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ARTICLE

Exploring the role of social media literacy in adolescents' experiences with personalization: A Norwegian qualitative study

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For years, there seemed to be an unspoken consensus that social media research should focus on their potential harm, such as negatively correlated mental health outcomes (Hjetland et al., 2021; Schønning et al., 2020), but the scope has since broadened. Research now includes more nuanced outlooks, more versatile methods, and more detailed investigations of both the user side and the technological side of social media (Eslami et al., 2015; Powers, 2017; Schmidt et al., 2019; Swart, 2021; Youn & Kim, 2019). On the user side, literacy researchers endeavor to understand the skills required to use social media competently, while on the technological side, researchers from different disciplines strive to keep up with innovation. Following this path, the current work addresses individually adapted social media platforms, with the purpose of studying adolescents' social media literacy through their awareness of personalization and their accounts of related positive and negative outcomes.

Social media have evolved since their early days; the platforms now register every action and utilize algorithms to analyze the acquired data, then filter and prioritize the outputs deemed most relevant to the user (Powers, 2017; Swart, 2021). Hence, personalization is a combination of computational processes that seek to make social media personally relevant, although many users remain unaware of the covert judgments made on their behalf (Powers, 2017). Since personalization is accomplished by intangible algorithms, their outcomes are easily overlooked (Head et al., 2020). Nevertheless, according to literacy theories, awareness of algorithmic personalization is the first step toward understanding them and acknowledging their impact (Swart, 2021). Considering the ongoing evolution of algorithmic technology, and the challenge of keeping literacy up to speed, there are novel consequences to consider; among them, the potential reinforcement of personalization on opinions, perceptions, and worldviews.

This work targets the adolescent population, whose frequent social media use has been a cause for concern due to their assumed vulnerability and limited digital competence (Bakken, 2021; Hjetland et al., 2021). The study is also motivated by the need for more nuanced and detailed accounts of the encounters that adolescents have with personalization on social media (Schønning et al., 2020). Consequently, we have designed a qualitative study to answer the following research question: What are adolescents' experiences with personalization on social media and which emotions do they have toward personalized platforms and content?

Review of literature

Little insight on adolescents interaction with personalization

Social relations carry influence on many developmental processes, such as the forming of social identity, along with a range of cognitive and emotional factors. Consequently, social comparisons tend to play a part in defining an individual's identity, and this part may be particularly prominent during the formative adolescent years (Hjetland et al., 2021; Latif et al., 2021). With hours spent on social media every day (Bakken, 2021), young people are now exposed to social influences in both their physical and digital lives. Still, the role of personalized social media content in the lives of potentially impressionable young people has so far received little research attention.

A few studies have investigated the impact of personalized advertisements on young adults (Youn & Kim, 2019) and the interactions of college students

with curated news (Powers, 2017). Others have investigated the awareness, understanding, and perception of algorithms and personalized content on social media, but not specifically for adolescents (Eslami et al., 2015; Swart, 2021). One exception is a recent Norwegian study who found that the awareness of algorithms increased with education level and age, but only up to a point. Below the age of 40, older adults reported more awareness than younger adults, who in turn were more aware than teenagers (Gran et al., 2021). The study also addressed the benefits of personalization, for example relevant recommendations, and showed that young people appreciate the recommended content, curated news, and even targeted advertisements.

Digital literacy

Despite several benefits, including easy access to updated information and relevant content, there are concerns related to young users' reflections on the technologies they use, and how social media may shape their everyday lives (Eslami et al., 2015; Powers, 2017). These concerns have been tied to discrepancies between young people's perceived and actual digital literacy (Porat et al., 2018). Digital literacy is a broad term that encompasses the skill sets required to "operate intuitively and effectively in digital environments for work, learning, and daily functioning" (Porat et al., 2018, p. 24). The specific skill sets involved vary between theoretical accounts (Park et al., 2021), but most coincide with the perspective of multiliteracy in acknowledging the diverse and multimodal nature of digital media, and the active role of the individual (Mirra et al., 2018). Not unlike those who have spoken against the negative focus of social media research, multiliteracy researchers have advocated for a new approach to teaching critical media literacy by considering technology as learning tools where students become creators and participating researchers themselves, not merely passive and susceptible consumers (Mirra et al., 2018).

Park et al. (2021) summarize several definitions that exemplify how digital literacy is more than the use of devices and applications. Digital literacy can be considered a combination of cognitive, motor, social, and emotional skills required to function well in digital settings (Eshet-Alkalai, 2004, cited in Park et al., 2021, p. 131), or as a hierarchy with digital competence at the bottom, followed by digital usage, and culminating with digital transformation (Martin & Grudziecki, 2006, cited in Park et al., 2021, p. 131). The hierarchical approach suggests a progression from knowing how digital technology works and how to use it, to applying this knowledge to specific domains, and finally design or construct by merging knowledge with creativity (Park et al., 2021). Digital literacy can also be an understanding of the sociological impact of digital technology and its use (Jenson & Droumeva, 2016, cited in Park et al., 2021, p. 131). When combining all three accounts, we converge on a perspective where digital literacy relies on a wide set of skills that will evolve with age, experience, and social exchanges, and that carries impact on the state of the individual, as well as society at large.

Algorithmic and social media literacy

Although digital literacy scholars have come a long way in establishing theories and documenting insight on how humans deal with digital technology, the scope needed broadening when algorithms entered the scene. Digital literacy is a broad construct that entails many separate constructs, among them social media literacy (Manca et al., 2021) and algorithmic literacy (Swart, 2021). While these constructs are independent, targeting social media and algorithmic technology as distinct domains, the evolution of social media has since intertwined the two. Nevertheless, digital literacy researchers tend to focus on one or the other. For example, Swart (2021) considers algorithmic literacy to be the awareness, knowledge, imagined understanding, and tactics that relate to these computational scripts that are responsible for many of the mechanisms associated with personalization. Swart (2021) also accentuates the role of awareness as the first step toward algorithmic literacy. Arguably, other types of digital literacy similarly require awareness on how the platform or service operates, for instance that personalization exists. Indeed, awareness of personalization seems to spur on reflections, at least according to a project that mapped out the youth's algorithmic habits; its findings showed several commonalities in their concerns, including individual reinforcement from automated and personalized processes, and the resulting construction of disparate online worlds (Head et al., 2020).

Whereas algorithmic literacy encompasses omnipresent computational scripts, social media literacy targets specialized platforms that cater to human interactions. A recent review further clarifies the characteristics of this literacy construct by making a distinction between the global skills that generalize across platforms, and the local skills that are specific to a single platform (Manca et al., 2021). The review also distinguishes between four views on how social media literacy is acquired and used, including as a tool, a process, a collaboration, and an act of participation. Where the first two attribute literacy to formal learning that facilitates autonomy, the latter two center on the role of social environments in learning. Collaboration refers to the co-construction of knowledge and skills, whereas participation entails the individual learning from the collective by adapting to social norms and shared knowledge (Manca et al., 2021).

CONCEPTUAL FRAMEWORK

In the current investigation of adolescents' experiences with personalized social media content, we apply a conceptual framework that builds on the premise that social media literacy derives from specific skills about the platforms' unique affordances that in time are integrated and generalized into broader knowledge (Manca et al., 2021). The conceptual framework regards these as global skill sets learnt through participation, meaning through interactions with the platforms, with other users, and with peers; the framework also presumes that awareness of personalization must make up the first step toward literacy related to these specific social media mechanisms (Swart, 2021).

Furthermore, our conceptual framework on social media literacy is motivated by the focus of the study, which centers on adolescents' shared experiences with personalization as a general social media phenomenon. Several argue that this type of digital literacy cannot be studied deductively from pre-defined measures but should be approached through the users' experiences (Eslami et al., 2015; Powers, 2017; Swart, 2021); these arguments speak in favor of a perspective that participants can recall and recount, which we have facilitated through focus group interviews and sharing of social media experiences that reflect levels of social media literacy.

Although digital competence is on the Norwegian curriculum, it does not include formalized teaching on social media technology (NOKUT, 2014), nor do we believe this to be an established practice in many countries. In this work, we will therefore address the social environment of social media literacy (Manca et al., 2021), working from the assumption that this approach is more likely to tap into the participatory perspective than the assumedly less conscious social constructivist perspective on collaboration.

MATERIALS AND METHODS

This qualitative study was part of a larger project with the overall aim to identify social media habits among secondary school adolescents, aged 15–19 years; the study extends on an earlier publication (Bell et al., 2021). The data collection was carried out with focus group interviews, aiming for peer discussion of specific topics related to personalization on social media. Specifically, we utilized a basic interpretive design to understand how individuals make sense of their experiences with personalized content, while the primary goal was to uncover and interpret those meanings (Merriam & Tisdell, 2016). To gain new knowledge about personalized content on social media, beyond mere descriptions, we investigated the shared experiences of adolescents using a basic interpretive design and analytical techniques specific to phenomenology (Merriam & Tisdell, 2016).

Sample

The data collection took place in Ringerike municipality, an urban area in south-eastern Norway with five secondary schools and approximately 30000 inhabitants. Each school was contacted, with one lower secondary school and one upper secondary school willing to participate, both centrally located. The other three declined due to time constraints. To preserve anonymity, one coordinator from each school was assigned the overall responsibility for recruiting participants. Recruitment was done in randomly chosen classes, the teacher informed their class and handed out written information about the project, including consent forms. Written informed consent forms were also sent to the parents of the youngest participants (15 years). Recruitment to one focus group started in one class and continued to the next until all groups were complete. Members of the same group typically came from two or three classes on the same level, they were therefore familiar with each other. To reduce the possibility of participants from the same level sharing insight from the project, and thus becoming better informed about personalization, we conducted the interviews either on the same day or a few days apart. If the number of interested adolescents exceeded the planned size and number of groups, the teacher did a draw and compiled a waiting list for those not drawn. Four participants withdrew prior to the interviews, with four from the waiting lists taking their places.

The original sample consisted of 48 participants (21 male and 27 female students), who were assigned to eight focus groups each comprising six people (Willig, 2013). In all, 24 participants were recruited from the final year of lower secondary school (ages 15–16 years) and assigned to two male and two female groups. The remaining 24 participants were recruited from all three levels of upper secondary school (ages 16–17, 17–18, and 18–19 years). One male and one female focus group were assembled for ages 16–17 years, while mixed-gender groups (one male and five female students in each group) were assembled for the ages 17–18 and 18–19 years. We planned for male and female groups for the youngest participants due to the possibility of gender differences in awareness toward personalization among those with the least experience, whereas the separation by age allowed for investigations of potential progression. One male participant turned out to be an adult, general educational development student; his level of social media literacy was judged to be unrepresentative of the adolescent population and he was therefore excluded retrospectively. Thus, 47 participants were included in the analysis.

Data collection and material

An initial interview guide with open-ended questions was first tested in a pilot with a group of four adolescents aged 13–15 years, to ensure that the prepared questions were relevant and understandable for the age group. Adjustments were made where necessary based on the comments received, resulting in the final interview guide that addressed different topics related to social media. The interview commenced with two general questions about the participants' social media habits, while the subsequent questions addressed personalization specifically. The order of questions intended to make participants comfortable and guide them toward the topic, concurrently avoiding cues and information on personalization prior to addressing it. The specific questions relevant to this study were as follows:

> "Have you heard of personalization on social media, and can you explain what it is?"
>
> "What do you think of personalization?"
>
> "What are your thoughts on how you use social media, in relation to personalization?"
>
> "Do you have any thoughts about why certain pictures and videos appear on your social media account?"

All interviews were performed between April and June 2021 in a private room within the school. Two female researchers were present throughout each interview, both unfamiliar to the participants. The same researcher (Ashley Rebecca), trained in qualitative interview techniques, led all the interviews. The other researcher present (Merete or Ragnhild) annotated nonverbal behaviors, and the time and order of speakers. The researchers and adolescents sat together in a circle during the interview so that everyone could see and easily interact with each other. The interviews lasted between 60 and 90 min, excluding introduction and debrief, and were recorded using a secure dictaphone application (Nettskjema) running on three mobile devices simultaneously, each placed in a different location in the interview room.

Analysis

The interviews were transcribed in full detail, supplemented by the annotated nonverbal behaviors, and one researcher (Ashley Rebecca) coded the data using NVivo 12. With foundation in the outlined conceptual framework, social media literacy considered a global skill set learnt through participation, a theoretical interpretation of the coded transcripts was performed to systematize meaningful themes. We utilized thematic analysis (Braun & Clarke, 2006) based on descriptive phenomenology (Willig, 2013) to explore adolescents' experiences with personalization on social media, alongside age and gender differences. Thematic analysis is a method for identifying and analyzing patterns within data that is accessible and theoretically flexible (Braun & Clarke, 2006). To consider the social context of the adolescents' experiences, we chose an inductive approach whereby themes were identified based on the emerging data. The six steps proposed by Braun and Clarke (2006, p. 87) facilitated the analytical process: (1—all) familiarization with the data through repeated readings of transcriptions; (2—Ashley Rebecca) assigning initial codes to identified topics (e.g., recommendations as noticeable personalization [particularly TikTok]; enjoys interesting content; scary when overly relevant); (3—Ashley Rebecca and Miroslava) collating codes into potential themes (e.g., awareness; appreciation; worry); (4—all) reviewing potential themes to validate defined themes (e.g., positive; negative; mixed emotions); (5—Ashley Rebecca and Miroslava, repeated by Merete and Ragnhild for confirmation) re-reading defined themes to ensure comprehensiveness of the coding and categorization of the narratives; and (6—all) organizing and reporting current findings by selecting appropriate statements to illustrate the themes, also with the intention to reflect age and gender differences. Statements have been translated from Norwegian to English and edited to improve readability, while remaining as close to the original statements as possible.

Ethics statement

The design, analysis, and presentation of the current study adhered to the Consolidated Criteria for Reporting Qualitative Research (Tong et al., 2007). All participants were informed both verbally and in writing about their ethical and voluntary rights; they could withdraw from the study at any time and choose to not answer any question posed. Before each interview started, signed consent forms were collected by the researchers. Anonymization of the participants was ensured by transcribing the interviews and allocating fictitious aliases. Although participants were informed that they could request their statements for comments and corrections, none did so. The study was approved by the Norwegian Centre for Research Data (reference 644850). The recordings, transcripts, and signed consent forms were stored according to the general data protection regulations (GDPR). All participants received

a gift card of approximately USD 35 to compensate for their time.

RESULTS AND DISCUSSION

By regarding social media literacy as a global skill set learnt through participation, this study set out to shed light on adolescents' experiences with personalization on social media. The two introductory questions from the interviews revealed that all participants used social media frequently. It appeared that the majority of participants did not have a plan for what type of content they wanted to see while on social media, instead they let the platforms select content on their behalf. Two main themes on adolescents' experiences with personalized content emerged from the analysis: (1) diverse levels of adolescents' awareness and familiarity with personalization and (2) positive, negative, and mixed emotions toward personalization.

Theme 1: Diverse levels of adolescents' awareness and familiarity with personalization

In general, our participants exhibited diverse levels of social media literacy; some had limited awareness of personalization on social media, while quite a few demonstrated basic awareness on how personalization is achieved. With that said, there may be learning involved in the knowledge shared online and offline, which could contribute to social media literacy (Manca et al., 2021). We observed this type of learning when someone presented sentiments that were relatable to others during interviews; participants would often elaborate on each other's stories and thereby, seemingly, extend their shared understanding of personalization.

Awareness and familiarity of personalization is lower among the youngest

Being aware of personalized social media content seemed somewhat more common among the older (17–19) compared to the younger (15–16) participants. Even though little research has addressed age differences, our finding is consistent with the teenagers in Gran and colleagues' study (2021) where 55% reported no or low awareness of algorithms. Relatedly, Generation Z (born 1995–2003) has been found to have equivalent information and communication skills compared to other generations, but are worse at problem solving, safety, and privacy measures (Khan & Vuopala, 2019). We also learned during the interviews that terms such as “personalization” and “targeted content” were not immediately understood by all, this was especially apparent among the youngest participants. For example, in one of the interviews with girls aged 15–16 years, several responded: “Um, what do you mean by that?” or “um, personalization?” while looking confused. However, when we followed up their initial responses with an explanation and examples, it became clear that even the youngest had greater awareness than we initially anticipated, but they lacked the vocabulary and often the reflection. In contrast, the older participants appeared more familiar with the term “personalization.” Compared to the politically engaged participants in Schmidt and colleagues' study (2019), our sample appeared to have a poorer understanding of personalized content. In other words, social media literacy, more specifically awareness of personalization on social media, may differ among adolescent groups.

On the other hand, both Eslami et al. (2015) and Powers (2017) found low levels of awareness among their older participants, possibly lower than in our study. Then again, the time that has passed since their data collection could have changed the pattern. Social media users could have been more aware of personalization in 2021 as compared to earlier years, attributable for instance to media coverage and more transparent algorithmic feeds and recommendations. Nevertheless, as Swart (2021) points out, a lack of technological vocabulary does not necessarily indicate a lack of algorithmic awareness, which, in turn, is indicative of social media literacy.

Concerning gender differences, a slightly greater awareness was observed for female relative to male participants, where females offered more frequent examples on how they had encountered personalization. However, the females outnumbered the males in the two oldest age groups; hence, the observed gender differences are predominantly based on the youngest same-gender groups. Furthermore, little research has addressed gender differences in this domain, making it premature to extend the interpretation of these findings.

Subjective understanding is not always accurate

Even though our participants displayed some level of social media literacy, specifically an understanding about why personalized content emerged, their explanations sometimes took on the nature of what Swart (2021) has labeled “imaginaries.” Personalized advertisements were not an explicit focus in this study, but it was often in this context that the imaginaries came forward. As Miranda (15–16) put it: “It has happened to me, that I have talked about one thing [verbally], and then a few days later a lot of advertisements have shown up for that thing. Then I'm like, am I kind of monitored now?” Her sentiment was shared by many fellow participants. The unease arising from the sense of being watched resembled the accounts in Swart's (2021) study on young social media

users. Although several of our participants believed that they were being monitored, they proposed different reasons for continuing to use these applications. Some simply dismissed the concern about being monitored, either due to a lack of agency that the believed monitoring implied, or due to the effort required to avoid it. Similar reasons were put forward by Swart's (2021) participants.

Generalizations contribute to global skills

Awareness and familiarity with personalization on social media are often generalizable across different platforms, reflecting social media literacy as a global skill set (Manca et al., 2021). In our study, participants in all groups mentioned, at least indirectly, that they had encountered personalized content on their most used social media platforms. TikTok came across as a great contributor to social media literacy, seeing how participants mentioned it as the dominating platform for becoming aware of personalization. This may be due to TikTok's "for you" page, which is likely easier to recognize than other platforms' more covert personalization (Swart, 2021). TikTok's "for you" page, but also similar recommendation functions on other social media platforms, were highlighted throughout all interviews. Marcus (15–16 years) explained: "The thing about TikTok is that they notice what you like. So, they come up with recommendations on videos for you. If, for example, you like a football video, then a lot more football videos may show up."

Participants who expressed awareness of personalization emphasized that content on social media was uniquely selected for them. Victoria (15–16 years) said: "It's of course very different what we get [on social media] because it [TikTok] tries like to show you videos that it thinks you will like. So, it's kind of very different from person to person." Meredith (17–18 years), a few years older, elaborated in a different interview:

> There are algorithms and such, aren't there? That somehow find out what you look at, what you like and what you sort of bump into, or what you search for and such. That's kind of what makes my TikTok full of food and humor, while others' [social media] are full of other things.

Moreover, participants' levels of social media literacy were also displayed when they expressed their beliefs that social media platforms employed personalization mainly to increase users' social media time. For example, Rebecca (18–19 years) said, "Their [the social media applications] goal is in a way to show you one thing to see if you like it, and then to drag you further into it." In a different interview, Mia (15–16 years) supplied, "[The social media platforms] try to keep your attention as long as possible."

Theme 2: Positive, negative, and mixed emotions toward personalization

The analysis identified three main types of emotions toward personalized content which are described below in three subcategories: positive, negative, and ambivalent or mixed.

Positive emotions

Participants reported that they enjoyed personalized content, explaining how personalization made sure they received relevant and interesting content. For example, when asked what they liked about personalization, Henry (15–16 years) said: "You don't have to search for it. What you most likely will look for, just pops up." In a different interview, Joanna (16–17 years) shared her appreciation: "It's nice when only content you like to watch appears," with some of her peers agreeing. She also expressed gratitude toward the social media platforms for improving her social media experience through personalization. Others have similarly found young participants to convey positive emotions toward personalization, such as appreciation or seeing benefits from recommending systems (Gran et al., 2021; Swart, 2021; Youn & Kim, 2019). Swarts' (2021) account on how personalized content contributes to a smooth and efficient experience, coincide with that of our participants. For example, Emily (15–16 years) said: "They [social media] facilitate so that you have the best possible experience," while emphasizing "best" and "you." In a different interview, David (16–17 years) exhibited the same gratitude for applications using personalization: "It's actually very impressive. They quickly find out what I like."

Participants who expressed that personalization improved their experience with social media tended to add that personalization increased their use of social media, unveiling their social media literacy. More specifically, personalized content on social media increased their engagement with both the content and platform itself, which, in turn, increased their usage. Maria (16–17 years) elaborated as follows, elaborating on social media's positive aspects while gaining agreement from fellow classmates:

> I kind of think that if I only got content on my phone that wasn't interesting to me, I probably would have used social media much less. So that's probably the reason why I use social media a lot, because I only receive content I find interesting.

There have been few statistical analyses on the proportion of adolescents who exhibit positive emotions toward personalized content. A recent Norwegian

study found that 51% of participants aged 15–29 years reported positive or very positive attitudes toward algorithmically driven recommendations, and 20% of those within the same age range reported positive or very positive attitudes toward algorithmically driven content (Gran et al., 2021). Since the study in question grouped adolescents and young adults together, these findings might not be representative for adolescents only. However, the results are consistent with our observations that many adolescents convey positive emotions toward personalization.

Negative emotions

Some of our participants expressed that personalized content was scary, especially when experiencing personalized advertisement; others said that it was annoying. A mixture of different negative emotions toward personalized content is consistent with findings from earlier research (Swart, 2021; Youn & Kim, 2019). For example, Youn and Kim (2019) discovered that some of their young adult participants perceived personalized advertisement as annoying and irritating, whereas others found them scary and creepy. As an example, Mia was met by nods of agreement when she stated the following in one of our interviews with the age group 15–16 years:

> It's like seeing my phone predict my next choice (…). Your phone or an app based on what you have clicked or which videos you have liked, somehow in a way can predict how you are as a person. It's a little, or it's not a little, it's very scary.

Similar to our finding, participants in Swart' (2021) study expressed an uncomfortable feeling of being watched when the algorithms seemed to be too accurate, for instance when personalized content was directed at overly personal aspects. Although social media literacy may increase when personalization works too well, it may also lead to both unease and privacy concerns, one such concern could be social media platforms selling user data to third parties (Swart, 2021; Youn & Kim, 2019). The amount of information that social media platforms and search engine providers possess about their users was a widely discussed topic in one of the interviews involving boys aged 16–17 years. Lucas expressed it like this: "If I am on a website, they know exactly how fast I move the mouse to where I click on that thing [I'm looking at] (…), and they can sell that data to different advertisers." As part of Lucas' explanation, he expressed being a little scared of this type of personalization, yet not scared enough to act on it, for example by deleting social media or blocking content.

Ambivalent or mixed emotions

A third subcategory comprises sentiments that we have interpreted as ambivalent emotions, often a mixture of positive and negative emotions. All things considered, most of our participants fell into this subcategory since only a few exhibited a single strong and consistent emotion. For example, Jennifer (17–18 years) expressed ambivalence, although most of her emotions were positive: "While the personalization may seem a little scary, it's quite sweet that you can sort of go to one social media or the other, and something you're interested in will pop up, without you having to search for it." Noah (16–17 years) constitutes another example as he expressed a mixture of emotions: positive, fearful, and annoyed; in one part of the interview, he exhibited unease: "It's of course a little scary to think about how much Google really knows about us," while later he brought forward positive emotions: "Well, it's good that they do it [personalization]…," before continuing to express annoyance toward personalization while stressing the words "all the time" and "all my social media": "… But it can sometimes be a bit too much. For example, if I search for a hoodie I want, then advertisements come up all the time for it, for a few months, on all my social media."

Although our participants likely gave sincere responses during the interviews, many were simply nodding and expressing agreement with those who spoke, especially among the youngest. Social influence can make it difficult to deviate from the majority opinion, possibly more so for adolescents (Hjetland et al., 2021; Latif et al., 2021). If the norm is acceptance and appreciation, the unease caused by personalization could turn into ambivalent emotions. Our observations on non-verbal agreement may not shed much light on the level of awareness, but those who explicitly expressed ambivalence did showcase social media literacy through their awareness and reflections. Among these are a few participants who stated that they "did not care," seemingly dismissing any concerns about personalized content. Despite claims that they had never reflected on it, they still articulated their reasoning. As Rebecca said:

> I think many of us have gotten used to it (…) being tracked online. (…) You are aware of it, but it happens to everyone regardless, so you can't really do anything about it unless you just decide to not use social media anymore.

Her explanation illuminates the need to accept online tracking if you want to be on social media, which many of our participants perceived as obligatory to avoid being socially excluded. For example, when

asked how long they had been using social media, Kate (17–18 years) replied: “I have at least used it [social media] since I got my first mobile. It's like, you hurry to download Instagram and Snapchat to be a part of society.”

Our finding that adolescents experienced social pressure to be on social media, and consequentially simply accepted personalization, is consistent with previous research (Bakken, 2021; Head et al., 2020). Social pressure may lead some adolescents to refrain from reflecting on their emotions toward personalization, resulting in neutral or ambivalent emotions; and it may also outweigh potential fears or other negative sentiments about personalization. Charlotte (18–19 years) said: “There's a depth to it [personalization] that is perhaps a little scarier than we like to believe,” which may indicate that some adolescents do not want to fully understand the mechanisms underlying personalization due to fear, thereby attaining lower social media literacy. Alternatively, adolescents may consider the benefits of personalization to outweigh the burdens.

Considering that this age group has been found to be less digitally competent than they themselves believe, the lack of concern among adolescents may be mere habituation (Khan & Vuopala, 2019; Porat et al., 2018). Conversely, the expressed ambivalent emotions could be attributed to the adolescents feeling pressured into dismissing their concerns, implying that their social media literacy may not be all that superficial.

CONCLUSION

Based on the findings from this qualitative study, it appears that many adolescents are familiar with personalized content on social media, yet for the youngest, social media literacy may be limited to awareness. Among our participants, awareness of personalization generalized across platforms, at the same time that certain recommendation contexts were described for specific platforms. However, understanding did not necessarily follow awareness; we encountered a few propositions on how social media technology monitors their users. We also found that emotions toward personalization were mixed; participants appreciated the interesting content, but were uneasy about the increased usage, the overly personal advertisement, and the sense of being watched. Although we strived for balance in our investigations of possible gender differences, end results may still be influenced by an overrepresentation of girls among the oldest participants. Furthermore, ethical guidelines prevented us from asking about socioeconomical factors, which comes with the risk of unscoped determinants. Consequently, the presented findings might not be generalizable to populations where digital competence is lower and our results on gender differences must be interpreted with caution.

By addressing both the positive and negative aspects of social media and personalization, we are able to acknowledge that many adolescents appreciate the recommended content, at the same time that we may attribute the widespread acceptance partly to insufficient literacy. For good and bad, further attention devoted to the personalization that takes place on social media may hopefully increase social media literacy, awareness in particular, which, in turn, aids both young and old users' understanding of the underlying mechanisms and how to circumvent them. Accordingly, more research on the rapid evolution of social media technology could improve the current state of knowledge and possibly catch the attention of media, educators, and policymakers, accentuating the need to broaden perspectives on social media literacy.

Following the premise that digital literacy, algorithmic and social media literacy included, encompasses an understanding of the social and societal consequences of using digital technology, we would argue for more formalized teaching on both the technology and its potential effects on users. However, in line with our observations, others have remarked that existing educational approaches are inadequate in preparing students for a vast online world of information deeply influenced by algorithms (Head et al., 2020), suggesting the need for an overhaul of existing curricula on digital competence. For instance, by using these and related research results to identify challenges that adolescents may encounter when using social media technology. In addition to personalized content, social media come with multitude of influencing mechanisms, among them geolocation, gamification, and other forms of persuasive design; these mechanisms are likely to be neglected by anyone who does not take a special interest. To equip educators with the very awareness and knowledge they should teach, they first need a roadmap that can help them navigate the vast digital landscape. This requires better defined learning outcomes that highlight specific topics to address, and more dynamic curricula that can be updated along with the rapid evolution of digital technology.

Another step forward is to heed the advice of multiliteracy researchers in using social media as learning tools and allowing students to participate in the learning process (Mirra et al., 2018). Teachers may instruct students on how to check the activities logged by the social media platforms they use, the logic behind the commercial content they encounter, and the privacy settings available. By posing questions for reflection, such as “Do I feel differently toward different content in my feed, and how so?,” teachers could further draw attention to the emotional

aspect of personalization. Combined, this could be the first step for students to make more deliberate choices in the restrictions they want to impose on their data and the content they want to interact with.

Adolescents may learn from each other (Manca et al., 2021), speaking in favor of more cooperative schoolwork. As our own findings show, awareness of covert social media mechanisms may surface in discussions with peers, pointing to the value of sharing perspectives on mutual experiences. This value could be boosted through groupwork that combine practical and reflective assignments, for example by creating a joint social media account, writing scripts with actions to make on the account, logging the resulting personalization, and discussing the outcomes. Alternatively, teachers could assess their students' level of awareness pre and post a training session, allowing for discussion on potential improvements.

For adolescents to fully reap the benefits of the ubiquitous social media, they need to be aware of the platforms' hidden mechanisms. The responsibility of raising social media literacy is likely to fall on the teachers, but they should not hold the sole responsibility of formalizing the curriculum.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

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