested in a randomized controlled trial, and modest positive effects were found in dietary restraint and depressive symptoms at 6-month follow-up in girls, but few positive effects emerged for boys (Gordon et al., 2021). The program by Gordon et al. recognizes and focuses on social media as a contributor to appearance pressure and utilize the school for health-promoting purposes. One of the aims of their intervention is similar to the present program; to engage adolescents in a reflection on the way they use social media. However, the authors questioned whether the minor effects observed could be attributed to a lower ability for critical thinking among young adolescents. Thus, a social media literacy intervention may be more effective among older adolescents. Additionally, the intervention was given by an external facilitator, prompting Gordon et al. (2021) to consider whether the adolescents would be more receptive if their regular teacher delivered the intervention. The existing relationship between the teacher and pupils may foster classroom discussion, and the teacher may be more familiar with pupil's specific needs. One approach could be integrating social media literacies into existing school subjects, as we did in our program. Incidentally, others have also found social media literacy to be protective against body image problems, especially for girls and young women, but it is still an under-researched area (Paxton et al., 2022). Since there are measures that have a narrower focus with promising results, it may also be that our program with a broader focus can be useful in today's adolescent life.

Other educational interventions with a more specific social media focus include a program to improve pupils at elementary schools' ability to adapt to potential threats like privacy violations and online aggression (Lee & Hancock, 2023a). The intervention significantly improved students' digital skills, self-efficacy with technology, upstander intentions online, and willingness to seek help online. The intervention has some resemblances in terms of it being a student-oriented educational program developed in collaboration with educators and practitioners, but the program did not include broader psychosocial aspects.

### **Strengths and Limitations**

A strength of the school-based program is that the development is based on the available literature, local needs assessment, data collected explicitly to develop a program, and close collaboration with the target group and relevant stakeholders. Together this makes it a program specially tailored for adolescents using social media, as well as aligning with theories that suggest it can have positive impacts on health. Due to our broad definition of social media, we are able to update the program along with the development of new social media platforms and technology. It also allows for diverse discussions and the targeting of different aspects of social media use that may impact mental health, depending on the adolescents' needs. Furthermore, the scalability of the program is designed to be high. In addition, the pilot evaluation included perspectives from both pupils and teachers on the perceived relevance, usefulness, and engagement of the program, which allowed for a rounded evaluation. Because we included a qualitative approach, we could identify positive and negative factors with the program or the implementation of the program, to make further improvements. However, there are some possible weaknesses to the program, which could explain why the elements were not rated 10/10 in the evaluation. For example, the themes may be too broad, there might be missing elements that should be addressed, the sessions might not be frequent or long enough, or there might be too few behavior change techniques included. Important issues that we have identified have, however, been addressed and improved after the pilot. Another potential limitation of the study is that the generalizability to schools in districts other than Bergen or other countries is unknown. And for the time being, any potential beneficial effects of the program are not yet known. Although awareness, knowledge, and attitudes are prerequisites for promoting prosocial and health-promoting behavior on social media, it is hard to determine if it leads to an actual change in behavior and whether it has health-promoting effects.

### **Implications and Further Directions**

The pupils and teachers considered the program to be highly relevant, useful, and engaging. This emphasizes that there is a need for this type of learning-based program in school and that this ready-to-use program could be a good way to deal with the topic. We have also argued why this program potentially can be health-promoting. However, development and research are needed to test the effectiveness of health-promoting programs for social media use among adolescents. If the program presented here is health-promoting in the context of social

media, it is essential to understand how and why it may be effective. For example, it could be health-promoting by improving social media literacy or through decreasing stress from social media. It should also be tested to see if the program's goal is reached, that is, to increase awareness, reflection, and regulation of social media use. Therefore, we plan to further test whether the program has a beneficial effect in a larger scale study, and this effect evaluation is pre-registered (<https://osf.io/t8j2e>).

### **Conclusion**

This study described a newly developed school-based program developed to increase awareness and promote positive social media use among adolescents. In general, the pupils' evaluation of the program indicates the need for such an intervention. The program will be tested and evaluated on a larger scale in the near future.

### **Author Note**

This research was conducted while Randi Træland Hella was at City Council Department of Child Welfare and Social Services. She is now at RKBU Vest, NORCE Norwegian Research Centre and may be contacted at [rahe@norceresearch.no](mailto:rahe@norceresearch.no).

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### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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### **Ethical Approval**

The study involved human participants who voluntarily participated in the evaluation of the manualized educational-based

program. All participants provided informed consent, and the study adhered to the guiding principles for ethical research involving human participants. The project was submitted to the Regional Ethics Committee (REK) in Norway (REK#497924) but was considered outside their remit as it was not a medical or health research project. The data collection and handling of data complied with the General Data Protection Regulation (GDPR) and internal requirements from the Norwegian Institute of Public Health.

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### Supplemental Material

Supplemental material for this article is available online.

### Data Availability Statement

Explicit consent from the participants is required in order to transfer the research data outside of Norway. DPIA assessment related to this study was also dependent on storing the research data on secure storage facilities located at the Norwegian Institute of Public Health, which prevents the authors from providing the data as supplementary information. Individual requests for data access can be directed to the research project leader: [jens.christoffer.skogen@fhi.no](mailto:jens.christoffer.skogen@fhi.no).

### References

- Abu-Fadil, M., Torrent, J., & Grizzle, A. (2016). *Opportunities for media and information literacy in the Middle East and North Africa*. International Clearinghouse on Children, Youth and Media at Nordicom, University of Gothenburg.
- Adams, G. R. (2005). Adolescent development. In T. P. Gullotta & G. R. Adams (Eds.), *Handbook of adolescent behavioral problem* (pp. 3–16). Springer.
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191.
- Bandura, A. (1977b). *Social learning theory* (Vol. 1). Englewood Cliffs.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*(2), 117–148.
- Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's Journal of Psychology*, *16*(3), 352–356. <https://doi.org/10.5964/ejop.v16i3.3107>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. <https://doi.org/10.1080/2159676x.2019.1628806>
- Chalmers, I., & Glasziou, P. (2009). Avoidable waste in the production and reporting of research evidence. *Lancet*, *374*(9683), 86–89. [https://doi.org/10.1016/S0140-6736\(09\)60329-9](https://doi.org/10.1016/S0140-6736(09)60329-9)
- Chua, T. H. H., & Chang, L. (2016). Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media. *Computers in Human Behavior*, *55*, 190–197. <https://doi.org/10.1016/j.chb.2015.09.011>
- Conn, V. S. (2012). Unpacking the black box: Countering the problem of inadequate intervention descriptions in research reports. *Western Journal of Nursing Research*, *34*(4), 427–433. <https://doi.org/10.1177/0193945911434627>
- Donohoo, J., Hattie, J., & Eells, R. (2018). The power of collective efficacy. *Educational Leadership*, *75*(6), 40–44.
- Erfani, S. S., & Abedin, B. (2018). Impacts of the use of social network sites on users' psychological well-being: A systematic review. *Journal of the Association for Information Science and Technology*, *69*(7), 900–912. <https://doi.org/10.1002/asi.24015>
- Eurostat. (2021). *Internet use: Participating in social networking - ISOC\_CI\_AC\_I*. <https://ec.europa.eu/eurostat/databrowser/bookmark/898e1fa5-2451-4e92-9593-07eaac3efab8?lang=en>
- Eysenbach, G. (2009). Infodemiology and infoveillance: Framework for an emerging set of public health informatics methods to analyze search, communication and publication behavior on the Internet. *Journal of Medical Internet Research*, *11*(1), e11. <https://doi.org/10.2196/jmir.1157>
- Fardouly, J., & Vartanian, L. R. (2016). Social media and body image concerns: Current research and future directions. *Current Opinion in Psychology*, *9*, 1–5. <https://doi.org/10.1016/j.copsyc.2015.09.005>
- Fernandez, M. E., Ruiters, R. A. C., Markham, C. M., & Kok, G. (2019). Intervention mapping: Theory- and evidence-based health promotion program planning: Perspective and examples. *Frontiers in Public Health*, *7*, 209. <https://doi.org/10.3389/fpubh.2019.00209>
- Festl, R. (2021). Social media literacy & adolescent social online behavior in Germany. *Journal of Children and Media*, *15*(2), 249–271.
- Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2021). *Program evaluation: Alternative approaches and practical guidelines* (4th ed.). Pearson.
- Glasziou, P., Altman, D. G., Bossuyt, P., Boutron, I., Clarke, M., Julious, S., Michie, S., Moher, D., & Wager, E. (2014). Reducing waste from incomplete or unusable reports of biomedical research. *Lancet*, *383*(9913), 267–276. [https://doi.org/10.1016/S0140-6736\(13\)62228-X](https://doi.org/10.1016/S0140-6736(13)62228-X)
- Gordon, C. S., Jarman, H. K., Rodgers, R. F., McLean, S. A., Slater, A., Fuller-Tyszkiewicz, M., & Paxton, S. J. (2021). Outcomes of a cluster randomized controlled trial of the SoMe social media literacy program for improving body image-related outcomes in adolescent boys and girls. *Nutrients*, *13*(11), 3825. <https://doi.org/10.3390/nu13113825>
- Gordon, C. S., Rodgers, R. F., Slater, A. E., McLean, S. A., Jarman, H. K., & Paxton, S. J. (2020). A cluster randomized controlled trial of the SoMe social media literacy body image and wellbeing program for adolescent boys and girls: Study protocol. *Body Image*, *33*, 27–37. <https://doi.org/10.1016/j.bodyim.2020.02.003>
- Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J., & Sircar, N. (2020). A digital media



- literacy intervention increases discernment between mainstream and false news in the United States and India. *Proceedings of the National Academy of Sciences of the United States of America*, 117(27), 15536–15545. <https://doi.org/10.1073/pnas.1920498117>
- Higdon, N. (2022). The critical effect: Exploring the influence of critical media literacy pedagogy on college students' social media behaviors and attitudes. *Journal of Media Literacy Education*, 14(1), 1–13. <https://doi.org/10.23860/jmle-2022-14-1-1>
- Hjetland, G. J., Schonning, V., Aasan, B. E. V., Hella, R. T., & Skogen, J. C. (2021). Pupils' use of social media and its relation to mental health from a school personnel perspective: A preliminary qualitative study. *International Journal of Environmental Research and Public Health*, 18(17), 9163. <https://doi.org/10.3390/ijerph18179163>
- Hjetland, G. J., Schonning, V., Hella, R. T., Veseth, M., & Skogen, J. C. (2021). How do Norwegian adolescents experience the role of social media in relation to mental health and well-being: A qualitative study. *BMC Psychology*, 9(1), 78. <https://doi.org/10.1186/s40359-021-00582-x>
- Hou, Y., Xiong, D., Jiang, T., Song, L., & Wang, Q. (2019). Social media addiction: Its impact, mediation, and intervention. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 13(1), Article 4. <https://doi.org/10.5817/cp2019-1-4>
- Huang, C. (2022). A meta-analysis of the problematic social media use and mental health. *International Journal of Social Psychiatry*, 68(1), 12–33. <https://doi.org/10.1177/0020764020978434>
- Hur, J., & Gupta, M. (2013). Growing up in the web of social networking: Adolescent development and social media. *Adolescent Psychiatry*, 3(3), 233–244. <https://doi.org/10.2174/2210676611303030004>
- Jones, A., Hook, M., Podduturi, P., McKeen, H., Beitzell, E., & Liss, M. (2022). Mindfulness as a mediator in the relationship between social media engagement and depression in young adults. *Personality and Individual Differences*, 185, 111284. <https://doi.org/10.1016/j.paid.2021.111284>
- Karim, F., Oyewande, A., Abdalla, L. F., Chaudhry Ehsanullah, R., & Khan, S. (2020). Social media use and its connection to mental health: A systematic review. *Cureus*. <https://doi.org/10.7759/cureus.8627>
- Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal of Adolescence and Youth*, 25, 79–93.
- Keum, B. T., Wang, Y. W., Callaway, J., Abebe, I., Cruz, T., & O'Connor, S. (2023). Benefits and harms of social media use: A latent profile analysis of emerging adults. *Current Psychology*, 42(27), 23506–23518. <https://doi.org/10.1007/s12144-022-03473-5>
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241–251. <https://doi.org/10.1016/j.bushor.2011.01.005>
- Kingsbury, M., Reme, B.-A., Skogen, J. C., Sivertsen, B., Øverland, S., Cantor, N., Hysing, M., Petrie, K., & Colman, I. (2021). Differential associations between types of social media use and university students' non-suicidal self-injury and suicidal behavior. *Computers in Human Behavior*, 115, 106614. <https://doi.org/10.1016/j.chb.2020.106614>
- Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social media and well-being: Pitfalls, progress, and next steps. *Trends in Cognitive Sciences*, 25(1), 55–66. <https://doi.org/10.1016/j.tics.2020.10.005>
- Kysnes, B., Hjetland, G. J., Haug, E., Holsen, I., & Skogen, J. C. (2022). The association between sharing something difficult on social media and mental well-being among adolescents. Results from the “LifeOnSoMe”-study. *Frontiers in Psychology*, 13, 1026973. <https://doi.org/10.3389/fpsyg.2022.1026973>
- Lahti, H., Kulmala, M., Hietajarvi, L., Lyyra, N., Kleszczewska, D., Boniel-Nissim, M., Furstova, J., van den Eijnden, R., Sudeck, G., & Paakkari, L. (2024). What counteracts problematic social media use in adolescence? A cross-national observational study. *Journal of Adolescent Health*, 74(1), 98–112. <https://doi.org/10.1016/j.jadohealth.2023.07.026>
- Lee, A. Y., Ellison, N. B., & Hancock, J. T. (2023). To use or be used? The role of agency in social media use and well-being. *Frontiers in Computer Science*, 5, 1123323. <https://doi.org/10.3389/fcomp.2023.1123323>
- Lee, A. Y., & Hancock, J. T. (2023a). Developing digital resilience: An educational intervention improves elementary students' response to digital challenges. *Computers and Education Open*, 5, 100144. <https://doi.org/10.1016/j.caeo.2023.100144>
- Lee, A. Y., & Hancock, J. T. (2023b). Social media mindsets: A new approach to understanding social media use & psychological well-being.
- Linnan, L., & Steckler, A. (2022). Process evaluation for public health interventions and research.
- Livingstone, S. (2014). Developing social media literacy: How children learn to interpret risky opportunities on social network sites. *Communications*, 39(3), 283–303. <https://doi.org/10.1515/commun-2014-0113>
- Manago, A. M., Taylor, T., & Greenfield, P. M. (2012). Me and my 400 friends: The anatomy of college students' Facebook networks, their communication patterns, and well-being. *Developmental Psychology*, 48(2), 369–380. <https://doi.org/10.1037/a0026338>
- Marciano, L., & Viswanath, K. (2023). Social media use and adolescents' well-being: A note on flourishing. *Frontiers in Psychology*, 14, 1092109. <https://doi.org/10.3389/fpsyg.2023.1092109>
- McLean, S. A., Wertheim, E. H., Masters, J., & Paxton, S. J. (2017). A pilot evaluation of a social media literacy intervention to reduce risk factors for eating disorders. *International Journal of Eating Disorders*, 50(7), 847–851. <https://doi.org/10.1002/eat.22708>
- Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis, J., Hardeman, W., Eccles, M. P., Cane, J., & Wood, C. E. (2013). The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: Building an international consensus for the reporting of behavior change

- interventions. *Annals of Behavioral Medicine*, 46(1), 81–95. <https://doi.org/10.1007/s12160-013-9486-6>
- Milat, A. J., King, L., Bauman, A. E., & Redman, S. (2013). The concept of scalability: Increasing the scale and potential adoption of health promotion interventions into policy and practice. *Health Promotion International*, 28(3), 285–298. <https://doi.org/10.1093/heapro/dar097>
- Nesi, J., & Prinstein, M. J. (2015). Using social media for social comparison and feedback-seeking: Gender and popularity moderate associations with depressive symptoms. *Journal of Abnormal Child Psychology*, 43(8), 1427–1438. <https://doi.org/10.1007/s10802-015-0020-0>
- Nick, E. A., Kilic, Z., Nesi, J., Telzer, E. H., Lindquist, K. A., & Prinstein, M. J. (2022). Adolescent digital stress: Frequencies, correlates, and longitudinal association with depressive symptoms. *Journal of Adolescent Health*, 70(2), 336–339. <https://doi.org/10.1016/j.jadohealth.2021.08.025>
- Norwegian Institute of Public Health. (2022). *Hele verden er et tastetrykk unna - Ungdommers bruk og opplevelser med sosiale medier og online gaming [Worldwide in a keystroke – Adolescents' use and experiences with social media and online gaming]*. [https://www.fhi.no/contentassets/66d4ecd513694bc781147de95c1bfe03/hele-verden-er-et-tastetrykk-unna\\_rapport.pdf](https://www.fhi.no/contentassets/66d4ecd513694bc781147de95c1bfe03/hele-verden-er-et-tastetrykk-unna_rapport.pdf)
- Ostic, D., Qalati, S. A., Barbosa, B., Shah, S. M. M., Galvan Vela, E., Herzallah, A. M., & Liu, F. (2021). Effects of social media use on psychological well-being: A mediated model. *Frontiers in Psychology*, 12, 678766. <https://doi.org/10.3389/fpsyg.2021.678766>
- Parke, R. D., & Ladd, G. W. E. (2016). *Family-peer relationships: Modes of linkage*. Routledge.
- Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., Arora, M., Azzopardi, P., Baldwin, W., Bonell, C., Kakuma, R., Kennedy, E., Mahon, J., McGovern, T., Mokdad, A. H., Patel, V., Petroni, S., Reavley, N., Taiwo, K., & ... Viner, R. M. (2016). Our future: A Lancet commission on adolescent health and wellbeing. *Lancet*, 387(10036), 2423–2478. [https://doi.org/10.1016/S0140-6736\(16\)00579-1](https://doi.org/10.1016/S0140-6736(16)00579-1)
- Paxton, S. J., McLean, S. A., & Rodgers, R. F. (2022). “My critical filter buffers your app filter”: Social media literacy as a protective factor for body image. *Body Image*, 40, 158–164. <https://doi.org/10.1016/j.bodyim.2021.12.009>
- Pew Research Center. (2022). *Teens, social media and technology 2022*. [https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2022/08/PI\\_2022.08.10\\_Teens-and-Tech\\_FINAL.pdf](https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2022/08/PI_2022.08.10_Teens-and-Tech_FINAL.pdf)
- Polanco-Levican, K., & Salvo-Garrido, S. (2022). Understanding social media literacy: A systematic review of the concept and its competences. *International Journal of Environmental Research and Public Health*, 19(14), 8807. <https://doi.org/10.3390/ijerph19148807>
- Primack, B. A., Bisbey, M. A., Shensa, A., Bowman, N. D., Karim, S. A., Knight, J. M., & Sidani, J. E. (2018). The association between valence of social media experiences and depressive symptoms. *Depression and Anxiety*, 35(8), 784–794. <https://doi.org/10.1002/da.22779>
- Radtke, T., Apel, T., Schenkel, K., Keller, J., & von Lindern, E. (2021). Digital detox: An effective solution in the smartphone era? A systematic literature review. *Mobile Media & Communication*, 10(2), 190–215. <https://doi.org/10.1177/20501579211028647>
- R Core Team. (2021). *R: A language and environment for statistical computing*. <https://www.R-project.org/>
- Reich, S. M., Subrahmanyam, K., & Espinoza, G. (2012). Friending, IMing, and hanging out face-to-face: Overlap in adolescents' online and offline social networks. *Developmental Psychology*, 48(2), 356–368. <https://doi.org/10.1037/a0026980>
- Rosen, L. D., Whaling, K., Rab, S., Carrier, L. M., & Cheever, N. A. (2013). Is Facebook creating “iDisorders”? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers in Human Behavior*, 29(3), 1243–1254. <https://doi.org/10.1016/j.chb.2012.11.012>
- RStudio Team. (2022). *RStudio: Integrated development environment for R*. <http://www.rstudio.com/>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68.
- Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology/Psychologie canadienne*, 49(3), 186–193. <https://doi.org/10.1037/a0012753>
- Schmuck, D., Karsay, K., Matthes, J., & Stevic, A. (2019). “Looking Up and Feeling Down”. The influence of mobile social networking site use on upward social comparison, self-esteem, and well-being of adult smartphone users. *Telecommunications and Informatics*, 42, 101240. <https://doi.org/10.1016/j.tele.2019.101240>
- Schønning, V., Hjetland, G. J., Aarø, L. E., & Skogen, J. C. (2020). Social media use and mental health and well-being among adolescents – A scoping review. *Frontiers in Psychology*, 11, 542107.
- Schreurs, L., & Vandenbosch, L. (2020). Introducing the Social Media Literacy (SMILE) model with the case of the positivity bias on social media. *Journal of Children and Media*, 15(3), 320–337. <https://doi.org/10.1080/17482798.2020.1809481>
- Skogen, J. C., Andersen, A. I. O., Finseras, T. R., Ranganath, P., Brunborg, G. S., & Hjetland, G. J. (2023). Commonly reported negative experiences on social media are associated with poor mental health and well-being among adolescents: Results from the “LifeOnSo”-study. *Front Public Health*, 11, 1192788. <https://doi.org/10.3389/fpubh.2023.1192788>
- Skogen, J. C., Hjetland, G. J., Bøe, T., Hella, R. T., & Knudsen, A. K. (2021). Through the looking glass of social media. Focus on self-presentation and association with mental health and quality of life. A cross-sectional survey-based study. *International Journal of Environmental Research and Public Health*, 18(6), 3319. <https://doi.org/10.3390/ijerph18063319>
- Steele, R. G., Hall, J. A., & Christofferson, J. L. (2020). Conceptualizing digital stress in adolescents and young adults: Toward the development of an empirically based model. *Clinical Child and Family Psychology Review*, 23, 15–26.
- Subrahmanyam, K., & Greenfield, P. (2008). Online communication and adolescent relationships. *The Future of Children*, 18, 119–146.

- Thabrew, H., Fleming, T., Hetrick, S., & Merry, S. (2018). Co-design of eHealth interventions with children and young people. *Frontiers in Psychiatry, 9*, 481. <https://doi.org/10.3389/fpsy.2018.00481>
- Ung på SoMe. (n.d.). Resources for teachers and stakeholders. <https://www.ungpasome.no>
- Valkenburg, P. M., Meier, A., & Beyens, I. (2022). Social media use and its impact on adolescent mental health: An umbrella review of the evidence. *Current Opinion in Psychology, 44*, 58–68. <https://doi.org/10.1016/j.copsyc.2021.08.017>
- Verduyn, P., Gugushvili, N., Massar, K., Taht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology, 36*, 32–37. <https://doi.org/10.1016/j.copsyc.2020.04.002>
- Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review, 11*(1), 274–302. <https://doi.org/10.1111/sipr.12033>
- Weaver, J. L., & Swank, J. M. (2019). Mindful connections: A mindfulness-based intervention for adolescent social media users. *Journal of Child and Adolescent Counseling, 5*(2), 103–112. <https://doi.org/10.1080/23727810.2019.1586419>
- Webster, D., Dunne, L., & Hunter, R. (2021). Association between social networks and subjective well-being in adolescents: A systematic review. *Youth and Society, 53*, 175–210.
- West, M., Rice, S., & Vella-Brodrick, D. (2021). Exploring the “social” in social media: Adolescent relatedness—Thwarted and supported. *Journal of Adolescent Research*. Advance online publication. <https://doi.org/10.1177/07435584211062158>
- West, M., Rice, S., & Vella-Brodrick, D. (2023). Mid-adolescents’ social media use: Supporting and suppressing autonomy. *Journal of Adolescent Research*. Advance online publication. <https://doi.org/10.1177/07435584231168402>
- Wright, M. F., & Li, Y. (2011). The associations between young adults’ face-to-face prosocial behaviors and their online prosocial behaviors. *Computers in Human Behavior, 27*(5), 1959–1962. <https://doi.org/10.1016/j.chb.2011.04.019>
- Zhou, X., Rau, P. P., Yang, C. L., & Zhou, X. (2021). Cognitive behavioral therapy-based short-term abstinence intervention for problematic social media use: Improved well-being and underlying mechanisms. *Psychiatric Quarterly, 92*(2), 761–779. <https://doi.org/10.1007/s11126-020-09852-0>