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Editorial

Digital Media and Younger Audiences

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Abstract
The active digital engagement of children and teens from a very early age makes them the most prolific digital users and online content creators. Simultaneously, this high level of digital exposure enhances their vulnerability to online risks and the potential for them to encounter harmful online content. This dynamic has profound implications for all dimensions and stakeholders within the digital ecosystem. This thematic issue presents a comprehensive review of the significant advantages, critical risks, and challenges arising from the extensive online engagement of children and adolescents. This body of research provides valuable insights and identifies future research avenues related to emotional well-being, identity development, perceptions of social success and self-esteem, as well as examining the critical aspects concerning digital literacy and the regulatory frameworks governing digital content providers.

Keywords
adolescents; children; digital literacy; digital media; digital vulnerabilities; influencers; online content; self-regulation; video-sharing platforms

Issue
This editorial is part of the issue "Digital Media and Younger Audiences: Communication Targeted at Children and Adolescents" edited by Olga Kolotouchkina (Complutense University of Madrid), Celia Rangel (Complutense University of Madrid), and Patricia Núñez Gómez (Complutense University of Madrid).

1. Introduction

Within the complex digital ecosystem, children and adolescents emerge as the most active and prolific actors in both the consumption and production of digital content. Their online experiences pervade most aspects of their lives due to the growing number and variety of digital tools at their disposal, coupled with the extensive array of entertainment and educational content available on digital media and video-sharing platforms (Smahel et al., 2020). While the age at which children first engage with digital technologies has been decreasing, with the first exposure occurring as early as before the age of two (Chaudron et al., 2018), the amount of time they spend online has escalated (Burns & Gottschalk, 2019). In the US, there has been a notable surge in screen time among children and adolescents, resulting in a daily average increase of approximately 17%. Teenagers, on average, now spend approximately 8.5 hours per day engaged with screens, while younger children allocate around 5.5 hours to screen-based activities (Common Sense, 2022). YouTube, Instagram, and TikTok are among the top video-sharing platforms where minors consume the most hours of content (Ofcom, 2023).

Digital media and video-sharing platforms have enabled new codes of communication between brands and younger audiences through innovative formats and highly engaging content (Jones & Glynn, 2019; Núñez Gómez et al., 2020). The emergence of influencers marked a turning point in transmitting the closeness and empathy so desired by children and adolescents in digital environments (Tur-Viñes et al., 2018). However, the performance of child celebrities and their online content also raises concerns on account of controversial practices that take advantage of the credulity of children who cannot yet distinguish between commercial, informative, or entertaining content. Such naivety also exposes them to additional risks that may harm their

moral, physical, and mental development (Livingstone & Stoilova, 2021).

Given technology's relentless growth and the evolving landscape of online actors and platforms, an effective and adaptable regulatory framework is needed to safeguard minors' rights while at the same time enabling their growth in the digital ecosystem (European Commission, 2022). Important initiatives such as China's endeavours to restrict internet access for minors (McCarthy, 2023) and Europe's concerted efforts to bolster online safeguards for minors substantiate this commitment. Additionally, it is essential to promote self-regulation within specific sectors and among companies to swiftly respond to the critical challenges posed by the digital ecosystem (Rangel, 2022).

2. Overview of the Thematic Issue

The studies selected for this thematic issue provide an in-depth analysis of the best practices, complexities, and remaining challenges of the digital communication ecosystem, whose main protagonists are children and adolescents. The research included in this issue offers empirical and conceptual perspectives on the critical role of digital media and social platforms in the lives of children and teenagers through the lens of the new digital economy, digital literacy, digital divide, emotional well-being, and identity formation. The broad geographical context of the 10 selected articles focuses their research on Africa, Asia, Europe, and North America; they reveal the common concerns that need to be addressed to safeguard minor's rights in the digital realm and to ensure transparency, diversity, and equality as fundamental principles of digital communication targeted at children and adolescents.

2.1. Digital Entertainment and Digital Well-Being

Digital media and social platforms have enabled the most innovative formats of highly engaging entertainment content for younger audiences. Music, humour, games, and sports are among the most popular digital topics (Ofcom, 2023). Four articles in this thematic issue focus their research on key actors, emotional motivations, and consumption patterns of digital entertainment aimed at children and adolescents.

Radu M. Meza, Andreea-Alina Mogoș, and George Prundaru (2023) investigate the phenomenon of TikTok-famous content creators as new icons of popular culture and idols for children and adolescents. Through a comprehensive analysis of video content and hashtags used by TikTok's top celebrities, the authors reveal their engaging discursive practices, dominated by humour and nonverbal content, and identify key performative profile categories.

Lina Li, Yubin Li, Jing Wu, and Hao Gao (2023) focus their study on the consumption of digital music by adolescents in China. Through qualitative research, the authors explore the important role of digital music in addressing emotional needs and shaping young people's identities. Research findings offer a comprehensive analysis of the main behavioural patterns and motivations behind the digital music consumption of Chinese adolescents.

Jaana Serres (2023) critically examines the enthusiasm of Nigerian teenagers for digital platforms perceived as enablers of exclusive access to online visibility and popularity in Lagos' entertainment industry. Through ethnographic research with young street dancers and musicians in Lagos, the author raises concerns about the legal and economic vulnerability of young digital creators moved by aspirational imaginaries of economic survival and social success. The moral boundaries of the digital economy and corporate sponsorship practices that actively involve Nigerian children and teenagers in their commercial flows are also addressed in this insightful article.

In another study, Julia Szambolics, Sonia Maloș, and Delia Cristina Balaban (2023) investigate how teenagers use augmented reality (AR) filters on social platforms, with a special focus on the impact of AR on the emotional well-being of this age group. The role of AR filters in the process of socialisation with peers and their influence on teenagers' perception of authenticity, self-esteem, and self-acceptance are emphasised in this qualitative study.

2.2. Digital Literacy and Digital Media Consumption

While children and adolescents are usually seen as digital natives with easy access to digital devices and high operational skills (Prensky, 2001), the lack of transparency and unethical practices of some players within the digital realm make minors' digital literacy a critical priority. The study by Sophie C. Boerman, Eva A. van Reijmersdal, and Esther Rozendaal (2023) addresses the importance of children's and adolescents' advertising literacy in digital environments and explores the ways in which it can be activated and enhanced. An online experiment tests the effectiveness of an awareness campaign in improving minors' recognition of online video advertising. The authors argue that ensuring transparency and safety in digital environments for minors is a collective priority for regulators, educators, and content creators.

The research of Huan Chen and Zixue Tai (2023) assesses adolescents' access to smartphones in rural and urban China through the lens of the digital divide. The authors systematise multidimensional disparities in adolescent smartphone use along the geographic factor of rural–urban distribution in China, with specific attention to a range of relevant digital skills, competence needs, as well as positive and negative outcomes. Research results reveal that rural–suburban–urban location, gender, and age are key variables moderating the digital divide of smartphone use among Chinese adolescents.

Dejan Jontes, Tanja Oblak Črnič, and Breda Luthar (2023) examine the concepts of liveness and visibility as underlying principles of the pervasive digital media

culture and digital media engagement of adolescents. Research results categorise digital media users based on their media consumption and motivations in the context of the polymedia environment and the increasing fragmentation of devices, platforms, and content options.

Blandína Šramová and Jiří Pavelka (2023) focus their research on the educational context, exploring key values and outcomes of the use of digital media and mobile applications by generation Alpha in primary and secondary schools. Based on a qualitative research method, the authors shed light on the educators' expectations of digital technologies, highlighting the relevance of the deficiency and growth needs of children and adolescents. Furthermore, research results systematise generation Alpha's key motivations for using specific mobile applications.

2.3. Regulation and Self-Regulation of Video-Sharing Platforms

Ensuring a safe and transparent digital experience for children and adolescents is a shared responsibility of all the actors involved in the digital ecosystem. The role of the video-sharing platform is especially important due to their high popularity among younger audiences. Valerie Verdoodt, Eva Lievens, and Argyro Chatzinikolaou (2023) investigate the EU legislative framework regulating video-sharing platforms. These platforms have become the most popular digital media among children on account of their entertainment content. The authors undertake a comprehensive review of the latest legislative instruments to study their role in safeguarding children's rights and well-being and protecting them from harmful content on video-sharing platforms. Transparency obligations and responsibilities of video-sharing platforms as data controllers of children's personal data and their reliance on AI and machine learning algorithms are also discussed.

In addition, the article by Miguel Ángel Nicolás-Ojeda and Esther Martínez-Pastor (2023) examines collaborations between popular child YouTubers and food and toy brands, focusing on advertising content displayed in their videos. Research results show that young influencers often fail to comply with advertising regulations, leading to covert brand promotion, the reinforcement of gender stereotypes, and the promotion of unhealthy eating habits. The authors raise concerns about the effectiveness of current regulations and self-regulation of video-sharing platforms.

3. Conclusion

The research featured in this thematic issue, focused on children and adolescents in the digital landscape, offers a comprehensive review of the significant advantages, critical risks, and challenges associated with the extensive online engagement of young individuals. Employing a diverse range of research methodologies, the authors in this thematic issue have undertaken a multidisciplinary approach to delve into minors' digital participation, fostering the knowledge of how the digital environment is experienced and consumed by this important age group. This body of research provides valuable insights and identifies future research avenues related to emotional well-being, identity development, perceptions of social success and self-esteem, as well as critical aspects of digital literacy and specific competencies.

The active digital engagement of children and teens from a very early age makes them the most prolific digital users and online content creators. This dynamic has profound implications, particularly for commercial brands but most importantly for educators, regulators, and policymakers. The online vulnerability and potential exposure to harmful content necessitates focused attention. Hence, all stakeholders within the digital ecosystem must make fostering a collaborative, responsible, and committed approach towards issues such as transparency, privacy protection, and equality in online content targeted at minors a foundational principle.

Acknowledgments

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Conflict of Interests

The authors declare no conflict of interest.

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Article

Adolescents' Augmented Reality Filter Usage on Social Media, Developmental Process, and Well-Being

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Abstract
Social media platforms are relevant for the media diet of adolescents. Augmented reality (AR) filters on social media are prevalent within the media consumption of this age group. Recent studies have unveiled the negative impact of beautifying AR filters and digitally enhanced pictures on adolescents' well-being. However, there is a need for an in-depth understanding of how adolescents use AR filters beyond aesthetic reasons. Therefore, the present study aims to contribute to the existing scholarship by focusing on various AR filters and their relation to adolescents' well-being. We investigate different ways of using AR filters (e.g., public posts versus ephemeral settings or direct messages to online friends) inspired by peers and social media influencers. Thus, we conducted four focus groups with *N* = 40 adolescent participants aged 14 to 18 from a European country. Our findings align with previous research on adults, showing that adolescents use AR filters for fun, entertainment, creativity, interaction, and self-expression. Besides, adolescents' well-being determined using AR filters can be tied to crucial elements of the developmental process, such as connections, identity, learning, and emotions. Results showed that using AR filters on social media can facilitate socializing and increase self-esteem. Conversely, their use is time-consuming and can cause adolescents frustration and enhance social pressure. This study provides new insights into adolescents' AR-filter-related interactions. Furthermore, it contributes to the literature on AR filter usage, well-being, and the developmental process of adolescents.

Keywords
adolescents; AR filters; augmented reality; social media; social media influencers; well-being

Issue
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1. Introduction

Social media platforms are relevant to the media diet of adolescents worldwide (Keles et al., 2020) and represent their primary information source (Schmuck et al., 2021). Teens often turn to social media for entertainment and interaction with peers and engage with various features and tools on social platforms such as Instagram, Snapchat, and TikTok. Augmented reality (AR) filters represent platform affordances that enable users to apply visual effects and are therefore available on social media platforms for visual content creation and sharing (Javornik et al., 2022). Merging images with AR filters on social media creates a new augmented image that is partly fictional and partly factual (Geyser, 2021). A significant number of available AR filters modify facial appearance. They can also adjust different parts of the body, add (cartoon) characters or objects to the picture or video, and change settings. AR filters are prevalent within this age group (Bhatt, 2020). Moreover, the frequent use of these lenses makes them an assertive communication and engagement tool (Ibáñez-Sánchez et al., 2022).

Previous studies mainly focused on the use of AR by adults (de Ruyter et al., 2020; Ibáñez-Sánchez et al., 2022; Scholz & Duffy, 2018) and found evidence that virtually modifying appearances relates to

adults' well-being. Thus, in some cases, the augmented self can negatively affect the existing self-perception of users. In other cases, the augmented self's potential for self-enhancement has a positive impact on adults' well-being (Javornik et al., 2022; Lee & Lee, 2021). Therefore, adolescents' AR filter usage is a timely research topic with societal implications. Some researchers called on AR developers, companies, and policymakers to act and acknowledge problematic aspects of AR filter usage.

Moreover, several countries (e.g., Israel, France, and Norway) have already implemented mandatory disclosures of digitally enhanced pictures for commercial purposes. Moreover, in countries such as the United Kingdom and Germany, there is an ongoing discussion to define ethical and responsible conduct related to digitally modified pictures on social media. Hence, using AR filters is also part of the discussion on the legal framework for adequate disclosure (Javornik et al., 2021b; Naderer et al., 2021).

Teens are forming their identities (Maes & de Lenne, 2022); therefore, their appearance on social media is relevant (Naderer et al., 2021). Given that AR filters shape self-presentation, we argue that, like other tools on social media (Schreurs & Vandenbosch, 2022), using AR filters can positively or negatively affect adolescents' well-being. Adolescents are familiar with social media influencers (SMIs), digital opinion leaders who post content in exchange for compensation (Campbell & Grimm, 2019), whom they follow on social media. Moreover, they look up to SMIs, as they consider them role models (Kühn & Riesmeyer, 2021; van Dam & van Reijmersdal, 2019). Until this date, studies focusing on adolescents and digital image alteration, as AR filters can be considered a form of digital alteration, have evolved mainly around the aesthetic transformation of the self. Therefore, a closer look at broad AR filter types and usage practices is needed. Moreover, to our knowledge, the role of SMIs in adolescents' AR filter use and their relation to well-being in adolescent development was not the focus of previous scholarship.

Our study concentrates on the use of AR filters by adolescents, aiming for an in-depth understanding of their digital media consumption. Our first objective is to develop a comprehensive perspective on the topic by looking at different ways adolescents use AR filters (e.g., public posts versus ephemeral settings or direct messages [DM] to online friends) and diverse sources of inspiration, such as peers and SMIs. Based on the critical elements of adolescents' developmental processes (Shankleman et al., 2021), our second objective is to shed light on how AR filter use is associated with teens' well-being.

2. Theoretical Background

2.1. Adolescents and Augmented Reality Filters on Social Media

AR filters are digitally based lenses and responsive interactions applied to the user's face or surroundings to change or extend what users see in the environment (Rios et al., 2018). Previous studies identify several motivations linked to AR filter use on different platforms, such as ideal and transformed self-presentation, affiliation, enjoyment, creative content curation, social interactions, convenience (Javornik et al., 2022), entertainment, curiosity, escapism, interactivity, trendiness, sense of belonging, and compatibility with individuals' lifestyles (Ibáñez-Sánchez et al., 2022). Studies conducted with adult participants showed mixed results regarding the outcomes of AR filter use on well-being. Thus, they alter users' self-acceptance and positive affect, offer a tool for visual exploration of oneself, which can happen through desirable novel depictions of the self, and thus increase self-acceptance and one's affective state (Javornik et al., 2022). On the other hand, AR filter use can also negatively impact the existing sense of self (Javornik et al., 2021a).

Previous research also indicates that, due to their ephemeral nature, AR filters are related to establishing short-term emotions rather than creating or reinforcing long-term commitments (Flavián et al., 2021; Ibáñez-Sánchez et al., 2022). Prior research has established that users of computer-mediated communication, including social media platforms, can optimize their self-presentation and promote desired relationships by spending more time and significant cognitive resources on editing messages (Walther, 2007). Thus, they showcase what they consider to be their positive aspects and present an ideal self (Ellison et al., 2006).

The hyperpersonal model of computer-mediated communication shows "how performing oneself, optimally and deliberately, using the affordances of the media, garners social reward, affecting one's persona and relations" (Walther & Whitty, 2021, p. 128). Thus, the senders of computer-mediated messages engage in selective self-presentation. They can highlight positive traits and downplay negative ones. On the other hand, the receivers absorb these stylized messages and construct an idealized image of their communication partners. Feedback can reinforce positive self-presentation and add a sense of validation (Walther & Whitty, 2021).

Given that AR filters are a tool integrated with social media communication, we can apply the hyperpersonal model of computer-mediated communication to analyze their use. By opting for AR filters, adolescents contribute to their self-presentation. Moreover, adolescents are receivers of messages containing AR filters and give feedback to their peers with the help of several interactive tools that platforms offer (e.g., comments, likes, shares, and DMs). Hence, adolescents' use of AR filters is associated with different outcomes in terms of well-being based on the feedback they receive when using these features.

Instagram and YouTube are widely used platforms influencing adolescent culture and identity formation (Casares & Binkley, 2022). Using so-called beautifying AR filters on social media affects teens, as studies proved

that face filters increased adolescents' acceptance of cosmetic surgery (Maes & de Lenne, 2022). Furthermore, previous research highlighted why Instagram filters are problematic for adolescents, given that digitally altered body images are accepted as standards (Naderer et al., 2021). Given that, several European countries have increasingly worked to develop social media-related laws to inform users of the social media promotion of unrealistic beauty standards and body dysmorphia. However, research must be extended to investigate the impact of other types of AR filters in relation to different motivations highlighted in studies conducted on adults, such as engagement, creativity, interaction, entertainment, and fun (Javornik et al., 2022). Moreover, a closer look at different sources of inspiration for AR filter use, such as SMIs, can contribute to a better understanding of how AR filters are related to well-being.

2.2. Social Media Influence and Adolescents

Adolescents are at a life stage that makes them highly sensitive to social influences (van Dam & van Reijmersdal, 2019) from family, peers, social institutions, media, the economy, or politics (Rudan, 2000). Thus, female adolescents who focus their social media consumption on "appearance-focused" photos, similar to the ones published by SMIs, are more likely to participate in self-objectification and to go through dietary restraint or weight dissatisfaction (Cohen et al., 2017), and they can even be more susceptible to eating disorders (Holland & Tiggemann, 2016; Vandenbosch & Eggermont, 2016).

SMIs exercise a particular form of influence on teens. SMIs are role models with whom teens develop a strong emotional bond (Kühn & Riesmeyer, 2021). Childers et al. (2019) stressed that SMIs are opinion leaders, digital celebrities, content creators, advertising developers, and entrepreneurs. SMIs play a significant role in molding the behaviors of adolescent social media users (Qutteina et al., 2019). SMIs have substantial persuasive power over young audiences that often identify with them (Croes & Bartels, 2021).

Moreover, as they are often close in age to their audience, SMIs fit the frame of reference for this age group (Marôpo et al., 2020). Digital celebrities often use AR filters for both commercial and non-commercial reasons. Therefore, we argue that a closer look at how SMIs serve as a model for teens to use AR filters is relevant to the present research's rationale. Hence, we asked the following research question:

> RQ1: How do adolescents use AR filters, and what are their sources of inspiration for choosing AR filters?

2.3. The Relationship Between Adolescents' Social Media Use and Well-Being

A growing scholarship was developed alongside public concerns about social media use, adolescents' mental health, and well-being (Meier & Reinecke, 2021). However, the findings are nuanced and complex (Beyens et al., 2020). Digital well-being is still a "fuzzy concept" (Vanden Abeele & Nguyen, 2022, p. 3) and has various definitions. Well-being is a term used for the states and feelings of the individual that lead to satisfaction, self-esteem, anxiety, depression, happiness, and quality of life (Javornik et al., 2022; Weinstein, 2018). Digital well-being is "a subjective individual experience of optimal balance between the benefits and drawbacks of mobile connectivity" (Vanden Abeele, 2021, p. 7). Moreover, psychological well-being is "characterized by the presence of positive indicators and/or absence of negative indicators of wellness" (Yang et al., 2021, p. 631). Psychological well-being encompasses self-esteem, social connectedness, loneliness, positive and negative effects, and life satisfaction (Yang et al., 2021). Our research will focus on affective well-being based on adolescents' evaluations of moods and emotions (Eid & Diener, 2004).

Previous studies have highlighted the impact of social media use in general on adolescents' well-being (e.g., Deters & Mehl, 2013; Keles et al., 2020; Kross et al., 2013; Lin et al., 2016; Niera & Barber, 2014; Wang et al., 2017). The differential susceptibility to media effects model from Valkenburg and Peter (2013) posits that individuals have a unique susceptibility to the effects of social media. Thus, similar social media use practices regarding well-being can have different outcomes (Beyens et al., 2021). Studies show that teens do not experience any short-term changes in well-being related to social media use, and if they do, the experiences are more positive than negative (Beyens et al., 2020).

Based on a meta-synthetic approach, Shankleman et al. (2021) discussed the impact of social media use on adolescents' well-being in relation to four crucial elements or dimensions of adolescents' developmental processes. Those are connections, identity, learning, and emotions. Similarly, we elaborate on AR filters and implications for adolescents' well-being as a part of their social media consumption.

Regarding connections, social media enables adolescents to create new relationships and interact with others. By building supportive peer connections online, adolescents can develop a sense of belonging and self-disclosure, contributing to their identity development (Davis, 2012). Furthermore, social media use helps to nurture and maintain social groups (Radovic et al., 2017) and allows teenagers to connect on a deeper level, make plans, or even share jokes and humorous images (Bell, 2019; Davis, 2012). Hence, teens validate and normalize their emotional experiences (Singleton et al., 2016). However, the same platforms that can offer support also negatively impact connections, the most common example being bullying (Shankleman et al., 2021). In line with those observations about social media use, AR filters can serve the connection dimension well. Javornik et al. (2022) revealed that adults use

AR filters to connect and interact with peers. Moreover, platform affordances allow users to communicate with peers and SMIs differently.

The second topic, identity, describes aspects of social media that support or negatively affect authenticity, self-esteem, distinctiveness, and life continuity. Distinctiveness relates to identity in the sense that the content they post accentuates the need to "be unique and different" and to "stand out from the crowd" (MacIsaac et al., 2018, p. 9). Finding new and original AR filters could contribute to adolescents' sense of uniqueness.

On the flip side of the same coin, certain adolescent behaviors can be characterized as inauthentic based on actions that do not reflect who they were offline (Singleton et al., 2016). For example, being inauthentic can be associated with deliberately posting a more idealized online identity profile instead of a less accurate image (Throuvala et al., 2019). In addition, AR filter use can contribute to ideal and transformed self-presentation (Javornik et al., 2022).

Social media can support well-being by offering opportunities for learning and development. Learning from online content can be associated with an enrichment experience (Throuvala et al., 2019). Research shows that obstruction of education can also be determined when connected to social media. Creating ideal images to receive likes and positive feedback is time-consuming and involves high levels of criticism and self-scrutiny (Bell, 2019). We argue that adolescents' use of AR filters is part of a learning process for them. Moreover, AR filters serve as inspiration for them.

The fourth dimension consists of emotions, as social media can influence one's state both positively and negatively. Throuvala et al. (2019) point out that social media can be a mood booster, and emotion regulation is critical for teens. Social media use helps overcome boredom and supports escapism to relieve distress. Furthermore, in some cases, social media is used as an emotion-focused coping strategy, which can help regulate negative emotions and manage anger or other unpleasant offline experiences (Duvenage et al., 2020). According to Javornik et al. (2022), the use of AR filters is motivated by fun and entertainment and is therefore considered a form of emotion regulation.

As a negative influence on one's well-being, studies show that social media is a source of pressure, fears, and worries (Shankleman et al., 2021). The fear of missing out negatively affects social well-being. Receiving updates constantly and being available on mobile devices can trigger a particular type of fear of missing out related to online communication and the activities of others on social media (Schmuck, 2021). Hence, we also consider looking at this type of outcome when investigating adolescents' AR filter use and well-being. Moreover, in line with the second objective of the present study, we formulate the following research question:

RQ2: How does the relationship between well-being and adolescents' AR filter use on social media relate to the critical factors of developmental processes (connections, identity, learning, and emotions)?

3. Method

Our exploratory study aims to shed light on adolescents' use of AR filters and whether they relate to well-being. We conducted four focus groups with N = 40 adolescents aged 14–18 (M_{age} = 15.98, SD = 1.14; 57.5% female, n = 23; 42.5% male adolescents, n = 17). Table 1 shows detailed information about the participants. The focus groups were conducted on-site, with adolescents from different regions of a European country voluntarily participating. The participants were enrolled in a summer school for high school students organized by a large university in July 2022. Each group interview lasted, on average, one hour and 25 minutes. The discussion revolved around the use of AR filters on social media sites such as Instagram and TikTok, given the participants' familiarity with these platforms. These platforms were selected due to their high usage among adolescents within the country where we conducted our research (Statista, 2023). Moreover, these platforms have integrated AR filters. Before conducting the research, we obtained institutional permission and the ethical approval of the researchers' university's Ethics Committee.

Moreover, the adolescents consented to participate after being explained the study's purpose. All the group interviews took place in the native language of the participants. As an educational intervention, we highlighted the downsides of AR filter usage at the end of each group discussion. We thus contributed to the development of the digital media literacy of adolescent participants.

Participants saw digitally enhanced pictures with different AR filters (e.g., dog-ear filters, exaggerated face-altering filters, eye-color-changing filters) as input for the group interviews. We followed Shankleman et al. (2021) when developing the guidelines for our focus groups. We applied an inductive-deductive approach (Deterding & Waters, 2021) by focusing on how adolescents use filters to interact with others (connections), how they discover and disclose these filters (learning), in what way filters help them express their identity and contribute to increasing/decreasing their self-esteem (identity), and how the use of AR filters affects their mood (emotions). Furthermore, the four critical dimensions of adolescents' developmental processes, namely connections, identity, learning, and emotions, were considered categories in the thematic analysis (Swain, 2018) of the focus groups. Moreover, within the categories mentioned above, we coded how AR filter use affected adolescents' relationships with peers (nurturing versus compromising relationships), self-presentation (authentic versus inauthentic), inspiration for AR filter use and usage practices (ethical versus deceiving practices), and emotions (positive versus negative). This approach allowed us to describe

Table 1. Description of the sample.

	Gender	Age		Gender	Age
ID1	M	17	ID21	F	16
ID2	F	16	ID22	F	16
ID3	F	18	ID23	F	15
ID4	M	16	ID24	M	16
ID5	M	16	ID25	M	17
ID6	F	18	ID26	F	18
ID7	M	15	ID27	F	16
ID8	M	15	ID28	M	15
ID9	M	17	ID29	F	15
ID10	F	16	ID30	F	17
ID11	F	14	ID31	F	16
ID12	F	16	ID32	F	15
ID13	M	17	ID33	M	18
ID14	M	16	ID34	M	14
ID15	F	15	ID35	F	16
ID16	F	16	ID36	F	17
ID17	F	17	ID37	M	17
ID18	F	17	ID38	M	17
ID19	M	14	ID39	F	15
ID20	M	15	ID40	F	14

how teenagers' social media use enhances or damages their well-being. Moreover, we transcribed all group interviews and performed a thematic analysis with the help of MAXQDA software.

4. Findings

The results of the thematic analysis of the focus groups are presented aligned with the categories we identified based on previous literature on adolescents' developmental processes and well-being (Shankleman et al., 2021). Hence, we focused on how adolescents' AR filter use establishes connections with peers and builds their identity. Moreover, we explore how AR filters are related to learning processes and associated with emotions. During the group interviews, the most popular topics respondents discussed were how AR filters contribute to communication processes and affect users' perceptions of authenticity.

4.1. Connections

Using AR filters on Instagram and TikTok is part of adolescents' socialization process. Thus, our respondents highlighted using AR filters to stay in touch with their peers and nurture relationships. Hence, teens often use AR filters to communicate with friends via DMs on Instagram and not publicly. Communicating through AR filters replaces simple text or voice messages. Thus, adolescents emphasized the importance of forming connections with the help of AR filters in small groups of peers. Using AR filters for entertainment and fun, "to laugh, chat with friends, for memes, and for jokes" (ID14), encourages peers to engage in communication processes with them.

Both friends they follow on social media and SMIs are sources of inspiration when it comes to finding new AR filters, as some teenagers highlighted: "I save my filters from other people's stories and DMs, from friends and SMIs" (ID39). Hence, AR filters represent not only the opportunity to connect with peers but also with SMIs, given that adolescents consider SMIs to be a valuable source of information and inspiration to find AR filters on Instagram and TikTok. Moreover, the adolescents we talked to knew the advertising dimension of SMIs' activity and stressed that some of the AR filters the SMIs use are brand-related, but that SMIs use mostly beautifying AR filters. Besides, some of the teens we interviewed highlighted that AR filters could also be an advertising tool SMIs use.

There are also downsides to adolescents' AR filter use. Thus, pressure to use AR filters often results in unfollowing peers and SMIs or even disconnecting from social media. Hence, extensive AR filter use on Instagram and TikTok can compromise relationships. Peers sometimes formulate offensive comments to a story in which they engage with these tools, often leading to bullying and criticism. This kind of unpleasant interaction applies especially in the case of teens who feel uncomfortable with their physical appearance and use beautifying filters. Participants also experienced harmful and offensive comments connected to the use of AR filters. However, in some cases, not using AR filters was the subject of offensive comments, as highlighted by one of our participants: "Because everything in the online world is flawless, my followers have been abusing me because I am

obese, do not use filters, and do not exhibit that fake stance" (ID37).

4.2. Identity

The interaction between adolescents and AR filters is related to identity building, another key element in this age group's developmental process and well-being. Hence, the respondents assess authenticity, self-esteem, self-acceptance, and distinctiveness as crucial roles in their identity formation. When asked how AR filters can help them express their identity, the adolescents' answers show that AR filters are context-related and that users perceive them in many ways under different circumstances. Respondents addressed the issues of beautifying filters and authenticity. For the adolescents we interviewed, being authentic entails consistency and distinctiveness, or as a participant highlighted, "I do not need filters that make me look different. You must accept yourself. You are perfect as you are. Nobody can change this" (ID26). The focus group participants emphasized the importance of self-acceptance: "You have to love yourself as you are" (ID31). However, using beautifying filters is an accepted practice among adolescents as long as the digitally altered media persona and the real persona are similar in terms of appearance. Adolescents noticed that social media platforms' algorithms favor attractive people like peers and SMIs:

> TikTok picks out SMIs with a pleasant physical appearance and recommends their content to others. Therefore, being attractive contributes to the success of social media content as it generates views. If you are pretty, people will check out your social media account. (ID33)

"Instagram is an app that puts aesthetics first" (ID4) and promotes an ideal self. Adolescents are aware of the social pressure SMIs face, given that, from the teen users' perspective, "SMIs must have an external appearance as perfect as possible and offer an ideal image" (ID3). Hence, SMIs use beautifying filters. However, adolescents criticized the excessive use of filters by both SMIs and peers. They found it problematic when the social media persona no longer resembles the real-life person, as one participant stressed: "I noticed a lot of SMIs, but not all of them appeared real to me, due to the use of filters. This led to unfollowing them" (ID18).

Respondents discuss other types of AR filters besides beautifying filters. Hence, they mentioned using "funny filters" (ID40) and "childish filters" (ID32). Using popular filters keeps adolescents up to date with the latest trends, nurturing a sense of presence and relevance. Engaging in using funny filters to entertain their social media friends was associated by the adolescents we interviewed with self-esteem and self-acceptance.

However, respondents stressed that adolescents' AR filter use might result in falsehood, an inauthentic self-presentation, and shrinking self-esteem. Thus, some participants criticized SMIs' engagement with AR filters as "they want to make the world believe that constantly employing beautifying filters is normal" (ID31). Furthermore, teens criticized the excessive use of AR filters as a lack of authenticity. In addition, they argue that some of the beautifying AR filters "promote falsehood" (ID6), as people "want to pretend to be different than in reality" (ID24). However, most adolescents highlighted that moderate use of AR filters as ephemeral content is recommended. Thus, using filters is not opposed to an authentic media persona; "it depends on how often you use them" (ID21).

Even though our study was conducted on a small sample, we observed differences in how female and male adolescents perceived the use of AR filters. Thus, female respondents addressed the topic of beautifying filters, whereas male participants talked more about using funny filters for entertainment purposes. Moreover, male participants criticized female adolescents' excessive use of beautifying filters.

4.3. Learning

Learning is another key element of adolescents' developmental process. Our research focused on how adolescents learn to use AR filters and what they ascertain from using them. The participants learned to recognize and search for AR filters inspired by peers and SMIs. However, some of the respondents search for AR filters daily using keywords. In contrast, others encounter them by chance while scrolling through the applications, as "filters are everywhere on social media, even on informational content, such as stories about politics" (ID25). The active search leaves teens with the impression of exploring social media, finding something unique, and being a source of inspiration for their peer community when sharing the filters they discover; however, finding them can be time-consuming.

Adolescents are confident in recognizing content that contains AR filters. Moreover, teens stressed that AR filters are easy to identify regardless of the lack of disclosure, given that "technology has not yet advanced so much that we cannot notice the difference between a filter and a normal picture" (ID19) or even that some "photos or videos were unnatural, exaggerated, unrealistic, and the texture of the face was different" (ID35). Hence, the adolescents we spoke to are not in favor of mandatory disclosure. However, our respondents encountered and identified unethical and deceiving practices related to using AR filters. In this sense, using beautifying filters when promoting beauty products was mentioned as a negative example. Thus, SMIs must be honest and avoid deceptive practices related to using AR filters, as one respondent highlighted: "If an SMI applied AR filters to promote cosmetics or make-up products, I would rather not follow him/her. Those are deceiving practices. It is about looking good that comes first" (ID1).

4.4. Emotions

The fourth key element, emotions, was also addressed in the group discussions. Hence, adolescents' AR filter use can promote positive moods, body positivity, and self-contentment on the one hand and can create social pressure, worries, and feelings of insecurity on the other. Adolescents associate AR filter use with entertainment and creativity related to positive feelings. For example, they use AR filters for fun, excitement, or because "this makes them laugh" (ID25). In this sense, AR filters are a "remedy for boredom" (ID33).

The interaction with AR filters generates emotions and moods: "It would make me sad if I could not find the filter that I often use anymore" (ID29). However, AR filter use has downsides by affecting adolescents' moods due to "societal pressure to look in a certain way" (ID12). This leads to the perpetuation of the feeling of insecurity, and "it lowers self-confidence" (ID36). From a respondent's point of view, excessively using AR filters means "not accepting yourself as you are" (ID1). These emotions develop various types of moods, such as sadness, anger, fear of rejection, or fear of missing out, as they are not able to follow a particular social media challenge related to AR filters.

5. Discussions

AR filters on social media are prevalent among adolescents and are an active part of their media consumption. Recent research has revealed that beautifying AR filters and digitally modified images affect adolescents' well-being (Hjetland et al., 2021). However, AR filters are a creative tool that improves physical appearance and provides entertainment, fun, and peer interaction. The present research highlighted the overall relevance of AR filter use for teenagers concerning connections, identity, learning, and emotions. AR filters are used mainly ephemerally in Instagram stories and especially on small-group DMs. In line with previous studies conducted on adults (Ibáñez-Sánchez et al., 2022; Javornik et al., 2022), we observed that in the case of adolescents, entertainment, interaction with peers, and enhancing creativity are among the relevant motivations behind AR filter use. Considering the four critical elements of adolescents' developmental processes (Shankleman et al., 2021), the present research showed that AR filters play an essential role in adolescents' connectivity by contributing to relationships with peers, helping them stay in touch, and strengthening their sense of belonging to the online community. However, extensive AR filter use can compromise relationships, resulting in criticism, bullying, unfollowing, and even disconnecting.

Communicating with peers, especially on DMs, can lead to asynchronous interaction. Hesse et al. (1988) state that asynchronous online communication gives social users time to compose, edit, send, and receive messages. This way, adolescents can produce more socially desirable and compelling content by employing AR filters. As integrated tools of social media platforms, primarily used in DM's and stories, AR filter use is based on constant feedback. Thus, everyone can use AR filters to create and edit the content multiple times before sending it to their peers, who can give feedback on this augmented image, enabling the sender's validation.

AR filter use is associated with identity building. AR filter use is related to (a lack of) authenticity and self-acceptance. Many teenagers we spoke to criticized the excessive use of beautifying filters. Regarding physical appearance, the adolescents we interviewed favored the idea of consistency between social media and the real-life persona. The abusive use of AR filters was associated with a lack of authenticity in the case of both peers and SMIs. The participants in our study not only highlighted the importance of being true to themselves but also condemned the excessive use of filters. The focus group participants held social media platforms and SMIs accountable for the excessive use of beautifying filters.

Part of the learning process is determining how to use AR filters on Instagram and TikTok and identifying peers and SMIs that use them. The teenagers who participated in the group interviews considered they developed the necessary skills to identify the employment of AR filters. They are aware of deceiving practices related to AR filters. However, mandatory disclosure of AR filters is optional at this point. Besides, as techniques evolved, they stressed that disclosures might be needed.

The use of AR filters on social media generates a wide range of emotions, from positive emotions generated by filters for entertainment or fun to negative emotions caused by social pressure, low self-esteem, and feelings of insecurity. In line with other studies (Schreurs & Vandenbosch, 2022), we found evidence that AR filter use contributes to the self-affirming role of posting self-related appearances. Therefore, SMIs are a source of inspiration for AR filter use. Furthermore, adolescents are aware that SMIs must apply AR filters to look attractive, the way audiences and brands expect them to appear. However, adolescents appreciate honesty and raised concerns regarding ethical AR filter use by SMIs in the context of advertising for specific products. In line with previous research on AR filters, we state that AR filters enable short-term emotions rather than creating long-term commitments (Flavián et al., 2021; Ibáñez-Sánchez et al., 2022). Furthermore, exposure to AR filters may affect individuals' four developmental processes differently (Valkenburg & Peter, 2013). Thus, respondents refer to excessive filter use by SMIs and peers, resulting in negative feedback.

6. Conclusions, Limitations, and Future Research

The present work offers an in-depth perspective on adolescents' AR filter usage on social media associated with well-being. Thus, our study contributes to a better understanding of teens' digital media consumption.

Our research has both theoretical and practical implications that will be presented below. Furthermore, based on group interviews, the present work benefits from the strength of a qualitative approach, providing insights into how adolescents use AR filters on social media.

Our study contributes to the existing literature on social media and well-being. Few studies have examined the use of AR filters by teenagers. As tools often used by this age group, it is necessary to investigate how they relate to adolescents' social connections with peers and family, their mood, identity, learning process, and possible societal threats. Our findings replicated the results of previous studies focusing on social media use and adolescents' well-being, showing positive and negative associations (e.g., Schreurs & Vandenbosch, 2022; Vanden Abeele et al., 2018; Vandenbosch & Eggermont, 2016). Based on our findings, the use of AR filters can bring benefits to the four critical elements of the developmental process of adolescents, namely connections, identity, learning, and emotions. Our study's main takeaways are that AR filters can enhance connectivity with peers, nourish relationships, and make adolescents feel unique. Using AR filters for fun and entertainment contributes to self-esteem and self-acceptance in adolescent groups and generates positive moods. However, the excessive use of (beautifying) filters can compromise relationships with peers, resulting in negative moods, insecurity, and social pressure.

The study has practical implications for adolescents, educators, policymakers, SMIs, brands, and filter developers. We recommend that adolescents use AR filters for self-expression and creativity to showcase their unique personalities. Moreover, we recommend that adolescents use AR filters to promote relaxation and positive emotions, incorporating calming visuals. Thus, AR filters can reduce stress and improve mood. Excessive use of beautifying filters can lead to a dissociated perception of oneself.

Furthermore, we recommend that adolescents engage more with filters with educational content to raise awareness about relevant issues. However, we stress that AR filters must be balanced to avoid excessive usage. In addition, we recommend that adolescents acknowledge the specifics of the social media platforms (terms and conditions) and be aware of the content they choose to make public and the digital fingerprint they leave behind.

Based on our findings, we recommend that policymakers, AR filter developers, SMIs, and media educators take an ethical and responsible approach to AR filters. Moreover, we recommend that educators discuss with adolescents the potential risks of excessive use of AR filters, thus contributing to developing teens' digital media literacy. Furthermore, we recommend that policymakers consider efficient disclosure of AR filters. Besides, SMIs should reflect on their status as role models and use (beautifying) AR filters with moderation so that their social media personas resemble real-life appearances.

We recommend that developers design filters promoting healthy beauty standards, relaxation, and positive emotions. Furthermore, AR filters related to educational content that stress the relevance of critical societal topics should be the focus of their development efforts.

This study has practical implications for brands that invest in creating AR filters for brand-related interactions among adolescent social media users. Our findings show that adolescents search for AR filters on social media for various reasons. We recommend that brands invest in AR filters associated with entertainment and fun, as both male and female participants use AR filters for this reason. Furthermore, we recommend that brands targeting a younger audience in their promotional activities create AR filters for educational purposes or personal development. Brands should focus less on the development of beautifying filters.

The present study has limitations due to the exploratory nature of the research, as we applied qualitative methods. Hence, our study does not investigate causal relations between teens' AR filter use on social media and well-being. Besides, our study did not address the differences between AR filter use on Instagram versus TikTok. Therefore, future research should address platform differences. Moreover, future research on using AR filters by teenagers may apply a different methodological approach and develop comparative studies. Furthermore, experimental research is needed to highlight the effects of using AR filters.

Conflict of Interests

The authors declare no conflict of interests.

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Article

Can an Awareness Campaign Boost the Effectiveness of Influencer Marketing Disclosures in YouTube Videos?

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Abstract
Answering the strong need for insight into how minors can effectively be informed about advertising (e.g., influencer marketing) in online content, we ran an online experiment (*N* = 623 minors between 8 and 18 years old) testing the effects of two pictograms that were designed in co-creation with minors and the potential of an awareness campaign to boost the pictogram's effectiveness. Our findings provide three important insights that have implications for theory, practice, and regulation. First, we find that minors are able to distinguish between sponsored and non-sponsored videos, indicating that they have developed some level of advertising literacy in this context. Second, our study shows that the two pictograms informing minors about advertising in online videos went unnoticed by most viewers and did not enhance conceptual or attitudinal advertising literacy. Third, the awareness campaign did not lead to higher recognition of the pictograms nor enhanced advertising literacy. The campaign did increase minors' understanding of the meaning of the pictograms. However, the majority of minors also understood the pictograms without the campaign. Based upon our findings, we argue that pictograms are unnoticed by most minors and seem ineffective in enhancing minors' advertising literacy. Although an awareness campaign can familiarize minors with pictograms and their implementation in online videos, it does not seem to boost the pictogram's effects on advertising literacy.

Keywords
advertising literacy; awareness campaign; disclosure; influencer marketing; minors; online video; persuasion knowledge; pictograms; transparency

Issue
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1. Introduction

There is an ongoing debate on how to create a safe and transparent digital environment for minors. A key question in that discussion is how to protect them from hidden advertising and sponsorship (e.g., influencer marketing) on online video platforms, including YouTube and TikTok (Federal Trade Commission, 2022; Spielvogel et al., 2021). Minors have been shown to have limited information processing capacity, which may hinder the activation of advertising literacy (Castonguay, 2022; Lapierre, 2019; van Reijmersdal & van Dam, 2020). Advertising literacy encompasses people's knowledge and attitudes about the source, intentions, and tactics used in advertising, such as the recognition of sponsored content as advertising, understanding that sponsored content has a persuasive intent, and critical evaluations of sponsored content (Boerman et al., 2018; Hudders et al., 2017; Rozendaal et al., 2016). When advertising is integrated into highly entertaining and emotionally appealing social

media content, advertising literacy is less likely to be activated (Hudders et al., 2017), making young viewers more susceptible to such commercial messages (Castonguay, 2022; van Reijmersdal & Rozendaal, 2020). To increase transparency, legislators and child advocates have called for a uniform pictogram to signal sponsored content in online (influencer) videos that aligns with minors' comprehension capacity (Federal Trade Commission, 2022). Pictograms are easy to process due to their visual and simple nature (Tijus et al., 2007) and might, therefore, be the ideal cue for minors to activate their advertising literacy. However, insight on how such a uniform pictogram (i.e., disclosure) should be designed and implemented in online (influencer) videos to make it understandable for minors is still lacking and highly needed.

In one of our previous studies, we addressed this need by developing and testing pictograms that should help minors (8 to 18-year-olds) to signal advertising in online videos and trigger them to apply their advertising literacy (Boerman et al., 2023). In this previous study and the current study, we collaborated with NICAM, the Dutch Institute for the Classification of Audiovisual Media. NICAM is responsible for the Kijkwijzer system in the Netherlands, a classification system using pictograms to inform viewers of the potential harm in video content (see https://www.kijkwijzer.nl). Recently, there has been an expansion of the Kijkwijzer pictograms to include online videos. Therefore, we see potential in a new pictogram informing viewers of the commercial nature of video content in this established system. In our previous study, we developed such pictograms in three phases: (a) a co-creation phase in which we designed several pictograms with minors, parents, and a professional designer; (b) a survey gaining insight into minors' associations with and preferences for a selection of pictograms; and (c) an experiment testing the effectiveness of three pictograms in increasing advertising literacy. Interestingly, in this final phase, we found that none of the pictograms had the expected effects on minors' advertising literacy, even though the pictograms had been designed in close cooperation with them.

The lack of effects could be explained by the low scores in disclosure recognition: Very few minors actually remembered seeing the pictogram (Boerman et al., 2023). Other existing research also showed that disclosures, such as pictograms, are often not noticed, limiting their effectiveness (Boerman & van Reijmersdal, 2020; De Jans et al., 2018; Spielvogel et al., 2021; van Reijmersdal et al., 2017, 2020). One of the reasons for the fact that disclosures are often not seen or remembered is people's unfamiliarity with the disclosure and its meaning. Pictograms can only be effective when the receiver notices and understands them, and familiarity with a pictogram enhances comprehension (Tijus et al., 2007). This may also apply to the pictograms developed in our previous study. Given the novelty of the pictograms, minors were not yet familiar with them and thus may not have comprehended their meaning, or may have been unaware of their value in this context. Moreover, the implementation of the Kijkwijzer pictograms in online videos is a recent development; thus, the minors may not have been used to seeing them in online video content. Taken together, minors were probably unfamiliar with the new pictograms, making it unlikely they paid attention to them or understood their message.

A common way to increase the awareness and comprehension of pictograms or other types of warning labels, such as tobacco and nutrition labels, is through awareness or educational media campaigns. Prior research shows that campaigns that provide information on the existence and meaning of a pictogram or warning label can be effective in increasing familiarity with and comprehension of it among the target audience (e.g., Bollinger et al., 2022; Thrasher et al., 2013). Therefore, the current study aims to examine whether an awareness campaign can enhance minors' awareness and understanding of the newly developed Kijkwijzer pictogram for advertising in online video content and its effectiveness in triggering advertising literacy. We test the effectiveness of (an awareness campaign for) two pictograms that were designed and tested in our previous study (Boerman et al., 2023): One depicting #AD and one depicting an influencer showing a product with a price tag (see Figure 1). The previous study showed that the #AD icon was most strongly associated with advertising and ads by minors, and the influencer icon was most preferred by them (they mainly appreciated how the influencer pictogram depicts the content creator and the actual practice of advertising a product).

Furthermore, we aim to investigate whether an awareness campaign increases attention to and comprehension of these new sponsorship pictograms and, by doing so, boosts its effects on minors' advertising literacy. To address this aim, we first test minors' recognition of advertising in online influencer videos and the effect of the pictograms on their advertising literacy. Second, we examine the effect of an awareness campaign on minors' recognition and understanding of pictograms and advertising literacy.

Theoretically, this study provides insight into the role of awareness campaigns and the effectiveness of pictograms that aim to signal the presence of sponsored online content to minors. Practically, this study offers recommendations to policymakers to develop pictograms and awareness campaigns that can increase the transparency of sponsored content in online (influencer) videos to minors. It also contributes to ongoing societal debates on how to best protect minors from stealth advertising, such as influencer marketing, in online media.

1.1. Minors' Recognition of Advertising in Online Videos

Previous studies suggest that because sponsored content in online videos is integrated and presented by a

content creator (e.g., a social media influencer) instead of an advertiser, minors are less likely to recognize the advertising, and thus are susceptible to it because they do not use their advertising literacy to cope with it (e.g., Castonguay, 2022; Hudders et al., 2017; van Dam & van Reijmersdal, 2019). Other studies, however, revealed that minors and young adults are relatively good at detecting sponsored influencer content on social media, even without any disclosure (e.g., Boerman & Müller, 2022; Boerman et al., 2023). If minors are indeed able to distinguish between sponsored and non-sponsored influencer video content, this may cause a ceiling effect, making disclosures such as pictograms ineffective and possibly even redundant. To test this, we first examine whether minors can distinguish between sponsored and non-sponsored influencer videos, regardless of disclosure. We hypothesize:

> H1: Minors' ad recognition will be higher for an influencer video that contains advertising than an influencer video that does not.

1.2. Effect of Pictograms on Advertising Literacy

Disclosures such as pictograms aim to increase transparency and help minors activate and enhance advertising literacy. Advertising literacy can be distinguished in a conceptual and an evaluative dimension (Boerman et al., 2018; Hudders et al., 2017; Rozendaal et al., 2011). Conceptual advertising literacy refers to minors' ability to recognize advertising and understand its persuasive and selling intent. Attitudinal advertising literacy entails general (negative) attitudes and skepticism toward advertising (Hudders et al., 2017; Rozendaal et al., 2011, 2016).

Previous studies show that (textual) disclosures can increase both conceptual and affective advertising literacy among children (e.g., Boerman & van Reijmersdal, 2020; Castonguay, 2022; De Jans et al., 2018; De Jans & Hudders, 2020; De Pauw et al., 2018; Eisend et al., 2020; Hoek et al., 2020; van Reijmersdal et al., 2020). Disclosures can help minors realize that the content they consume is not just entertaining or informative but has a commercial character (Uribe & Fuentes-García, 2020). However, other studies, including our previous study (Boerman et al., 2023), did not find effects of disclosures on advertising literacy (An & Stern, 2011; Panic et al., 2013; Vanwesenbeeck et al., 2017).

The advantage of pictograms as a way to transparently communicate that content is advertising lies in the efficiency of visual imagery. Pictograms can be identified faster than words and require fewer cognitive resources, making it easier to process them in suboptimal conditions (Tijus et al., 2007), such as the cluttered media environments of online videos. Combined with the abundance of studies that do find that disclosures can enhance advertising literacy, we expect the #AD and influencer pictograms to increase conceptual advertising literacy (i.e., minors' recognition of advertising in sponsored influencer videos and their understanding of the persuasive and selling intent of this commercial content), and affective advertising literacy (i.e., skepticism and disliking of the sponsored video content):

> H2: Both pictograms (vs. no pictogram) will lead to higher (a) ad recognition, (b) understanding of persuasive intent, (c) understanding of selling intent, (d) skepticism, and (e) disliking of the sponsored content in influencer videos.

Our previous study showed that minors most strongly associated the #AD pictogram with advertising but most preferred the influencer pictogram (Boerman et al., 2023). Thus, both pictograms have their benefits. However, we have no theoretical grounds to predict which of the two pictograms performs best. Therefore, to compare the two pictograms, we formulated a research question:

> RQ1: Which of the two pictograms leads to the highest levels of (a) ad recognition, (b) understanding of persuasive intent, (c) understanding of selling intent, (d) skepticism, and (e) disliking of the sponsored content in influencer videos?

1.3. Effects of Awareness Campaign

Although pictograms can be instant reminders of an established message that can be processed relatively quickly (Tijus et al., 2007), and we cocreated our pictograms to make them comprehensible to minors, our previous study showed that the new Kijkwijzer pictograms were hardly noticed (Boerman et al., 2023). Previous research suggests that, in general, minors hardly notice disclosures (e.g., Boerman & van Reijmersdal, 2020; De Jans et al., 2018; van Reijmersdal et al., 2017, 2020), and disclosures have limited effects because they are often not understood (Rozendaal et al., 2021). Research has also shown that awareness campaigns can effectively increase people's understanding of pictograms and labels (e.g., Bollinger et al., 2022; Thrasher et al., 2013). We, therefore, developed an awareness campaign that introduced the new pictogram to minors and explained its meaning.

Drawing upon the advertising literacy theory and the persuasion knowledge model (Friestad & Wright, 1994; Livingstone & Helsper, 2006; Rozendaal et al., 2011), we postulate that such an informative awareness campaign can create association networks in minors' brains, in which the new pictogram and its meaning become linked to minors' existing advertising literacy (Du Plessis, 2005; Wright et al., 2005). These links are expected to enable activation of the meaning of the pictogram and minors' existing associative networks on advertising literacy (H5) when confronted with it in an online situation. Also, the networks are expected to facilitate information processing and retrieval (Hoek et al., 2021), resulting in higher recognition of the pictograms after exposure to an

awareness campaign (H3) and to the activation of associations with Kijkwijzer, the organization behind the pictograms, and thoughts about advertising and sponsored content (H4). Based on these assumptions, we propose:

H3: Exposure to an awareness campaign (vs. no exposure) will lead to (a) better pictogram recognition and (b) better understanding of the pictogram, regardless of pictogram type.

H4: Exposure to an awareness campaign (vs. no exposure) will make minors report more thoughts about (a) the Kijkwijzer and Kijkwijzer pictogram and (b) advertising and sponsored content in influencer videos.

H5: Exposure to an awareness campaign (vs. no exposure) will lead to higher (a) ad recognition, (b) understanding of persuasive intent, (c) understanding of selling intent, (d) skepticism, and (e) disliking of the sponsored content in influencer videos.

Finally, we expect an interaction effect between the awareness campaign and the pictograms, with the awareness campaign boosting the effectiveness of the pictograms. If the awareness campaign can indeed make minors attend to and understand the pictogram, combining both is expected to be most effective. In that situation, minors would be most likely to notice the pictogram and understand its message, thus resulting in the highest level of advertising literacy:

H6: After exposure to the awareness campaign (vs. no exposure), the pictograms (vs. no pictogram) have a stronger effect on (a) ad recognition, (b) understanding of persuasive intent, (c) understanding of selling intent, (d) skepticism, and (e) disliking.

2. Method

2.1. Design and Sample

We conducted an online experiment with two (awareness campaign: information video introducing the pictogram vs. filler video) × three (pictogram type: no pictogram vs. #AD pictogram vs. influencer pictogram) × two (video: two different sponsored YouTube influencer videos) between-subjects design. To increase the experiment's external validity and ensure our findings were not due to one specific sponsored YouTube video, we included a third factor representing two different videos (see further details in Section 2.2). Because the awareness campaign was adapted to the two pictograms (i.e., #AD or influencer pictogram), this design resulted in 14 experimental groups (see Table 3 in the Supplementary File for a detailed overview).

Participants between 8 and 18 years old were recruited through parents in a commercial panel company. In total, 1,064 minors participated. We excluded those who did not finish the questionnaire (n = 270), participants who were younger than eight years old (n = 1) or older than 18 (n = 94), or those who did not consent to our conditions (i.e., 22 16–18-year-olds, 36 parents, and 20 minors). Furthermore, we excluded participants who failed both attention checks (n = 2), those who did not watch the videos (n = 3), and those who indicated that one of the videos did not work (n = 9), or those with open answers that were nonsense or said they had not seen the videos (n = 13).

The final sample included 623 valid completed responses, divided over three age categories (232 8–12-year-olds, 234 13–15-year-olds, 157 16–18-year-olds) with 49.8% boys and 49.4% girls (0.3% other, 0.5% did not want to disclose). Most participants were in high school (51.2%) and primary school (29.1%).

2.2. Stimulus Materials

For the awareness campaign, a professional designer working for Kijkwijzer developed an information video, and the animation matched their company style. The one-minute video introduced the Kijkwijzer in general and the new pictogram for advertising in online videos. The one-minute filler animation video explained what happens when your foot falls asleep (see link to the video in the Supplementary File).

To manipulate the pictogram, we showed all participants a composite of two YouTube influencer videos: first, a non-sponsored filler video, which was the same for all participants, followed by one of the two sponsored videos. The first was an edited, two-minute filler video without sponsored content in which influencer Kalvijn and a kid play with animals and visit a goat farm. The second started immediately after the first and concerned one of the two sponsored YouTube videos. To increase the external validity of the experiment, we included two videos by Dutch YouTube influencers with two different brand placements, which were randomly assigned to the participants. The videos were edited by the researcher to limit their length and to ensure only one brand was advertised. In one video, Liefs Lotte (78k subscribers) reviews a new Taksi popsicle (ice cream; 3.20 min). In the other video, Furtjuh (981k subscribers) and his friend make a cupcake dinner using his own branded Blueband cupcake mix (4.50 min). In both videos, the product and brand were clearly visible and mentioned several times, and the YouTubers elaborately talked about the product. Depending on the pictogram condition, the video included only the AL (all ages) pictogram or the AL pictogram with the #AD pictogram or the influencer pictogram. The pictograms were shown four seconds after the start of the video, on the upper right side of the screen, for 10 seconds, and were about 20% of the screen's height (see Figure 1).

(a) (b)

Figure 1. Stills of the sponsored videos: (a) Liefs Lotte and #AD pictogram; (b) Furtjuh and influencer pictogram. Note: Links to original videos in the Supplementary File.

2.3. Procedure

The instructions said that the study was divided into two parts and that we would ask them to watch videos in Part 1 and Part 2 and fill out a questionnaire about the videos. We told them that in Part 1, we wanted to investigate what they thought of a new video, and, in Part 2, how young people react to different YouTube videos. This cover story allowed us to show the awareness campaign (or a filler video) in Part 1 and a sponsored YouTube video with one of the pictograms (or not) in Part 2.

In Part 1, we asked participants to watch a video (either the awareness campaign or the filler video). We told them we wanted to know what they thought of it. After watching the video, we checked whether it worked and whether they watched it ("how much of the video did you watch?" 1 = *the entire video*, 2 = *a large part of the video*, 3 = *only the beginning*, 4 = *nothing*; 92.9% watched the full video, 6.4% a large part, 0.6% only the beginning). In line with our cover story, we also asked whether they liked the video, whether they thought it was clear, and whether they had any tips to improve it (these data were not analyzed).

Part 2 concerned the responses to a sponsored YouTube video and included the manipulation of the pictograms. The first video was a filler video without sponsored content, the second concerned the sponsored video (see Section 2.2). After these videos, the questionnaire started with questions about the second video (i.e., thought listing, video familiarity, video liking, ad recognition—scores 5 and 6: explain why and brand recall—understanding selling intent, and understanding persuasive intent). The questionnaire then focused on the first filler video (i.e., video familiarity, ad recognition) and then continued with questions about the pictograms (i.e., recognition of five Kijkwijzer pictograms, and open questions asking about the meaning of tested pictogram in conditions that were exposed to them). Furthermore, we asked questions about the influencer and brand in the sponsored video (i.e., influencer familiarity, frequency of watching videos of influencer, influencer liking, brand familiarity, and product use), and general questions regarding the frequency of watching videos on YouTube, frequency of posting videos on YouTube, gender, school, and class/group. Finally, participants were debriefed and could leave suggestions or feedback.

2.4. Measures

2.4.1. Dependent Variables

Following thought-listing procedures (Huang & Hutchinson, 2008; Rozendaal et al., 2012), we asked participants to write down the thoughts they had while watching the sponsored video (e.g., "What did you think of while you watched Furtjuh's video?"). All thoughts were coded by one of the researchers (1 = *advertising, sponsorship, marketing, paid partnership*; 2 = *Kijkwijzer pictogram about advertising*; 3 = *Kijkwijzer in general*; 4 = *product in video [i.e., cupcakes or ice cream]*; 5 = *brand in video*; 6 = *other*; missing values: 888 = *nonsense, don't know*). Five percent (n = 125) of the thoughts were double-coded by a second researcher (Krippendorf's alpha = 0.96). The final 611 thoughts (excluding 12 nonsense answers) were then recoded into dichotomous variables: Thoughts about the Kijkwijzer (0.7%) and thoughts about advertising (10.1%).

We measured conceptual advertising literacy with 6-point scales developed by Rozendaal et al. (2016; 1 = *no, certainly not*; 2 = *no, I do not think so*; 3 = *no, maybe*; 4 = *yes, maybe*; 5 = *yes, I think so*; 6 = *yes, certainly*). We measured ad recognition with two questions: "Was there advertising in the video?" and "was the video sponsored by a brand? Sponsored means that a brand has paid to make the video" (Boerman & van Reijmersdal, 2020; Hoek et al., 2020). Mean scores were calculated to create a single measure of ad recognition (Spearman-Brown = 0.79, M = 4.55, SD = 1.30).

To measure ad recognition for a non-commercial video, we asked the same questions for a filler video that did not contain advertising (Spearman-Brown = 0.88, M = 2.47, SD = 1.14).

Understanding of selling intent was measured by asking: "Was the video made to make people buy [brand]?" and "was the video made to sell [brand]?" (Rozendaal et al., 2016). Items were adapted to the brand in the video, and the mean of the two items was used as a measure of understanding of selling intent (Spearman-Brown = 0.77, *M* = 4.66, *SD* = 1.93).

To measure understanding of persuasive intent, we asked: "Was the video made to make people like [brand]?," "was the video made to make people want to have [brand]?," and "was the video made to make people think positively about [brand]?" (Boerman & van Reijmersdal, 2020; Hoek et al., 2020; Rozendaal et al., 2016). Items were adapted to the brand in each video, and the mean score of the three items was used as a measure of understanding of persuasive intent (Cronbach's alpha = 0.91, *M* = 4.78, *SD* = 1.05).

To measure affective advertising literacy, we asked participants: "What is your opinion about the notion that [brand] is included in the video? Do you find this" followed by "honest" (recoded), "stupid," "irritating," "wrong," "good" (recoded), and "bad" (Hoek et al., 2020; Rozendaal et al., 2016; van Reijmersdal et al., 2020). The scale anchors were adjusted to the questions (e.g., 1 = *totally not honest*, 6 = *very honest*). The mean score of the items "honest" (recoded), "wrong," "good" (recoded), and "bad" was used as a measure of skepticism, with a high score representing more skeptical attitudes (Cronbach's alpha = 0.92, *M* = 3.15, *SD* = 1.14). The mean score of the items "stupid" and "irritating" was used as a measure of disliking (Spearman-Brown = 0.85, *M* = 3.15, *SD* = 1.26).

To measure pictogram recognition, we showed participants five pictograms (three existing pictograms: AL, violence, foul language; and the two selected pictograms) and asked them whether they had seen this pictogram in the video (0 = *no*, 1 = *maybe*, 2 = *yes*). Answers to the selected pictograms were recoded to represent correct pictogram recognition (0 = *incorrect answer*, 68.9%; 1 = *correctly recognize the pictogram participant was exposed to*, 9.6%; 2 = *participants in no pictogram condition who correctly did not recognize any pictogram*, 21.5%).

To measure pictogram understanding, we showed participants in the pictogram conditions (*n* = 431, 192 missing values = no pictogram condition), a still of the pictograms in the video that they had watched (see Figure 1), and explained that the AL pictogram meant that the video was for AL. We then asked them what they believed the other pictogram meant and provided five answer options (1 = "that advertising is made in this video or that the video is sponsored [the correct answer]," 2 = "that it is a video from the algemeen dagblad," 3 = "that it costs money to watch this video," 4 = "that there is violence in the video," 5 = "that they use swear words in the video"). Answers were recoded into correct (answer 1: 13.9%) or incorrect (answers 2, 3, 4, and 5: 86.1%) understanding of the pictogram.

2.4.2. Control Variables

We measured age with a dropdown list ranging from 8 to 18. This continuous variable was recoded into categories (8–12 years old *n* = 232; 13–15 years old *n* = 234; and 16–18 years old *n* = 157).

After watching the two YouTube videos, we checked whether the video worked (three said no) and how much participants had watched (66.3% watched the full video, 29.1% a large part, and 4.7% only the start). We also asked whether they had seen the sponsored video before (video familiarity: 0 = *no*, 1 = *maybe*, 2 = *yes*; 5.5% was familiar, 5% maybe, and 89.6% was not familiar), and to rate on a scale from 1 to 10 how much they liked the video with 1 being *very bad*, and 10 *very good* (video liking: *M* = 5.30, *SD* = 2.27). We also asked whether they were familiar with the filler video (82.7% *no*, 7.7% *maybe*, and 9.6% *yes*).

Furthermore, we asked participants several questions about the YouTuber and brand in the video. These questions were adapted to match the condition participants were assigned to, and these measures were combined to generate a score for the full sample. We asked participants whether they knew the YouTuber before watching the video (influencer familiarity: 0 = *no*, 1 = *maybe*, 2 = *yes*; 19.3% was familiar), how often they watched videos of this YouTuber (watching influencer frequency: 1 = *never*, 2 = *sometimes*, 3 = *often*, 4 = *very often*; *M* = 1.23, *SD* = 0.54), and to rate the YouTuber on a scale from 1 to 10 (influencer liking, *M* = 5.20, *SD* = 2.31). We also asked whether they knew the brand before the research (brand familiarity: 0 = *no*, 1 = *maybe*, 2 = *yes*; 84.8% was familiar) and how often they used/ate the product (*M* = 1.22, *SD* = 0.50). We asked participants how often they watched YouTube videos (YouTube frequency: *M* = 2.83, *SD* = 0.84) and posted YouTube videos themselves (YouTube video posting frequency: *M* = 1.35, *SD* = 0.66).

Finally, we measured participants' gender (1 = *boy*, 2 = *girl*, 3 = *other*, 4 = *don't want to share*; recoded into girl or not) and type of school (1 = *primary school*, 2 = *high school*, 3 = *higher vocational education*, 4 = *university*, 5 = *I am not in school*). Children in primary school were then asked the group that they were currently in (4–8). Minors at high school were asked for their school level (1 = *vmbo*, 2 = *havo*, 3 = *vwo/gymnasium*, 4 = *other*) and class (1–6).

2.4.3. Attention Checks

The questionnaire includes two attention checks. The first check said, "We want to check whether you read the questions, please fill out 'elephant' here" (1 = *lion*, 2 = *tiger*, 3 = *elephant*); the second check was similar but asked to select the "none of the above" answer (1 = *YouTube*, 2 = *Instagram*, 3 = *TikTok*, 4 = *Snapchat*, 5 = *none of the above*).

3. Results

3.1. Manipulation Check

There was a significant difference in correct recognition between the pictograms, χ^2 (4) = 399.83, p < 0.001. Of the 212 participants who were exposed to the #AD pictogram, 18.9% correctly recalled seeing it. Of the 219 in the influencer pictogram condition, only 9.1% correctly recalled seeing it. Of the 192 participants who watched the videos without a pictogram, 69.8% correctly recognized that they had not seen one. These percentages align with previous research and replicate the finding that correct pictogram recognition is higher for the #AD pictogram than the influencer pictogram (Boerman et al., 2023).

3.2. Randomization Checks

There were no significant differences between the 14 experimental groups with respect to age: F(13, 609) = 1.36, p = 0.173; age groups: χ^2 (26) = 33.39, p = 0.151; gender (girl or not), χ^2 (13) = 5.60, p = 0.9560; YouTube frequency: F(13, 609) = 1.06, p = 0.389; YouTube creation: F(13, 609) = 0.68, p = 0.787; influencer liking: F(13, 609) = 1.64, p = 0.070; how much of the video was watched: χ^2 (26) = 30.38, p = 0.252; and video familiarity: χ^2 (26) = 31.36, p = 0.215.

There were significant differences between the conditions with respect to video liking: F(13, 609) = 2.20, p = 0.009; watching influencer frequency: F(13, 609) = 2.49, p = 0.003; influencer familiarity: χ^2 (13) = 49.05, p < 0.001; brand familiarity: χ^2 (13) = 33.56, p < 0.001; and product use: F(13, 609) = 1.90, p = 0.028.

Comparing the two sponsored videos, there were understandable, significant differences in influencer familiarity (9.8% familiar with Lotte, 29.1% familiar with Furtjuh), χ^2 (1) = 37.32, p < 0.001, and brand familiarity (91.5% familiar with Taksi, 77.8% familiar with Blue band), χ^2 (1) = 22.63, p = < 0.001.

All analyses included brand familiarity, influencer familiarity, video liking, product use, and watching influencer frequency as covariates.

3.3. Hypothesis Testing

To test H1, we ran a paired samples t-test with the ad recognition scores for the sponsored and filler videos. Results showed a significant difference, supporting H1: Minors' ad recognition was higher for the videos that actually contained advertising (M = 4.55, SD = 1.30) than for the non-commercial video (M = 2.47, SD = 1.42), t(622) = 28.85, p < 0.001.

To test H2 and answer RQ1, we ran a MANCOVA with pictogram (no pictogram, #AD pictogram, influencer pictogram) as a factor and the five advertising literacy measures as dependent variables. The overall effect was not significant, Wilk's Lambda = 0.98, F(10, 1,224) = 1.40, p = 0.173. The tests of between-subject effects also showed no significant effects of pictograms on conceptual advertising literacy: ad recognition, F(2, 615) = 1.59, p = 0.205; understanding of persuasive intent: F(2, 615) = 2.08, p = 0.126; and understanding of selling intent: F(2, 615) = 0.60, p = 0.552. There was a significant difference between the pictogram conditions for disliking, F(2, 615) = 3.04, p = 0.049, eta^2 = 0.01, and a marginally significant difference for skepticism, F(2, 615) = 2.91, p = 0.055, eta^2 = 0.01 (see Table 1 for means).

Pairwise comparisons showed that compared to no pictogram, the influencer pictogram led to significantly less skepticism (p = 0.021) and less disliking (p = 0.023). All other comparisons were not significant for both skepticism (no pictogram vs. #AD pictogram p = 0.527; influencer vs. #AD pictogram p = 0.087) and disliking (no pictogram vs. #AD pictogram p = 0.694; influencer vs. #AD pictogram p = 0.055). These findings do not support H2: Both pictograms do not influence cognitive levels of advertising literacy. Moreover, the influencer pictogram does seem to make minors less skeptical and dislike the advertising less, and thus it lowers affective advertising literacy, partly answering RQ1.

To test H3a, we compared correct pictogram recognition between the awareness campaign conditions (n = 431,192, missing values = no pictogram condition). Results showed no significant differences, χ^2 (1) = 1.24, p = 0.265: The awareness campaign did not lead to better pictogram recognition (15.3% correct) compared to no campaign (11.5% correct). H3a was not supported.

Table 1. Main effects of pictograms (vs. no pictogram) on advertising literacy.

Dependent variable	No pictogram (n = 192)	#AD pictogram (n = 212)	Influencer pictogram (n = 219)
Ad recognition	4.43 (1.25)[a]	4.68 (1.30)[a]	4.53 (1.33)[a]
Understanding of persuasive intent	4.65 (1.09)[a]	4.82 (1.07)[a]	4.84 (0.99)[a]
Understanding of selling intent	4.58 (1.23)[a]	4.72 (1.16)[a]	4.66 (1.19)[a]
Skepticism	3.29 (1.09)[a]	3.23 (1.17)[a,b]	2.95 (1.13)[b]
Disliking	3.30 (1.24)[a]	3.26 (1.27)[a,b]	2.92 (1.24)[b]

Note: [a, b] = Means with different superscripts in the same row differ significantly from each other at p < 0.05.

To test H3b, we compared the correct understanding of the meaning of the pictogram between the awareness campaign conditions. Results showed that the awareness campaign significantly led to a better understanding of the meaning of the pictogram (91.6% correct) compared to no campaign (84.1% correct), χ^2 (1) = 5.72, p = 0.017. This supports H3b, but interestingly, the high percentages also demonstrate that many minors already understood the pictograms without the campaign.

H4 concerns the thoughts minors had while watching the sponsored video. Only four minors (0.7%) reported thoughts about the Kijkwijzer (e.g., "I saw the new pictogram"), and all four were in the awareness campaign condition. Given the low number, this difference was not significant, χ^2 (1) = 1.71, p = 0.191. Furthermore, 10.1% of the minors reported thoughts about (some form of) advertising (e.g., "This is probably advertising," "they are baking with sponsored products," "they have a partnership with the brand"). Importantly, minors significantly reported more thoughts about advertising after seeing the awareness campaign introducing the Kijkwijzer pictogram (13.3% vs 2.7% no awareness campaign), χ^2 (1) = 15.57, p < 0.001. These results do not fully support H4a but do support H4b.

To test H5, we ran a MANCOVA with the awareness campaign (yes or no) as a factor, and the five advertising literacy measures as dependent variables. We found no overall significant effect of the awareness campaign, Wilk's lambda = 0.99, F(5, 612) = 0.82, p = 0.535. The tests of between-subject effects also showed no significant effects of the awareness campaign on ad recognition, F(1, 616) = 1.79, p = 0.181, understanding of persuasive intent, F(1, 616) = 0.29, p = 0.589, understanding of selling intent, F(1, 616) = 1.26, p = 0.262, skepticism, F(1, 616) = 1.60, p = 0.206, and disliking, F(1, 616) = 2.01, p = 0.156 (see Table 2 for means). This means that H5a–e are not supported: The awareness campaign introducing the pictogram did not influence levels of conceptual or affective advertising literacy.

To test the interaction effect of the awareness campaign and pictograms (H6), we ran a MANCOVA with awareness campaign (yes or no) and pictogram (no pictogram, #AD pictogram, influencer pictogram) as factors and the five advertising literacy measures as dependent variables. Results reveal no significant overall interaction effect, Wilk's lambda = 0.99, F(10, 121.8) = 0.87, p = 0.565. The tests of between-subject effects showed no significant interaction effects on the five advertising literacy measures (p's > 0.398). H6 was not supported.

3.4. Robustness Check: Generalizability Between Videos

To check the robustness of our findings, we also checked whether any of the effects of the awareness campaign and pictogram differed in direction and strength between the two videos. We ran a MANCOVAs with pictogram awareness campaign and video (i.e., Lotte or Furtjuh) as factors. There were no significant two-way or three-way interactions, meaning our findings are generalizable and robust for the two videos.

4. Discussion

Answering the strong need for insight into how minors can effectively be informed about advertising (e.g., influencer marketing) in online content, we tested the effects of two pictograms that aim to signal sponsored content in online videos and the potential of an awareness campaign to boost the pictograms' effectiveness.

Our findings provide three important insights that have implications for theory, practice, and regulations. First, we find that minors are able to distinguish between sponsored and non-sponsored videos, indicating that they have developed some level of advertising literacy in this context. Overall, mean scores of advertising literacy were high, even without a pictogram (e.g., ad recognition M = 4.43 on a 6-point scale). As advertising literacy is believed to develop with experience, education, and age (Wright et al., 2005), these results indicate that minors have quite developed advertising literacy in the context of advertising in online videos. Although these findings may seem to imply that rules regarding disclosures are ineffective and possibly even redundant, we would be careful with drawing this conclusion: Perhaps it is the increasing presence of disclosures that the minors have learned from.

Table 2. Main effects of the awareness campaign on thoughts (H3) and advertising literacy (H4).

Dependent variable	No awareness campaign (n = 186)	Awareness campaign (n = 437)
Kijkwijzer related thoughts	0%[a]	0.7%[a]
Advertising related thoughts	2.7%[b]	13.3%[b]
Ad recognition	4.42 (1.33)[a]	4.61 (1.28)[a]
Understanding of persuasive intent	4.73 (1.04)[a]	4.79 (1.06)[a]
Understanding of selling intent	4.56 (1.17)[a]	4.70 (1.20)[a]
Skepticism	3.04 (1.14)[a]	3.20 (1.13)[a]
Disliking	3.02 (1.28)[a]	3.22 (1.24)[a]

Note: [a, b] = Means with different superscripts in the same row differ significantly from each other at p < 0.05.

Second, our study shows that the two pictograms informing minors about advertising in online videos went unnoticed by most viewers and did not enhance conceptual or attitudinal advertising literacy. Although pictograms can be processed relatively quickly (Tijus et al., 2007) and were implemented in online videos according to current legislative guidelines, very few minors remembered seeing the pictogram. These findings are in line with previous studies showing that (textual) disclosures are hardly noticed by minors (e.g., Boerman et al., 2023; Boerman & van Reijmersdal, 2020; De Jans et al., 2018; van Reijmersdal et al., 2017, 2020). As disclosures, such as pictograms, need to be noticed to have any effects, further research should focus on investigating pictogram implementations that will ensure that viewers notice and attend to them. Interestingly, exposure to the influencer pictogram did lead to lower levels of skepticism and dislike compared to no exposure to a pictogram. This finding is in line with previous qualitative research that showed that minors do not really care whether online videos are sponsored but that they do appreciate transparency (Rozendaal et al., 2021). In addition, the influencer pictogram was preferred by most minors (Boerman et al., 2023), which may explain why only this pictogram had this mitigatory effect.

Third, the awareness campaign did not lead to higher recognition of the pictograms nor enhanced advertising literacy. In line with previous research into awareness campaigns (e.g., Bollinger et al., 2022; Thrasher et al., 2013), the campaign did increase minors' understanding of the meaning of pictograms. However, the majority of minors also understood the meaning of the pictograms without the campaign. Although previous research showed that disclosures have limited effects because existing disclosures are not understood (Rozendaal et al., 2021), this demonstrates that we did develop pictograms that minors comprehend. This has important implications both for other researchers in this field and for practitioners (e.g., policymakers and disclosure designers), as it shows that participatory research methods involving minors as co-researchers are effective in designing understandable and appealing disclosures for advertising in online video content.

However, more research is needed on the conditions under which awareness campaigns do succeed in improving attention to disclosures (such as pictograms) when implemented in online video content and triggering their advertising literacy. The way the current awareness campaign was designed and investigated did not have the desired effect. Perhaps the campaign video did not contain the right information or a single exposure to the video was not enough to create new associative networks in minors' brains for the pictogram and its meaning to become linked to minors' existing advertising literacy. Future research is needed to gain more insights into the potential of awareness campaigns.

5. Conclusions

Based upon our findings, we argue that the way pictograms are currently implemented in online videos (i.e., at the beginning of the video, on the upper right side of the screen) makes them go unnoticed by most minors and is ineffective in enhancing minors' advertising literacy. Although an awareness campaign can make minors more familiar with the pictograms and their implementation in online videos, it does not seem to boost the pictograms' effects on advertising literacy.

Thus, to create a safe and transparent digital environment for minors, our findings suggest that we should not only focus on disclosures, such as pictograms. The responsibility to protect minors from hidden advertising (e.g., influencer marketing) on online platforms is shared by various stakeholders, including educators who can help minors develop the relevant advertising literacy and the advertising brands and content creators that target minors in the digital ecosystem.

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

The EU Approach to Safeguard Children's Rights on Video-Sharing Platforms: Jigsaw or Maze?

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Abstract
Children are keen consumers of audiovisual media content. Video-sharing platforms (VSPs), such as YouTube and TikTok, offer a wealth of child-friendly or child-appropriate content but also content which—depending on the age of the child—might be considered inappropriate or potentially harmful. Moreover, such VSPs often deploy algorithmic recommender systems to personalise the content that children are exposed to (e.g., through auto-play features), leading to concerns about diversity of content or spirals of content related to, for instance, eating disorders or self-harm. This article explores the responsibilities of VSPs with respect to children that are imposed by existing, recently adopted, and proposed EU legislation. Instruments that we investigate include the Audiovisual Media Services Directive, the General Data Protection Regulation, the Digital Services Act, and the proposal for an Artificial Intelligence Act. Based on a legal study of policy documents, legislation, and scholarship, this contribution investigates to what extent this legislative framework sets obligations for VSPs to safeguard children's rights and discusses how these obligations align across different legislative instruments.

Keywords
video-sharing platforms; audiovisual content; children's rights; legislation

Issue
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1. Introduction

Children devote a significant amount of time to consuming diverse types of audiovisual media content on different devices (European Schoolnet, 2022). They navigate through multiple channels, including television broadcasts, video-on-demand services (e.g., Netflix, Disney+), and the internet, to access their favourite programmes, series, films, and short videos. Online audiovisual content is available to them via websites, gaming platforms, and video-sharing platforms (VSPs). YouTube and TikTok are two of the most popular VSPs among children (Ofcom, 2023a; Smahel et al., 2020). Some of the most-liked YouTube channels are aimed at children, and content creators have learned that videos on topics that appeal to children attract a lot of views. Recent research found that YouTube is the most-used VSP among children, with numbers ranging from 88% of 3–17-year-olds in the UK (Ofcom, 2023a), and 86% of 6–12-year-olds and 96% of 13–18-year-olds in Flanders (Vanwynsberghe et al., 2022). TikTok is used by more than 50% of children, with numbers climbing to 86% for the older ones (Ofcom, 2023a; Vanwynsberghe et al., 2022). Similar findings also emerged from an EU-wide consultation with children on their use of technologies. Respondents reported that they used VSPs—among other things—to watch sports, instruction videos, funny videos, or even culinary content (European Schoolnet, 2022). While VSPs offer a wealth of child-friendly and child-appropriate content, other types of content might not necessarily be age-appropriate, but might still appeal to children. Recent research by Ofcom, for instance, demonstrated that young viewers gravitate

to what they call "dramatic videos" concerning "gossip, conflict, controversy, extreme challenges and high stakes" (Ofcom, 2023b). Additionally, there is content available that may be deemed potentially harmful (e.g., videos relating to eating disorders or self-harm) or even illegal, such as child sexual abuse material.

These platforms have become the gatekeepers of online content, regulating information flows on the internet through their own terms of use in which they set community standards and employ automated means for ranking, prioritising, and filtering content (Laidlaw, 2012). Algorithms analyse user data, including viewing history, search queries, and user behaviour, to recommend videos that users may be interested in watching next. In addition, artificial intelligence (AI)-based systems are used for content moderation, detecting and removing content that violates the platform's policies.

The increasing significance of platforms, including VSPs, and their gatekeeping role, has caught policymakers' attention in recent years. In the EU, this has led to a plethora of legislative initiatives that impose various obligations on platforms in relation to the content they offer, the personal data they process, the measures they take to protect children, and the AI-based systems they deploy. These obligations have been adopted (or are still in the process of being adopted) at different points in time, and are included in different types of regulatory instruments with differing scopes and requiring different types of measures to be taken. The fragmented nature of these developments has led to a complex legal landscape, which is challenging to grasp for platform providers, regulators, and citizens. Whereas earlier research has focused on the relevance of specific legislative instruments (Kuklis, 2021; Veale & Borgesius, 2021; Woods, 2018), also in relation to children (Lievens & Verdoodt, 2018), a comprehensive analysis of the regulation of VSPs is lacking. It is, therefore, the purpose of this article to map the various legislative obligations which are applicable to VSPs and affect children and to evaluate these obligations from a children's rights perspective. The combination of different legal instruments as they apply to a specific actor and their examination from the perspective of the UN Convention on the Rights of the Child (UNCRC) offers a timely and novel contribution to this complex field.

2. Theoretical Framework

The activities that children engage in on VSPs are closely tied to the rights conferred on them under the international children's rights framework. The UNCRC attributes an array of fundamental rights to children—defined by Article 1 of the UNCRC as every human being below the age of 18 years—and imposes obligations on states parties to help realise these rights (UNCRC, 1989). VSPs present both opportunities and risks for children's rights.

Concerning the former, Article 13 of the UNCRC mandates that children have the right to seek, receive, and impart information through any medium of their choosing (UNCRC, 1989). In this regard, VSPs offer children a platform to express their own ideas and creations, as well as an abundance of information and entertainment. Related to this is Article 31, which enshrines the right to "leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts" (UNCRC, 1989). By giving them access to a wide choice of leisure activities, including watching videos on their favourite subjects and discovering new artistic content, VSPs allow children to exercise these rights. Linked to these opportunities for children, Article 17 of the UNCRC recognises the important function of the mass media—which VSPs are—and requires states to ensure that the child has access to "information and material from a diversity of national and international sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health" (UNCRC, 1989).

Yet, VSPs also host content that might be inappropriate or harmful to children. In that regard, in accordance with Article 17 of the UNCRC, states must encourage "the development of appropriate guidelines for the protection of the child from information and material injurious to his or her well-being, bearing in mind the provisions of Articles 13 [freedom of expression] and 18 [parental responsibilities]" (UNCRC, 1989). While certain content is clearly illegal (e.g., online child sexual abuse material), it has been widely acknowledged in media effect studies that early exposure to certain other types of content—such as violent or sexual content—may pose risks to a child's development (O'Neill, 2023; Sparks, 2006). For such potentially harmful types of content, specific rules regarding publication and distribution (e.g., watersheds, ratings, and classifications) have been incorporated into media law (Lievens, 2017). These rules have been primarily targeted at traditional mass media content such as television broadcasts and films in cinemas. Considering the changing consumption of audiovisual content by children (away from traditional media towards VSPs), Article 17 of the UNCRC (1989) requires states to take these developments into account and adopt tailored measures that specifically address the challenges related to harmful content on VSPs. The same is true for addressing the risks that VSPs might entail for children's right to privacy (UNCRC, 1989, Article 16) and their right to protection from economic exploitation (UNCRC, 1989, Article 32).

This has also been acknowledged by the UNCRC in its General Comment no. 25 on the rights of the child in relation to the digital environment (UNCRC, 2021). The Committee reiterates that states have obligations to guarantee that businesses in the digital sector take up their responsibilities for children's rights by taking all necessary measures including the adoption of legislation, and the development, monitoring, and enforcement of policy. Hence, subjecting VSPs to appropriate regulation is crucial to ensure that children's access to

and use of VSPs is respectful of their rights and conducive to their well-being. Although the EU is not a state party to the UNCRC, member states have granted the EU certain competences to act, and the EU itself regularly stresses its commitment to the UNCRC (European Commission, 2021a). A strong link between the EU legal framework and the UNCRC is embedded in Article 24 of the Charter of Fundamental Rights of the EU ([CFREU], 2012), which adopts language that is very similar to that of the UNCRC, for instance, by referring to the child's best interests as a primary consideration in all actions relating to children (UNCRC, 1989, Article 3). This substantiates the added value of analysing the EU legislative framework that is applicable to VSPs from a children's rights perspective.

3. Method

This article examines the responsibilities of VSPs towards children under existing, recently adopted, and proposed legislation in the EU. The four legal instruments explored through a children's rights lens are: (a) the Audiovisual Media Services Directive (AVMSD), (b) the General Data Protection Regulation (GDPR), (c) the Digital Services Act (DSA), and (d) the proposal for an AI Act. The main research questions that this article aims to answer are:

> RQ1: To what extent does this legislative framework help safeguard children's rights?
>
> RQ2: How do the obligations for VSPs across different legislative instruments align?

To conduct this research, a doctrinal legal approach was adopted, involving the analysis of (proposed) legislation, interpretive policy documents, and legal doctrine. Firstly, the scope of these instruments was addressed with regard to VSPs and provisions with specific relevance to VSPs were identified in each of the instruments, particularly those that could offer protection for children against harmful content. Secondly, these relevant provisions were outlined and analysed within the theoretical framework of children's rights, as presented in Section 4. Thirdly, overarching topics, measures, or regulatory approaches were identified, and their implications for children's rights were examined in Section 5. Finally, the key findings were succinctly summarised in Section 6.

4. Navigating the EU Legal Maze: The Transforming Role and Responsibilities of Video-Sharing Platforms

The role of providers of VSPs is multifaceted, encompassing various responsibilities that arise from their engagement with users, content, personal data, and AI. They provide a platform that hosts audiovisual media content created by third parties and facilitate access to this content by children. Moreover, VSP providers collect and process personal data from users, for instance, to feed into recommender systems, thereby assuming the role of a data controller. These recommender systems are often powered by AI, leading VSPs to be classed as users (or even providers) of AI systems. Each of these roles is subject to distinct EU legislative instruments (see Figure 1), which entail obligations for protecting children from harmful or illegal content, protecting their personal data, and protecting them from adverse consequences of AI-based systems.

4.1. Adapting to the Digital Age: The Inclusion of "Video-Sharing Platforms" in EU Media Law

The first instrument that forms an important part of the EU regulatory framework is the AVMSD. From its inception as the Television Without Frontiers Directive, this instrument has been a critical component of the EU's regulatory framework that aims to protect children from harmful content, initially on traditional broadcast television. However, with the increasing popularity of new forms of audiovisual content, particularly among children and young people, calls for safeguarding children from harmful content on on-demand services (e.g., Netflix) and VSPs were answered by consecutive revisions of the rules in 2010 and 2018 (Cappello, 2015). By introducing a new category of services in the AVMSD—i.e., "video-sharing platform services"—the EU legislator aimed to ensure that VSPs enact specific measures to protect minors from harmful content, and to create checks and balances through supervision by independent media regulators (Valcke et al., 2019). VSP services are, according to Article 1(1)(aa) (EU Directive of 14 November, 2018), services where the principal purpose or a dissociable section thereof or an essential functionality of the service is devoted to providing programmes, user-generated videos, or both, to the general public, for which the VSP provider does not have editorial responsibility, in order to inform, entertain, or educate, by means of electronic communications networks and the organisation of which is determined by the VSP provider, including by automatic means or algorithms in particular by displaying, tagging, and sequencing.

Traditionally, the allocation of responsibilities to audiovisual media service providers relied on the criterion of "editorial responsibility." Rather than having editorial responsibility (i.e., full control over the content they produce and distribute, like traditional broadcasters and media publishers), VSPs determine the organisation of the stored content, including by automated means, such as displaying, tagging, and sequencing videos. Consequently, the accompanying obligations in the revised AVMSD relate to the organisation of the content uploaded by third parties on their platforms and not the content itself (EU Directive of 14 November, 2018, Recital 48; Valcke et al., 2019). Social media platforms may also qualify as VSPs if the provision of programmes and user-generated videos constitutes an "essential functionality" of that service (EU Directive of 14 November, 2018, Recital 5). The European Commission (2020) has

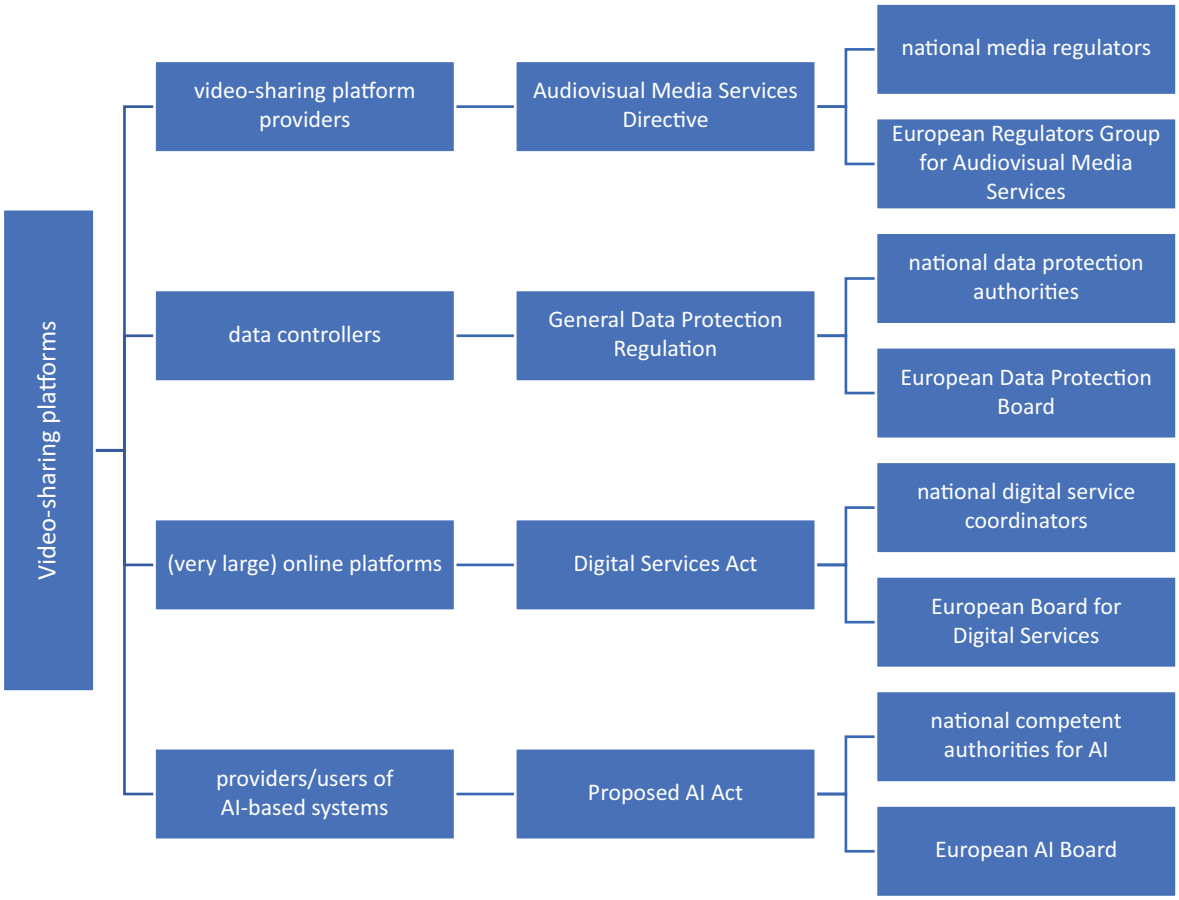

Figure 1. The EU legislative framework for VSPs (selection of instruments).

issued guidelines on the practical application of this criterion (Cole & Etteldorf, 2022). Article 28b(1)(a) of the AVMSD (EU Directive of 14 November, 2018) requires member states to introduce specific obligations for VSP providers at the national level to take appropriate measures to protect minors against the distribution of (a) programmes, (b) user-generated videos, and (c) audiovisual commercial communications which may impair children's physical, mental, or moral development in accordance with Article 6a(1) AVMSD. AVMSD's Article 6a(1) requires providers of audiovisual media services (television broadcast and on-demand services) to ensure that services which may impair the physical, mental, or moral development of minors are only made available in such a way as to ensure that minors will not normally hear or see them (EU Directive of 14 November, 2018). As national perceptions of what is considered harmful vary across countries, the EU legislator has refrained from introducing a harmonised definition (Council of Europe JUREX, 2019). Therefore, it is up to the member states to evaluate the levels of harm (aside from gratuitous violence and pornography which should always be subject to the strictest measures; EU Directive of 14 November, 2018, Recital 20 and Article 6a[1]), based on national standards (Council of Europe JUREX, 2019). Furthermore, VSP providers have to ensure compliance with AVMSD's Article 9(1), which requires inter alia that audiovisual commercial communications should be recognisable as such and should not directly exhort minors to buy or hire a product or service by exploiting their inexperience (EU Directive of 14 November, 2018, Article 28b[2]). However, these requirements only apply to those audiovisual commercial communications that are marketed, sold, or arranged by the VSP provider itself. In contrast, for those that are not (for instance vlogging advertising by an influencer; Verdoodt, 2020), the AVMSD requires that VSP providers take "appropriate measures" to comply with the requirements set out in Article 9(1), recognising the limited control exercised by VSP providers over such commercials (EU Directive of 14 November, 2018).

The selection of appropriate measures to protect minors requires VSP providers to consider the nature of the content in question, the harm it may cause, and the characteristics of the category of persons to be protected. Moreover, it entails balancing the various rights and legitimate interests at stake (Recital 51 of the AVMSD). This includes, on the one hand, the rights of child users of the VSP under the children's rights framework (CFREU, 2012, Article 24; UNCRC, 1989), including their right to protection from harmful content (UNCRC, 1989, Article 17), and, on the other hand, the VSP's own commercial interests, as well as the interests and rights of the adult users of the VSP (e.g., viewers, content

creators, and advertisers), such as their freedom of expression and information (CFREU, 2012, Article 11) and freedom to conduct a business (CFREU, 2012, Article 16). The AVMSD also specifies that the measures must be practicable and proportionate, in light of the actual size of the VSP and the nature of the service (EU Directive of 14 November, 2018, Article 28b[3]). Examples included in the Directive are flagging, rating, age verification, parental control, complaint handling, and media literacy tools, but member states are also allowed to develop a higher degree of protection for content which may impair the physical, mental, or moral development of minors (EU Directive of 14 November, 2018, Recital 20 and Article 28b[6]).

How effectively children are protected by the safeguards laid down in the AVMSD strongly depends on the transposition into national legislation as well as the enforcement of the adopted rules at the national level. With regard to the implementation of the measures, AVMSD's Article 28b(4) explicitly puts forward co-regulation, giving a clear signal that there should be a national legal framework that provides for the obligation to introduce appropriate measures, which may be operationalised by the VSPs (i.e., through self-regulation) but can be enforced by the national media regulators (EU Directive of 14 November, 2018, Article 28b[5]). Most member states have stayed very close to the wording of the AVMSD in their national legislation, without adding further specification to the obligations laid down in Article 28b, with only some states imposing certain specific measures from the list, adopting stricter rules or setting up co-regulatory frameworks (European Audiovisual Observatory, 2022). This means that, in many member states, the choice regarding which measures are "appropriate" is left to the VSPs (Cole & Etteldorf, 2022). Regarding enforcement, Ireland is considered a key member state due to being the jurisdiction where the most popular VSPs, such as TikTok and YouTube, are located, yet also the last member state to adopt its national implementation law (the Online Safety and Media Regulation Act only entered into force in March 2023). All eyes are now on the newly appointed regulatory authority, the Media Commission, for its role in overseeing the implementation of these new rules for VSPs. Also, the European Regulators Group for Audiovisual Media Services (ERGA)—the body which unites representatives from national media regulators—may play a significant role in exchanging experiences and best practices to ensure consistent implementation across member states.

Finally, concerning positive measures for children's rights, one of the potential steps for VSPs, as listed by the AVMSD, is to ensure effective media literacy measures and tools and raise users' awareness of those measures and tools (EU Directive of 14 November, 2018, Article 28b[3][j]). The majority of member states have incorporated this measure into national law without specifications, while some have specified the role and responsibility of national regulatory authorities or relevant ministries in relation to media literacy, autonomously and/or as an auditor of self-regulatory measures taken by the VSPs (European Audiovisual Observatory, 2022). Other positive measures in the AVMSD, such as the requirement to promote European works, are only applicable to traditional broadcasters and video-on-demand services (e.g., Netflix). Yet, such measures and obligations could contribute to the realisation of children's right to have access to a wide variety of national and international sources, as required by the UNCRC, Article 17 (1989).

4.2. Video-Sharing Platforms as Data Controllers Under the General Data Protection Regulation

VSPs collect different types of personal data from the users of their platforms, for instance when accounts are being set up. However, without an account, a service such as YouTube collects information regarding individual preferences which are stored with unique identifiers (YouTube, 2023a). A VSP that collects and processes personal data will be classed as a data controller under the GDPR. This entails numerous obligations, ranging from respecting the general data protection principles (such as fairness, lawfulness, transparency, purpose limitation, and data minimisation), to allowing data subjects to exercise certain rights, to demonstrating accountability through taking technical and organisational measures throughout processing activities. GDPR's Recital 38 stipulates that the personal data of children merits specific protection. There are both child-specific and general obligations for data controllers in the GDPR that might provide particular protection for children's data, including those related to consent and legitimate interests (Articles 6 and 8), child-friendly information (Article 12), the implementation of data protection by design and default (Article 25) and conducting data protection impact assessments (DPIAs) where processing activities are likely to result in a high risk to the rights and freedoms of individuals (Article 35). It has been argued before that conducting a DPIA is a good practice whenever the personal data of children is processed (Lievens & Verdoodt, 2018). When conducting a DPIA, the impact on the full range of rights of (child) data subjects must be considered, and mitigation measures must be adopted. Finally, the GDPR sets up a framework to use codes of conduct to make certain obligations to protect children's data more concrete (Article 40). While this range of GDPR provisions sets up a strong framework with much potential for safeguarding children's rights to data protection, the actual level of protection depends on accurate implementation by data controllers, strong enforcement by supervisory authorities, and guidance by the European Data Protection Board (EDPB). Composed of representatives of the national supervisory authorities and the European Data Protection Supervisor, the EDPB is tasked with ensuring consistent application of the GDPR throughout the EU (EU Regulation of 27 April, 2016, Articles 68–70).

VSPs increasingly are or have been the subject of investigations and decisions by Data Protection Authorities, including Instagram (Meta) and TikTok regarding their handling of children's personal data (Data Protection Commission, 2021, 2022). However, investigations are often slow, and decisions are still few and far between. Moreover, regarding VSPs, the burden of enforcement largely rests on the Irish Data Protection Commission, as most of the large ones have a (main) establishment in the EU in Dublin. Criticism has been voiced, for instance by the European Parliament ([EP] 2021), that the Irish Data Protection Commission needs to step up its enforcement efforts.

Interestingly, there also is a link between the AVMSD and the GDPR regarding children's personal data. AVMSD's Article 28b(3) explicitly emphasises that personal data of minors which is collected or otherwise generated by VSPs pursuant to the implementation of age verification and parental control measures cannot be processed for commercial purposes, such as direct marketing, profiling, and behaviourally targeted advertising. The GDPR itself does not explicitly prohibit the profiling of children, although Recital 38 emphasises that the specific protection relates in particular to "the use of personal data of children for the purposes of marketing or creating personality or user profiles." After the adoption of the GDPR, the Article 29 Working Party (the predecessor of the EDPB established by Directive 95/46/EC, which was the predecessor of the GDPR) specified in its *Guidelines on Automated Individual Decision-Making and Profiling* that "organisations should, in general, refrain from profiling [children] for marketing purposes" even though this is not specifically stated in the GDPR (Article 29 Working Party, 2018, p. 29). In any case, for VSPs, the AVMSD now explicitly codifies such a prohibition, at least for data obtained in this context. A question that arises in this regard is which authority will be competent to enforce this obligation. The most natural choice might be the data protection authorities, but AVMSD's Article 28b(5) requires member states to entrust the assessment of the measures that VSPs take to protect children to national media regulators. In our view, the inclusion of this prohibition underscores the need for coordination and collaboration among these regulatory authorities to which increasingly interrelated competences are attributed.

4.3. From "Video-Sharing Platforms" to "Very Large Online Platforms" Under the Digital Services Act

A third instrument that applies to VSPs is the DSA, which was adopted in October 2022. This act aims to ensure a safe, predictable, and trusted online environment by imposing certain due diligence obligations on online platforms. The obligations cover moderation of illegal and harmful content, transparency of recommender systems, design of online interfaces, and the identification and mitigation of systemic risks. Online platforms are "providers of a hosting service which, at the request of a recipient of the service, stores and disseminates to the public information" (EU Regulation of 19 October, 2022, Article 2[h]). VSPs are one example of such services. Within the category of online platforms, specific rules are laid down for very large online platforms (VLOPs) and very large online search engines with more than 45 million consumers in Europe (EU Regulation of 19 October, 2022, Recital 76). Such specific rules are warranted because VLOPs may cause societal risks that are different in scope and impact from those caused by smaller platforms. Platforms had to publish the number of average monthly active recipients of the service in the EU by 17 February 2023. In April 2023, the Commission adopted its first designation decisions under the DSA, designating 17 VLOPs, including TikTok and YouTube (European Commission, 2023b). Nonetheless, there still remain online platforms that have either failed to provide user numbers altogether or stated that they do not meet the designation thresholds (European Commission, 2023a).

DSA's Recital 71 emphasises that the protection of minors is an important policy objective of the EU. Throughout the DSA, there are references to children and minors (without further clarification as to which term is used in particular recitals or articles), and specific due diligence obligations are imposed on (very large) online platforms to protect this group. First, Article 28(1) formulates extensive obligations for online platforms "accessible to minors." Such platforms must put in place "appropriate and proportionate measures to ensure a high level of privacy, safety, and security of minors, on their service." It might be challenging for platforms to decide what are appropriate and proportionate measures in this regard, also considering that different age groups have different privacy and safety needs. In this regard, Recital 71 refers to standards, codes of conduct, and best practices and Article 28(4) indicates that the Commission (after consulting the European Board for Digital Services), may formulate guidelines to support providers of online platforms. In its *Better Internet for Kids+ Strategy*, the European Commission (2022, p. 9) already announced that it will "facilitate a comprehensive EU code of conduct on age-appropriate design, building on the new rules in the DSA and in line with the AVMSD and GDPR." Next, Article 28(2) contains a prohibition on targeting advertisements based on profiling "when they are aware with reasonable certainty that the recipient of the service is a minor." Whereas this seems to codify the call by the Article 29 Working Party not to profile children for marketing purposes, it may be wondered whether the prohibition should not have been extended to profiling children for other (potentially) harmful purposes, including commercial purposes other than targeted advertising. A broader prohibition would be more in line with the UNCRC's (2021) call in General Comment no. 25 to "prohibit by law the profiling or targeting of children of any age for commercial purposes.''

Second, VLOPs need to comply with risk assessment and mitigation obligations. Article 34 requires VLOPs and very large online search engines to undertake an assessment of the systemic risks in the EU "stemming from the design or functioning of their service and its related systems, including algorithmic systems, or from the use made of their services." Four categories of risks are listed, of which three might be particularly relevant for children: "(a) the dissemination of illegal content; (b) any actual or foreseeable negative effects for the exercise of fundamental rights, [such as] the rights of the child…(d) any actual or foreseeable negative effects in relation to…the protection of…minors." Once the systemic risks are identified, VLOPs need to establish reasonable, proportionate, and effective mitigation measures, tailored to the risks. Such measures may include adapting the design of their services, testing and adapting their algorithmic systems (including recommender systems) or taking targeted measures to protect the rights of the child, including age verification and parental control tools. At least once a year, the VLOPs must subject themselves to an independent audit to assess compliance with the due diligence obligations (Department of Enterprise, Trade and Employment, 2022, Article 37).

Finally, the DSA also puts in place obligations that are not child-specific but which may have a significant impact on children. Article 25, for instance, prohibits dark patterns in the design, organisation, or operation of online interfaces of platforms. Such dark patterns are practices that can be used by platforms to persuade users to engage in unwanted behaviours or make undesired decisions which have negative consequences for them (Recital 67). Examples are making the procedure of cancelling a service significantly more cumbersome than signing up for it or making certain choices more difficult or time-consuming than others (Recital 67). Children in particular might be vulnerable to such practices (Lupiáñez-Villanueva et al., 2022). In addition, Article 27 puts in place transparency obligations for recommender systems, entailing that platforms must clearly explain the main parameters that they use, and how to modify or influence those parameters. VLOPs that use recommender systems also need to offer at least one option for each recommender system which is not based on profiling (Article 38); this could, for instance, be a chronological feed.

The obligations of VSPs under the DSA are arguably very promising for the protection of children's rights, depending on the actual implementation and enforcement by the national Digital Service Coordinators, the European Board for Digital Services, and the Commission. One challenging question that these regulators, but also VSPs, might face is about the exact interplay between the DSA and other instruments. The DSA states that it is without prejudice to the rules in other EU legislation regulating other aspects of the provision of intermediary services or specifying and complementing the DSA. This explicitly includes the GDPR and the AVMSD (EU Directive of 14 November, 2018, Article 2[4]). As we have demonstrated above, VSPs will likely be covered by all three instruments. In practice, this means that the obligations of AVMSD's Article 28b(2) regarding appropriate measures to protect minors from harmful content will coexist with the obligation in DSA's Article 28(1) to ensure a high level of privacy, safety, and security of minors on their services. Some of these measures might overlap; others might have a different purpose, but use the same techniques. Age verification is a good example. Age verification is included in the list in AVMSD's Article 28b(2) but might also be a potential mechanism to comply with DSA's Article 28 or DSA's Article 35(1)(j) on risk mitigation measures for VLOPs. At the same time, DSA's Article 28(3) states that compliance with the obligations set out in DSA's Article 28 "shall not oblige providers of online platforms to process additional personal data in order to assess whether the recipient of the service is a minor," although the question has been raised how measures to protect minors can be effective if it is not known whether recipients are minors. The "clarification" in Article 28(3) could be seen as an expression of the data minimisation principle from the GDPR, establishing another link between the different instruments. Although each instrument has its own purpose, scope, and approach, bringing them together might raise issues in practice that regulators will need to shed light on.

4.4. Proposal for an AI Act: VSPs' Role as Users or Providers of AI Systems

Finally, the proposal for an AI Act, which was put forward by the European Commission in April 2021, is also relevant in the context of VSPs. This proposal aims to ensure a high level of protection of fundamental rights in general and a positive impact on the rights of certain groups—including children—through a risk-based approach and by imposing proportionate obligations on the different participants in the value chain (European Commission, 2021b). First, the AI Act introduces a definition of AI, namely software that is developed with machine learning, logic-, and knowledge-based, and or statistical approaches, including search and optimisation methods, and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with (European Commission, 2021b, Article 3[1] and Annex 1). As mentioned, VSPs rely heavily on AI and machine learning algorithms to deliver and moderate content and to personalise the user experience. This raises the question of whether VSPs using AI for content personalisation or moderation should take into account any new obligations with an impact on children's rights under the act.

If VSPs are deemed to meet the criteria for qualification as either providers or users of AI systems under the proposed AI Act, they would be required to comply with requirements commensurate with the level of risks

posed by their systems, ranging from minimal to unacceptable. Currently, there is no consensus on the extent to which algorithms employed by VSPs for content moderation and recommendation would fall within the scope of the proposal. Regarding children, the Commission's proposal prohibits "practices that exploit vulnerabilities of specific vulnerable groups such as children or persons with disabilities in order to materially distort their behaviour in a manner that is likely to cause them or another person psychological or physical harm," on the grounds that such systems contradict EU values, for example by violating fundamental rights (European Commission, 2021b). Children's rights advocates have argued that platforms' autoplay features which aim to increase users' engagement time and can be said to affect children's sleep and education—and ultimately their health and well-being—could fall under this prohibition (5 Rights Foundation, 2021). Research shows that, while autoplay features reduce children's autonomy and the likelihood that they will self-regulate their media consumption, leading to longer video-viewing times, they are particularly appealing to children (Hiniker et al., 2018). Other risks of recommender systems for children that have been identified are lack of diversity and exposure to harmful content (Gómez et al., 2021). However, the prohibition has also been criticised for its limitations by various stakeholders, who argue that the harms do not include harms to fundamental rights (EESC, 2021); psychological harm is difficult to prove or may accumulate over time (Veale & Borgesius, 2021), and there needs to be a malicious intent to cause harm (BEUC, 2021). These elements would arguably make the provision unenforceable in practice, and both the EP and the Council have proposed changes to it. Apart from the category of prohibited practices, others have argued that few recommender systems used by VSPs would qualify as high-risk AI systems under the Commission's proposal (Bogucki et al., 2022). However, the situation would be different if the changes to the high-risk categories as proposed by the EP are included in the final text, in particular, the inclusion of AI systems intended to be used in recommender systems of social media platforms that have been designated (under the DSA) as VLOPs (European Commission, 2021b, Annex III, para 1, °8 a b; EP, 2023). This would result in VSPs having to ensure compliance with the obligations for either "providers" of high-risk AI systems, which includes having to set up a risk management system and giving specific consideration to whether the system is likely to be accessed by or have an impact on children (European Commission, 2021b, Article 9[8]; European Commission, 2021b); or "users" (or in the EP amendments "deployers") of high-risk AI systems, which under the proposal entail using the system in conjunction with the providers' "instructions of use," ensuring data quality, and monitoring of the system (European Commission, 2021b, Article 29). Users would have no obligation to undertake any further measures to analyse the potential impact on fundamental rights, consult with affected groups, or take active steps to mitigate potential harm. In relation to this, both civil society actors and members of the EP have called for the inclusion of minimum obligations, including a requirement to conduct and publish fundamental rights impact assessments, and this is also proposed by the EP (European Commission, 2021b, Article 29a; EP, 2023). The Commission's proposal also sets up a framework for the creation of codes of conduct, encouraging providers of non-high-risk AI systems to voluntarily apply the mandatory requirements for high-risk AI systems (European Commission, 2021b, Article 69).

Regarding the implementation and supervision of the act, the proposal provides that there will be (one or more) national competent authorities and that a European AI Board will be established to deliver opinions and guidance on matters related to implementation. Academics have raised notable criticism regarding the proposed act, emphasising that its effective implementation will largely rely on self-assessment, considering the conformity assessment obligation imposed on providers of high-risk AI systems before placing their systems on the EU market. Moreover, consumer protection groups have expressed their concerns about the absence of individual enforcement rights in the proposal (BEUC, 2021). Unlike the GDPR, where robust rights are granted to individuals affected by unlawful data processing, the proposal fails to provide strong rights for individuals whose rights have been infringed.

5. A Children's Rights Proof EU Framework for Video-Sharing Platforms?

The recent shifts in audiovisual consumption—from television to on-demand services to VSPs—have been followed, albeit at a slower pace, by a remarkable shift in regulation in the EU. The approach of the EU legislator has swung from reliance on self-regulation to the establishment of a legal framework with a variety of strong obligations for VSPs (Lievens, 2016). In Section 4, we have mapped the patchwork of different instruments that are applicable to VSPs, with varying scopes, approaches, measures, and enforcement mechanisms. From a children's rights perspective, it is clear that the different instruments have quite some potential to better protect children's rights on VSPs. However, several important questions remain.

First, all instruments require VSPs as private companies to take measures that balance children's rights and interests against their own freedom to conduct business and commercial interests and the commercial interests and rights of their adult users and advertisers. Not only is this a difficult endeavour in itself, but as VSPs operate on the basis of advertising-funded business models, for them commercial interests might easily outweigh other interests, especially those of children (van der Hof et al., 2020). From a children's rights perspective, however, the best interests of the child must

be the primary consideration when undertaking this balancing exercise (UNCRC, 1989, Article 3; CFREU, 2012, Article 24). According to the UNCRC (2013), this means that when trying to resolve a conflict between the best interests of children and others, greater weight must be attached to what serves the child best. It can be noted that, even for those companies who want to put children's interests first, more guidance on how to conduct this balancing exercise would be welcome. The balancing exercise is strongly linked to the obligation that VSPs face across the various legislative instruments to conduct different types of assessments through which children's rights may be considered. These assessments—including the assessment of appropriate measures under AVMSD's Article 28b(3), DPIAs under the GDPR, systemic risk assessments under the DSA, and potentially a fundamental rights impact assessment under the proposed AI Act if amendments along these lines are supported—could be an important means of ensuring that risks to children's rights are identified and mitigated at an early stage and throughout the design and deployment of these platforms. At the same time, the implementation will vary depending on the legislative instrument in question and the specific obligations that it outlines, raising several questions. One important question concerns the methodologies for conducting the assessments. In that regard, methodologies that have been developed to conduct Children's Rights Impact Assessments could be helpful for companies (Mukherjee et al., 2021), in order to ensure that the impact on the full range of children's rights is considered. Children's Rights Impact Assessments methodologies also, crucially, require the involvement of children in the assessment, which is conducive to realising their right to be heard (UNCRC, 1989, Article 12). A further question relates to how the different enforcement bodies of the respective instruments will evaluate the assessments. In some member states, enforcement powers might be attributed to the same body—for instance, the Irish Media Commission will also function as the national Digital Service Coordinators (Department of Enterprise, Trade and Employment, 2023)—whereas in other member states they will be exercised by separate authorities. In the latter scenario, it might not only be fruitful but necessary to cooperate and exchange ideas and best practices.

More generally in this regard, merely establishing a framework for protecting children on VSPs is insufficient to ensure that their rights are effectively realised. It is essential to enforce these measures and responsibilities in practice. All of the legislative instruments analysed in this article establish enforcement mechanisms, consisting of a regulatory authority at the national level holding primary enforcement responsibilities and an entity at the EU level providing guidance and support (see Figure 1). In other words, this regulatory framework has led and will lead to the emergence of several new regulatory bodies or the expansion of the competences of existing bodies. It is vital that these national regulators have sufficient financial and human resources and the necessary powers to fulfil their tasks (ERGA, 2022). To ensure effective enforcement, the regulator(s) must actively monitor the VSPs' policies, practices, compliance (ERGA, 2019), and use of AI systems, rather than relying solely on user complaints. Again, in that respect, collaboration and coordination are essential to achieve the shared goal of protecting children on VSPs throughout the EU. Bodies such as ERGA, the EDPB, the European Board for Digital Services, and the European AI Board (see Figure 1) will also play a crucial role in ensuring coordination and providing guidance on cross-cutting issues. Such collaboration could be extended to other authorities, including consumer protection authorities. Although in this article we have focused on legislation specifically relevant to VSPs as hosting services, data controllers, and users/providers of AI, the broader consumer protection framework remains relevant to their activities as well.

Second, although legislative obligations are imposed on VSPs by means of the various instruments, they all still leave room for action by the companies themselves by emphasising co-regulatory measures, including codes of conduct which are set up by companies (or their associations) but need to be approved by supervisory bodies. Although codes of conduct have not yet been the holy grail under the GDPR (Vander Maelen, 2021), the creation of an Age-Appropriate Design Code under the DSA, as announced by the European Commission, might provide an opportunity to develop an evidence-based and concrete set of rules that platforms, including VSPs, can commit to. From a children's rights perspective, the process of creating such a code should involve children and give due weight to their views. Additionally, it should not solely focus on protection but should also consider positive measures that might benefit children. As the framework stands now, it is still very much focused on risk and harm, rather than benefits and opportunities.

Our research has attempted to map and unpack the different legislative obligations that VSPs will need to comply with when offering their services. Currently, VSPs might still feel as if they have to find their way through a maze of different legislative instruments in order to respect children's rights in their services. From a practical perspective, they will need to adopt a streamlined approach to putting in place measures that benefit children, and coordinate and review implementation regularly. Investing in staff with children's rights expertise might be valuable in that regard. Consulting children in this process might be challenging but is essential. The same is true for regulators. Whereas we have seen in the past that children are sometimes not considered a priority in enforcement, having specific staff and procedures in place aiming to coordinate actions that affect children will inevitably become increasingly important, considering the growing complexity of the legal landscape. If both VSPs and regulators take up their responsibilities, over time the EU framework could hopefully come to be considered a jigsaw rather than a maze: A jigsaw with

smoothly aligned obligations, enforcement, and cooperation between authorities which leads to the actual realisation of children's rights in the digital environment.

6. Conclusion

Children have important rights to have access to diverse and high-quality information and to be protected from harmful content, including on VSPs. The rising prominence of these platforms within the audiovisual landscape has prompted significant changes in the EU regulatory framework. Providers of VSPs are now bound by substantial legal obligations that have the potential to enhance the protection of children's rights on these platforms. However, the effectiveness of these obligations will rely on their actual implementation and enforcement. It will be crucial for the various regulatory authorities involved to engage in coordination and collaboration to ensure cohesive implementation in the EU member states. Additionally, further research is needed to explore the interplay, potential synergies, and gaps between these various legal instruments, to maximise the realisation of children's rights in the digital environment. Whereas this article has solely focused on VSPs, there are other platforms that children use extensively—such as gaming platforms and social media networks—for which a similar analysis would be equally fruitful. Moreover, our study focused on a specific selection of legislative instruments. Future research could also investigate the interplay between these instruments and the consumer protection framework, which could also prove useful in addressing certain risks that children encounter on platforms, such as the deployment of dark patterns that may encourage overspending or handing over more personal data than intended.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Conceptualising Liveness and Visibility in the News Repertoires of Adolescents in a Polymedia Environment

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Abstract
Based on the assumptions that digital media are used as integrated structures or "polymedia repertoires" and that media practices cannot be treated as unrelated practices performed on distinct platforms, the present study examined the digital sociability of young people and their media prosumption in a polymedia environment. Data were collected from group interviews of 67 12- to 19-year-olds and 59 personal visualised media sketches. The study focused on teenage engagement with news as part of their media repertoires and their understanding of what news is in the context of general platform sociability conditions, including a state of permanent connectedness and constant anticipation of something new. Their sociability based on permanent activity and affective engagement was enabled and framed by the algorithmically produced regime of visibility and the promise of liveness. The findings indicated that an important consequence of the increased fragmentation of activities is the naturalisation of the performance of multiple media practices at the same time. Although the complexity of such performance, even among teenagers, revealed socially distinctive categories, clear hierarchies between types of practices—such as watching news or pop culture, online shopping and doing homework—and the cultural differentiation of the dominant contexts for these practices—such as school and leisure—were eroded. The contexts of school, home, and leisure thus collapse, and the definition of important news journalism becomes highly unstable, with the distinction between pop and politics generally disintegrating.

Keywords
adolescents; social media; digital visibility; liveness; news repertoires; media engagement; media repertoires; polymedia; permanently online

Issue
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1. Introduction

The concept of media repertoires—specifically, news repertoires—has been at the forefront of research on the choices of audiences in complex media environments in the last 15 years (Edgerly et al., 2018; Edgerly & Vraga, 2020; Peters et al., 2022; Wimmer & Wurm, 2021). Cross-sectional media research has gained new momentum also due to Couldry and Hepp's (2017) thesis on deep mediatization, and this research has further popularised media repertoires, which highlight the importance of the interconnected configuration of media (Hasebrink & Domeyer, 2012). The situation for young audiences is complicated by the "colonization of media contexts" (Naderer et al., 2021, p. iii) by advertisers who rapidly find their way into emerging media environments that are popular among children and adolescents. More importantly, resisting permanent social media engagement, which has become an important factor in news consumption of this age group, represents a practice of distinction and an ideological statement. However, Bucher (2020) argued that this choice is no longer a

viable option because our ontological condition implies a techno-social existence, and even absence provides platform algorithms with important information about the person abstaining. Moreover, since the logics of datafication and predictive analytics make it difficult to opt out of digital platforms and services, "refusing to connect or temporarily opt[ing] out is a form of connection too" (Bucher, 2020, pp. 610–611).

Following the media repertoire approach, the present study built upon the assumptions that media practices cannot be treated as distinct or unrelated and that digital media are used as integrated structures or polymedia repertoires (Tagg & Lyons, 2021). However, the media repertoires approach is often limited by its descriptiveness (e.g., Frey & Friemel, 2023) and lack of conceptual breakthroughs, which would engage closely with the temporal economy in adolescents' daily lives, which have been colonised by platforms, and the ubiquitous nature and consequences of digital sociality. This study argued that, nowadays, teenagers' news consumption is framed by the regime of visibility and the feeling of liveness that govern social media platforms.

In the present study, news was defined in terms of the products of journalism based on journalistic news values. Genres produced by the news industry are treated as distinct compared to the novelty of the world of popular culture, lifestyle, and consumer topics. One of the long-established distinctions of journalism practices and genres is between soft news and personalised human-interest stories, which have very limited or no public significance and are valued based on interestingness, and hard news, which has high degrees of newsworthiness and public significance. This distinction is closely related to class differences and hierarchical cultural distinctions between elite and popular/folk culture and between informed citizenship and apolitical consumerism. To highlight the audience's agency in defining news, Edgerly and Vraga (2020, p. 420) introduced the concept of news-ness, which they defined as "the extent to which audiences characterize a specific piece of media as news."

The study addressed the following questions:

RQ1: What types of news genres and media repertoires constitute teenagers' diverse configurations of media choices?

RQ2: How the regime of visibility, which encourages instability and feelings of eventfulness and ephemerality, dominates teenage media cultures?

RQ3: What cultural distinctions exist in the generational culture and cut across the generalised platform sociability of teenagers?

To answer these questions, data were analysed from online group interviews of 67 Slovene teenagers, which were conducted during the final phase of the Covid-19 lockdown, and personal visualised media sketches produced by the interviewees after the interviews.

We aimed to identify the news repertoires of young audiences and the meaning of news in the context of the generalised colonisation of their sociability by digital platforms and their regime of visibility. The participants were asked about their news consumption and intention to expose themselves to news, which was understood in terms of newsworthiness and the social significance applied in news journalism. We are aware that news journalism is not a static category and that the news values and boundaries of journalism have long been challenged and never been unproblematic. In particular, we recognise the recent "dislocation of news journalism" (Ekström & Westlund, 2019), i.e., the notion that journalistic news values and formats have changed due to online platforms and their algorithmic curatorial logic. As Wunderlich et al. (2022) have shown, in today's hybrid information environment, the boundaries between what constitutes journalism and what does not are blurred, yet demarcations emerge along the lines of how (young) people use and understand journalistic and non-journalistic sources and the functions associated with them.

In our study, the group interviews and personal visualised media sketches were analysed to explore the participants' conceptualisation of news and their news repertoires derived from intentional news content searches as well as unintended, unplanned exposure to news or news programmes during habitual digital media navigation or content that was accidentally seen and/or heard on a television in a family living room or somewhere else. The study participants, who were between 12 and 19 years old, were considered part of a specific generational cultural group. According to Corsten (1999), life periods are marked by age-based cultural definitions, conventions, and expectations. In the context of an institutionalised, standardised modern life course, adolescence—as a socially constructed period—represents an important phase for the crystallisation of self-thematization. In addition, adolescents can represent niche markets for cultural production and, as such, it is not just an age cohort with a specific generational habitus or subjectivity. It is also commercially defined, labelled, and narratively constructed, implying a distinctive global lifestyle group that surpasses class differences, e.g., the sixties generation, Generation Z.

A general assumption of generational analysis within media studies (cf. Fortunati et al., 2019) is that media experience produces media gaps that divide people. Technical and symbolic media products are part of the collective memory of generations as well as personal memories of experiences from childhood and adolescence. Bolin (2017) argued that media technologies and the relationship between the social and technological framed by these media, which are encountered during formative years, shape all future media experiences and the cultural memory of a generation. A key aspect of the

formation of generational cultural experience is "fresh contact" with a novelty in the form of a new medium and way of using media that involves new grammar that must be learned, embodied, and naturalised. Nowadays, adolescence is influenced by fresh contact with digital social platforms, which significantly contribute to the formation of the generation as a cultural group with a specific technological habitus, as the digital literacy acquired later in life cannot replace the primary contact and habituation of childhood and adolescence. Other aspects of differentiation, such as class and gender distinctions, cut across habitus and generationally defined media repertoires and significantly diminish the effect of generational distinctions as a culturally distinct grouping beyond gender, class, or other markers of differentiation.

2. Visibility and Liveness in Platform Sociability

To understand young audiences, the technological specificity and uses of a medium are not as important as the conceptualisation of digital media as an integrated communicative environment. A polymedia environment is formed when certain conditions, such as accessibility, affordability, and digital literacy, are met. We drew upon the concept of polymedia (Madianou & Miller, 2013), which represents an attempt to name an integrated media structure in which each medium is defined and has meaning only in relation to other media and in which media selection is a social act that involves normativity, definitions of the situation, and social conventions. In this context, media encourage certain genre-based practices of use and production in relation to each other. Polymedia, as an integrated structure of capabilities, is therefore not only the naming of a media environment but also the use of these capabilities to manage relationships and emotions.

The regime of visibility refers to the technological affordances of platform software and the business model of social media, which encourages constant work to retain visibility and avoid marginality in the world of online sociality. To be visible and avoid digital death requires constant presence on platforms and permanent performance and self-presentation with the highly standardised phatic communication tools offered by the platform, such as likes, dislikes, comments, and sharing (Bucher, 2021). Users are encouraged to be constantly active in this form of programmed sociality and are therefore always in a state of distracted attention. One aspect of the regime of visibility of social media and media acceleration in general is a state characterised by a continuous automated stream of updates, constant connectedness, restlessness, and anticipation of something new integrated into habitual digital media navigation. In her thematization of sociability, Bucher (2012, 2020) explained the algorithmically produced regime of visibility that is characteristic of social media. The regime of self-presentation and interaction is highly standardised, and platform software never leaves users alone and serves as an active actor by encouraging the constant staging of friendship. Constant activity is necessary for visibility due to the nature of the algorithm. Users are constantly encouraged to be active in this programmed society and, therefore, constantly online.

Ellison and Boyd (2018) noted that social media is not an entity or fact but an action and practice in which every click, like, share, and post creates a relationship. Its regime of visibility is based on the ever-looming threat of invisibility. According to Bucher (2012, p. 1175), "participatory subjectivity" in digital culture is not constituted through the all-controlling device of visibility, as Foucault assumed, but through the constant danger of disappearance, invisibility, marginalisation, and expulsion from the world of online sociality. Visibility and the recognition of others depend on the attention of the audience, which is why there is extreme overproduction and constant updating of cultural formats by a huge number of users. Visibility leads to social recognition, while invisibility means digital death.

The perception of things happening "live" creates feelings of eventfulness and ephemerality and a "constant search for the next affective hit" (Markham, 2020, p. 15). Liveness should be understood as an assertion of the media as well as the experience of the audience. Scannell (2014) is the protagonist of the ontological and phenomenological analysis of liveness as an important televisual formal tool for claiming authenticity and truthfulness. The experience of liveness "instils the sense that live media are where real things happen" (Markham, 2020, p. 94) and provides a feeling of access to reality and participation. Regarding the liveness of social media and liveness as the predominant pattern of engagement with digital media, the imperative of visibility has become the decisive factor guiding adolescents' news consumption.

Algorithmic architecture organises social practices around the tendency to be visible and noticed, which requires constant work, leaves little room for practices beyond social platforms and influences news consumption practices and, more importantly, the perception of news. Social media streams tend to be organised in reverse chronological order and constantly updated, which creates a spatio-temporality of immediacy and privileges real-time engagement (Lupinacci, 2021, p. 277). There might be important happenings within this steady, ongoing flow, and the lack of anticipation of exactly when they will take place is unsettling. The promise of liveness underlies social media's claims and functionalities more generally. Notably, social platforms promote a sense of instantaneity, co-presence, ephemerality, and authenticity to obtain the data necessary for their operation (Lupinacci, 2021, p. 278). However, the following question remains: How do the new circumstances of visibility and liveness in a polymedia environment and platform sociability affect the news repertoires of young audiences who primarily have fresh contact with news distribution patterns through the norms of social media culture?

3. Methodology and Sample

Media repertoires do not espouse an a priori dimension of media uses as the only truth. On the contrary, a range of information from behavioural interactions to episodic monitoring of media can serve as indicators of users' media engagement. Examples include the frequency and timing of use, preferences regarding a particular type of media, or the degree to which media are integrated into everyday routines. Media repertoires are usually identified in two steps: the analysis of in-depth interviews; and the qualitative or quantitative analysis of media diaries, sketches, or similar variations of methods (Hasebrink & Domeyer, 2012; Vozab, 2019). In a Danish study, Schrøder (2017) identified six news repertoire categories—ranging from online quality omnivores to print addicts—that adhered to the relevance of the types of "market viability" of news providers. Edgerly (2015) identified six news repertoires among American audiences: news avoiders, internet users, television and press audiences, liberal online audiences, conservative audiences, and news omnivores. Oblak Črnič and Luthar (2017) showed that media consumption in Slovenia is structured into typical media repertoires, such as integrators, digital natives, television viewers, and newspaper readers, which represent socio-cultural formations and class-differentiated discursive cultures.

Although most of the aforementioned studies focused on adult audiences, some recent studies have empirically examined the media consumption of youth (Boczkowski et al., 2017; Diehl et al., 2018; Edgerly & Vraga, 2020; Peters et al., 2022; Wimmer & Wurm, 2021). In Oblak Črnič et al.'s (2022) methodological review of such studies, the predominant data collection methods were semi-structured individual and group interviews. Some studies used participant workshops in which group discussions also took place. At the individual level, mapping media repertoires and egocentric mapping were the most frequently used methods. Digital media use was sometimes observed, and media diaries complemented other data and served as a starting point for interviews.

The combination of constant attention, participatory design, and changing personal media devices in the present study context required the use of innovative methodological approaches to examine the news repertoires of youth. Due to the scarcity of research on Slovene adolescents' media practices, an in-depth qualitative study was conducted to obtain information on the diverse practices and patterns of use that would suggest stable media repertoires within the social figurations that foster or condition these permanencies. The research design included two complementary methods: group interviews and personal visualised media sketches.

A comprehensive semi-structured questionnaire was used to obtain detailed information about how, where, and what kind of media participants consumed, how they accessed media technologies, and what media practices prevailed. We chose the group interviews to capture the individual specificities of adolescents and possible collective outliers within a distinctive group of generational media culture. While the group interviews allowed for in-depth conversations within carefully selected sub-groups, personal visualised media sketches served to capture immediate, subjective choices about media preferences. Media sketches were used as a replacement for media diaries, which are less effective and less reliable for children and young people (Kirsh, 2010). As the data collection took place in the last phase of the Covid-19 pandemic, the immediate recall of media preferences was more relevant than media diary data over a longer period. As part of the interview, a short online survey was administered at the very end to gather key demographic data. Each method was tested on a small pilot sample to eliminate errors such as repetition of questions, unclear instructions, and survey length.

The sampling was carried out according to the type of school. The diversity of the sample was ensured by sampling from different primary and secondary school programmes, followed by the variety of school locations. Between March and June 2021, we conducted 27 group interviews with 67 participants aged 12–19 years. In addition to 14 participants (50% from primary and 50% from secondary school) from pilot group interviews, the group interviews included 21 primary and 32 secondary school pupils. A total of 59 personal visualised media sketches submitted by 24 primary, 15 secondary, and 20 grammar school pupils were collected.

Special consideration was given to the selection of a remote conversation tool. Zoom was chosen because it was already familiar to the participants and did not require additional equipment to be installed on their devices. Most participants took part in the conversations from home, and almost all of them utilised video connections. The group interviews were carefully structured, and the moderators explained the confidentiality and purpose of the research. Interviews were conducted in pairs or groups of three or four; in very rare cases, only one person was interviewed. On average, the interviews were 1.5 hours long; the shortest was 44 minutes, while the longest was more than two hours. In accordance with qualitative research principles, interviews were conducted until saturation, i.e., when patterns of choice or media practices began to repeat themselves.

To deeply assess practices and perceptions related to approaching the news, the group interviews were qualitatively analysed, enabling the evaluation of the formation of separate media cultures in terms of concrete news experiences among the youth. The personal visualised media sketches complemented the group-level interview data with individual-level information. This technique was inspired by Hasebrink and Hepp (2017) and Schrøder's (2017) discussions of new approaches for studying media use in mediated everyday life. Hasebrink and Domeyer (2012) distributed cards on which the interviewers wrote down the most frequently mentioned

media in the interview so that they could be ranked in order of importance; this method was not possible for our remote group interviews. Instead, in accordance with Livingstone and Sefton-Green (2016), at the end of each interview, the participants followed pre-prepared instructions and drew a thought pattern in which they wrote down, in order, the main media, devices or platforms they: (a) valued most, (b) used to stay informed, (c) used to stay in touch, (d) used to relax and have fun, and (e) used for creativity or to prove themselves. Individual photographs of the sketches were shared via Zoom or email. On average, the personal media sketches took five to eight minutes to complete, and the accompanying online survey for collecting demographic data took six to eight minutes.

Two approaches are usually used to explore preferences in media sketches. Hasebrink and Domeyer (2012) recommended quantification, in which all mentions and rankings within a category are converted into numerical values. For example, concrete references in qualitative records, e.g., telephone, Instagram, and local TV, are numbered and translated into quantitative data. In the second step, different analysis techniques, including ranking devices in combination with other variables and qualitatively assessing the common characteristics of typologies, are possible.

In the present study, all responses from the personal visualised media sketches in the form of words (e.g., phone, Snapchat, Google, Zoom, etc.) were converted into numerical values, creating a database that allowed for the identification of (a) the number of frequencies for each media/device within the five categories, and (b) the ranking of the individual media/devices within each category. A frequency table was created to provide a generalised list of participants' media preferences for all five categories. The top preferences in each category were selected using a simple criterion: a device, medium, or app that appeared at least five times. More sophisticated data analysis was conducted to see how certain devices and applications were grouped into broader categories of news media repertoires. In this step, a hierarchical classification method provided a framework for identifying the cross-sectional regime of news media repertoires across a larger list of separated media.

4. Results

4.1. Almost No News Beyond Platforms: The Personal Visualised Media Sketches Perspective

In the category of preferred media for news, information, and schoolwork, participants mentioned 29 labels in their personal visualised media sketches. The preferred and more common imaginary of popular media news choices within their repertoire consisted of a diverse combination of distance learning tools, social media platforms, online portals, and local and national TV. Some labels were single choices, such as Viber, Twitter, Spotify, and radio. Others were mentioned more often, including Instagram (29%), Google (29%), Snapchat (24%), phone (22%), and Discord (19%). Less common choices were computer (17%), YouTube (15%), MS Teams (12%), TV and TV news (12%), Zoom (10%), and the 24ur.com online news portal (8%).

These results are in line with the cultural position of teenagers as emerging audiences in a phase of constantly changing media choices. However, it remains unclear how these choices are combined internally and what kinds of separate configurations of media use exist among teenagers. As shown in Table 1, each news repertoire category had a similar number of participants. The first two included 13 students each (22%), the third and fifth had 11 each (19%), and the fourth had 10 (17%). One group belonged to a single "outlying participant" whose choices were narrowly specific, mostly off-topic, and primarily related to a set of niche tools for online learning, e.g., access to a dictionary, a translator, or a library. After careful consideration, this student was excluded from further interpretations of the data.

Labels were created based on the most frequent media choices in each category to demonstrate the internal combination of elements expressed in the media sketches. Initially, the main technical devices, platforms, concrete media, and news programmes and the internal logic of their potential connections were interpreted. Then, the dominant media forms within a category were analysed in relation to their distinctive cultural practices of viewing, listening, reading, or browsing. In addition, the participants' incidental and intentional ways of finding the news were compared. Figure 1 shows the most

Table 1. Overview of news media repertoire categories.

Category	Technical access	News access	*N*	%
Short video information stumblers	Converged	Incidental	13	22
Digital traditionalists	Mobile	Incidental	13	22
Commercial visual culture enthusiasts	No relevance	Incidental	11	18.6
TV viewers and readers	Mobile	Intentional	10	16.9
Multitaskers for school	No relevance	Intentional	11	18.6
Total			58	100

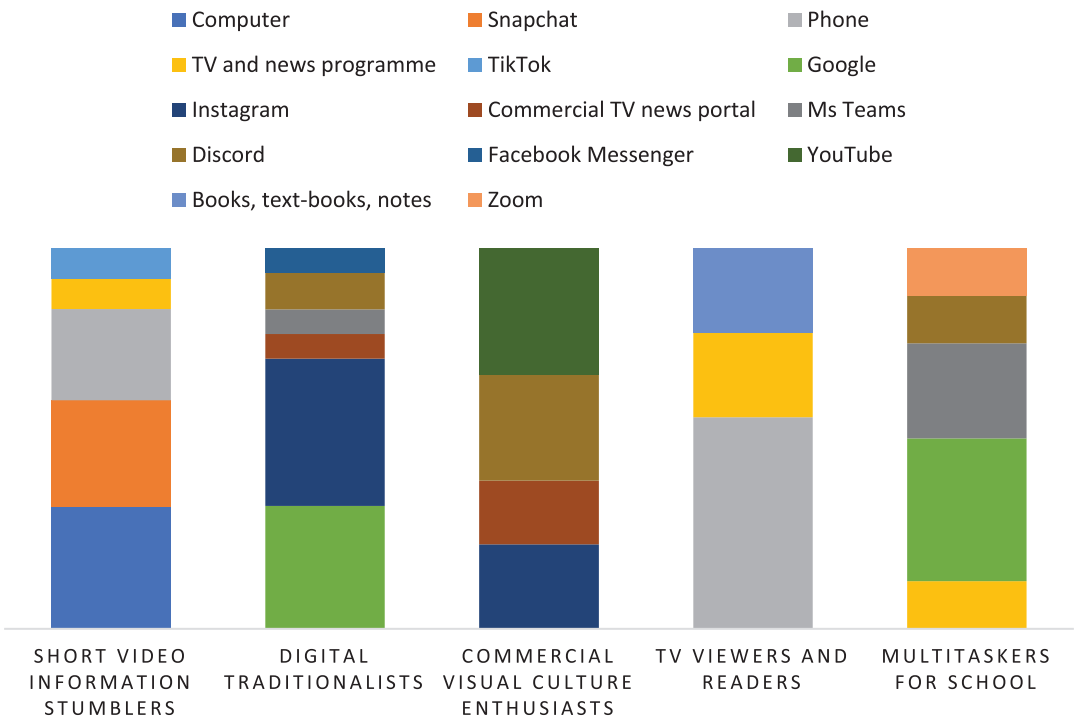

Figure 1. The most prominent devices, platforms, and content choices in each category.

prominent devices, platforms, and content choices in each news repertoire category.

Boczkowski et al. (2017) argued that people devote less time to news when they come across it incidentally on social media than when they find it intentionally in newspapers or on television. Gil de Zúñiga et al. (2017) found that people who perceive that "news finds them" on social media are more likely to use social media than traditional news sources. Moreover, following digital and social media news may increase the diversity of news sources for youth, leading to a more omnivorous news consumption style (Geers, 2020). In our study, the repertoires category Short Video Information Stumblers primarily accessed news via computer or phone and preferred newer platforms, such as Snapchat and TikTok, which involved short video genres and constant act-react social activity. Their technical access was convergent, and their new access was mainly incidental. The diverse group of Digital Traditionalists mostly accessed news incidentally via mobile devices and primarily used Instagram, Google, and Snapchat. Commercial Visual Culture Enthusiasts strongly preferred YouTube and Instagram and mainly communicated on Discord rather than Snapchat. They were also more dependent on commercial TV news platforms, although the technical devices for access were not relevant at all. TV Viewers and Readers had a much narrower repertoire, accessing news via TV and news programmes, books, and textbooks and mainly using their mobile phones. As such, they were likely to access news deliberately and much more intentionally than the previous groups. Multitaskers for School related their news consumption much more intentionally to traditional TV news portals and used Google and distance learning online tools, such as MS Teams, Zoom, and Discord, for school activities and tasks.

With the only exception of television, the traditional media—such as print and radio—were generally not brought up in personal media sketches. Therefore, unlike most previous studies, the repertoires were not balanced between traditional and new media (e.g., Nossek & Adoni, 2017; Sormanen et al., 2022). The repertoires, especially the first three, were strongly tied to algorithmic media and governed by the principle of algorithmic visibility. The first three news repertoires were primarily associated with media platforms that push news to audiences, such as Instagram, YouTube, and Snapchat. According to their algorithmic logic, these news repertoires were not a deliberate selection but were shaped by chance. The last two repertoires combined a niche selection of media choices and news practices that required pull access to events and information. These repertoires were formed through more deliberate, conscious choices.

For this reason, we looked at who belonged to each category to assess possible social differentiation within each relatively homogeneous group of teens. The Short Video Information Stumblers and Digital Traditionalists were much more diverse in terms of age, gender, and type of schooling; however, no distinct characteristics emerged. Each group had a mixed composition of boys and girls aged 12–19 years old attending primary and secondary schools. The narrower social group was the Commercial and Visual Culture Enthusiasts, who were surprisingly all boys in primary or secondary school.

TV Viewers and Readers were mainly boys from more diverse educational backgrounds, and their intentionally chosen news channels were the narrowest of all. The Multitaskers for School were mainly older girls in grammar school with a focus on continuing to study at the university. Their ambition to succeed at school was here very distinct and reflected in their deliberate choice of niche media channels for news consumption.

5. The Imperative of Visibility, Simulating Liveness, and Changing Perception of the News

These results point to the conclusion that clear hierarchies between types of practices, such as watching news or pop culture, online shopping, and doing homework, and the cultural differentiation of the dominant contexts for these practices, such as school and leisure, were eroded. Regarding seeking news, some participants illustrated the dominant digital sociability as follows:

> I'm on [the] phone the whole day. I'm just kind of evenly writing something with some friends via Instagram as well as Snapchat. Then, I also listen to a lot of music on YouTube, if that also counts as a medium. I don't even read magazines, except for [during] school, when we have to write articles in English. Actually, I don't even watch these TV channels. I read the news on the internet, on my phone and on my computer. (Female, 15, elementary school)

> I spend a lot of time on….TikTok, Instagram [and] YouTube. When some people publish what is happening in the world, there is where I find out. I find out a lot from my parents. They tell me [things] if they are talking about what is going on, or I can hear [them] talking to each other. Well, I hear, I catch the conversation. I also learn more from other people than from the web because I don't use…those news websites. (Male, 12, elementary school)

Their constant (day-long) access to social media platforms was a key factor guiding the participants' news consumption. The continuous flow of asynchronous interaction helps maintain a "feeling of permanent connection, an impression that the link can be activated at any time and that one can thus experience the other's engagement in the relationship at any time" (Licoppe, 2004, p. 141). In this way, a permanent connection is integrated into everyday life to the point that it is completely normalised. More importantly, constant activity is necessary for visibility due to the nature of the algorithm and being visible means maintaining a constant presence through the various means offered by social media platform architecture. This imperative in turn becomes one of the most important factors guiding the news consumption of adolescents as it determines through which platform choices are news repertoires constructed and how internal boundaries of news repertoires are established.

On the other hand, and in line with other studies (Edgerly et al., 2018; Hartley, 2018; Peters et al., 2022), the results indicate a central role the family plays in teens knowledgeability about public affairs and their potentially conscious news searching as the consequence of discussions and news consumption at home. Some participants also indicated that television still plays or used to play an important role as a news source for young people; however, a shift to online platforms was also evident. Although we conducted our research during the last phase of Covid-19 in Slovenia when milder restrictions were in place, it was evident from the interviews that online schooling, quarantines, and other Covid-19 restrictions in the prior two years were among the factors that shaped participants' television news consumption and online behaviour. In particular, participants frequently mentioned obtaining information on the latest number of Covid-19 cases as one reason they watched television news. Besides the imperative of visibility, Covid-19 could thus be one of the reasons for the imbalance between the traditional and new media repertoires:

> I think that I somehow have periods when I am interested and look. I watched CNN one time. But I have the periods when I say, "Don't worry, things are happening even without me." Then, I learn the most from Instagram and from my friends at school. I also watched this online site from national radio and television….But now, I'm in a period where I don't watch. (Male, 17, grammar school)

> I'm definitely on Instagram; everything I see from current events is on Instagram. Or if one of my friends tells me, I'd rather check that information [through], for example, some app, 24ur.com or Slovenia 1. But something like this. On the other hand, it's definitely television. Broadcast news, in principle, I don't watch regularly. But it often happens that I'm just nearby when they are on, so also from there. (Female, 16, grammar school)

Despite platform and content selection differences, all participants used smartphones as their predominant means of communicating and approaching the news. Moreover, the participants kept their smartphones nearby 24 hours a day. This naturalisation of "cultural connectivity" creates an impression that gathering on social platforms is a natural form of sociality and expressive collectivity.

Perhaps the most important insights from the interviews were indications of changing perceptions of news and what counts as news. For example, internet memes and TikTok videos were often treated not only as new forms of news but also as dominant sources. In line with Cotter and Thorson (2022), this information environment could be described as "information cacophony" which is characterized "by the jarring noise of many, discordant

voices offering up information, under conditions of low media trust and an absence of a pre-defined epistemic hierarchy of sources" (Cotter & Thorson, 2022, p. 629):

> For news about Slovenia, I look at the website 24ur.com….For the world, you often know everything from these memes. (Male, 17, grammar school)

> For Slovenia, I learn more from my parents than from the reports….Well, grandmothers and grandfathers also….I know more about this [the world] from these social networks. For example, you can find a lot of this on TikTok and on Instagram….Otherwise…Well, nothing else. (Female, 16, grammar school)

> I haven't been watching a lot of news lately, as I've honestly gotten a little tired of it….Mostly, I hear from my classmates that if something like this is happening, it's more for Slovenia, but if it's global or on Instagram or basically I've already learned a lot about it on TikTok. But I don't know when these American elections became relevant….Black Lives Matter is mostly on TikTok. But, on Instagram, I learned more about it. (Female, 14, elementary school)

Lupinacci (2021, p. 277) emphasised a reverse chronological organisation of social media streams as the key characteristic of their spatio-temporality that creates real-time engagement. As one interviewee stated: "After checking all the notifications, I always go through all the stories from my friends because it annoys me if there are some unwatched stories. Sometimes, I unfollow some people, so I don't have to check so many stories (Female, 16, secondary school).

6. Discussion

The proposed focus on the notions of visibility and liveness in the future studies of news repertoires has several theoretical and practical implications. With the incorporation of additional conceptual layers, the descriptiveness of media repertories approach can be avoided on the level of theory. A range of new forms aiming to simulate liveness have emerged on social media, which contributes to the perception of the social centrality of these platforms. It is precisely this liveness that defines digital media as socially central in spatial, temporal, and social terms, which contributes to the impulsivity of constant checking. Such forms of liveness are no longer primarily concerned with traditional media as the central referential event; "what's new" is becoming more interpersonal (Couldry, 2012, p. 23).

According to van Es (2017, pp. 161–162), these forms have established a range of new interactions between real-time connectivity and sociality, and they have established new meanings and values for live, which "will remain a dynamic category and will be relied upon to evaluate the quality of communications. It will continue to be associated with a paradox and the tensions that emerge from it." According to Beer (2013), social platforms pulse with anticipation and the expectation that something new and worthy of attention can happen at any moment, contributing to a state of constant suspense. The polymedia environment of social media thus characterises a peculiar state of the fear of missing something that might happen (see also Lupinacci, 2021, p. 281), which supports the perception that constant connection is a duty and a responsibility to others.

On a more theoretical level, our analysis suggested that liveness is in this respect closely connected to the notion of visibility and of the constant struggle for connectivity and being up to date. The simulation of liveness and algorithmic visibility importantly influence the selection and perception of news of adolescents, and further studies are needed to explore the operation of this process in detail. Although some recent studies (Schwaiger et al., 2022) have shown that low use of traditional media does not necessarily go hand in hand with news avoidance or that journalistic news is no longer considered relevant, the present study has argued that the definition of news becomes highly unstable among teenage media users, with the distinction between pop and politics generally disintegrating.

The recent dislocation of news journalism in digital culture also raises the question of the class and the cultural stratification of the teenage notion of news and their media and news practices. It further raises the question of the wider social and political consequences of the status of online platforms as a central place of sociability and, consequently, for the political subjectification of this generation in the context of consumerist discourse and its politics. Do a general eventfulness and specific regime of visibility, characteristic of social media, have socially stratified consequences for the teenage concept of news-ness and for their media practices? Or does it give rise to the dissolution of cultural capital? Our findings support the insight that we are not just witnessing radical changes in the structures of repertoires, but perhaps even more radical changes related to the perception of the news as well. Consequently, the results of our study have important implications also for the question of political participation, as the studies have shown a clear connection between news repertoires and political participation (Geers & Vliegenthart, 2021).

In the context of our study, we argue that the competences of teenagers to differentiate between pop news and the news that can be considered socially significant, represent one of the major aspects of the cultural and class differentiation among teenagers. Therefore, such findings also bring some practical implications, especially in relation to the educational practices and the perceived importance of digital competences for the youth. The findings that online platforms do not introduce new regimes of social boundaries but enhance the existing distinctions in cultural practices should be considered also in educational policies, especially on the level of the

curriculum for digital media education. Here the significance of certain forms of cultural capital that mark recent social boundaries and digital divides within the generation should be acknowledged.

7. Conclusion

Couldry and van Dijck (2015, p. 3) noted that the business model of platforms takes advantage of the large number of online interactions that represent social life today and, through the measurement of each activity, harnesses this life to produce economic value so that the naturalised production of personal data in daily interactions. This role of platforms is not the result of technological capabilities per se but rather the joint action of technological capabilities and their commodification in the form of social platforms, i.e., the economic, social, and political use of technological capabilities. One of the by-products of social platforms that radically reorganise everyday interaction is the construction of a "myth of us all" (Couldry, 2015). This legitimises the ideology of platforms, which are offered as a natural space of sociality where we meet. Platforms took over this role from traditional media with the help of new rituals of use that actualised the supposed natural location of media in the cultural centre of society through a centralised system of cultural production. If our sociality is increasingly intertwined with the logic of social media, then the examination of the imminent temporalities of the platforms contributes to the understanding of our very conditions of existence nowadays (Lupinacci, 2022, p. 17).

This study was not without its limitations, however. First, the group interviews were conducted online because of the restrictions related to the Covid-19 pandemic. Second, because of the methodological design of our study and the size of the sample, the results cannot be generalised to young people in general. Nevertheless, Edgerly et al. (2018) have contended that basic orientations toward the news are fixed relatively early in one's life, which raises the importance of studying these processes among children and teens, and Swart (2021) highlighted the need for understanding the algorithmic curation in the news selection processes of young people. The present study argued that not only additional empirical examinations and methodological innovations are needed, but also a theoretical reconceptualization of the main approaches.

In this respect, the study demonstrated that the notions of liveness and algorithmic visibility play an important role in the news repertoires of adolescents and should inform future studies that aim to tackle these questions further. As van Es (2017, p. 160) emphasised, analysing a constellation of liveness helps to raise important questions and insights into how and at what cost people engage with others and media institutions. More importantly, deconstructing liveness can enable a rich consideration of how symbolic forms are produced and distributed, disclosing which values are bestowed upon specific forms of social interaction and production (van Es, 2017, p. 160). On the other hand, it also allows us to evaluate how this change is connected with the "habitus of the new" and with the class connection related to the changed rules of habitus (Papacharissi & Easton, 2013, p. 20).

Such shifts inevitably lead to further challenges that transcend the media studies research. Generational and educational studies are facing serious changes in perspective, as the complex boundaries between institutional domains have collapsed not only because of the new rules of digital platforms but also as a result of the social closure during the epidemic crisis. What is generally needed in youth or generational studies is therefore not just a revival of the "radical contextualisation" that made its wave in media studies already in the late 1980s, but a more thorough understanding of the social and cultural layers that connect (and also disconnect) the already eroded context of everyday life. This collapse of the contexts of school, home, work, and leisure influenced recent generations, and the question that remains is what social, political, and cultural implications this erosion will have in the near future.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Emotional Resonance and Identity Recognition in Chinese Late Adolescent Digital Music Consumption

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Abstract
This study conducts qualitative research on late adolescent digital music users aged 17–19 to explore their emotional resonance and identities in digital music consumption. The findings indicate that late adolescents are highly dependent on music, with it playing a significant role in their lives, particularly in meeting emotional needs and shaping identities. Late-adolescent digital music users seek to assert themselves through unique and unconventional music tastes. The study also uncovers the coexistence of personalization and socialization in their music-listening behaviors, dividing them into "music-experienced" and "music-socialized" groups. Regarding emotional motivation, the music-experienced group listens to music for personal empathy, while the music-socialized group seeks interpersonal emotional resonance through music-based social interaction. From a practical perspective, this study suggests that the digital music industry should focus on the emotional value generated by music and balance users' personalization and socialization needs.

Keywords
adolescents; digital music; digital music platforms; emotional resonance; music consumption; music listeners; music preference; self-identity

Issue
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1. Introduction

According to the *51st Statistical Report on China's Internet Development*, the number of digital music users in China reached 684 million by December 2022, accounting for 64.1% of total internet users (China Internet Network Information Center, 2023), making digital music consumption a significant component of internet use in China. In terms of digital music consumption, post-00s (people who were born between 2000 and 2009) and post-10s (people who were born between 2010 and 2019) in China accounted for 69.6% of digital music consumption growth in 2022, and this group has become the main growth group for digital music consumption (Fastdata, 2023). Chinese post-00s and post-10s are typical digital natives who, having grown up with the development of the internet and experienced the rapid innovation of digital media, have become important digital entertainment consumers (Batat, 2021).

As the digital music industry flourishes, its applications have optimized the functions and interfaces to satisfy users' needs and tend to be intelligent, interactive, socialized, and multimedia. Regarding intelligent features, digital music platforms use big data, AI, and machine learning to analyze users' preferences and behaviors to provide personalized recommendations and services. Regarding interactive features, digital music platforms provide an extensive range of rich and

convenient interaction options. Users can play/pause, adjust the volume, and switch songs by clicking, dragging, and swiping. Music platforms allow users to comment, leave likes, and share songs for further interaction. As for socialized features, digital music media have been cooperating with social media platforms to bring greater social interaction to users. Furthermore, music platforms are transitioning from the traditional single audio format to diverse media presentations. Short music videos and live-streaming platforms offer faster and broader music transmission, creating opportunities for closer connections between artists and their fans.

The evolution of digital music applications in terms of their intelligence, interactivity, sociality, and multimedia has shaped adolescents' listening habits and experiences, presenting new music consumption characteristics (Wang, 2022). For example, intelligent features satisfy the need for personalized music and enable adolescents to customize music playlists according to their preferences and interests (Webster, 2021). Music listening reflects a private, personal self-experience and communication provides adolescents with opportunities for interpersonal communication based on music (Papinczak et al., 2015).

People aged from 17 to 19 belong to late adolescence and have the strongest personal emotions and self-identity in a lifetime (Tanti et al., 2011). As typical digital natives, the internet is an important medium for the late adolescent group to communicate with the world, learn about themselves, express themselves, and interact with others (Stern, 2004). Mobile applications and other digital devices connect young people through the internet and construct a mental and online psychological space for their generation (Gardner & Davis, 2013).

This study conducts qualitative research on late adolescent digital music users, examining their music consumption behaviors and the typical characteristics of their generation, and then provides suggestions for the development and applications of digital music.

2. Literature Review

2.1. Adolescent Music Consumption

Music has many psychosocial implications and influences on people at different stages of development (Hargreaves, 1986). Adolescence is when people have a significant fascination with music in different periods of development, making adolescents an essential and heavy music consumer group. Adolescents comprise the largest proportion of all music consumers, including digital music consumers (Levitin, 2006). Studies indicate that adolescents listen to music for up to three hours per day, reaching a cumulative time of over 10,000 hours throughout adolescence. In the mobile, media-socializing, and multi-tasking digital life, adolescents, as digital natives, have turned music listening into a media behavior without limitations of time and space (Brown & Bobkowski, 2011). Thus, the significantly increased time adolescents spend on music listening makes them expert listeners in the digital age (Miranda, 2013).

Erikson (1968) identified the core psychological task of adolescence as the formation of self-identity, and late adolescence is a critical period for doing so. Late adolescents may consider questions such as: "What kind of person am I?," "how am I seen through others' eyes?," "who do I want to be?," and "what kind of life do I expect?" They prefer music linked to their sense of inner self, which can express their mental states (Levitin, 2006). Studies found that music opens a window for the completion of psychological tasks in adolescence, which can also influence adolescent development, including identity, aesthetic experience, socialization, gender roles, emotion regulation, positive youth development, and personality and motivation (Miranda, 2013). Thus, this study targets digital music consumers of late adolescence and explores the performance, characteristics, and psychosocial factors influencing their music consumption behavior:

> RQ1: What are the characteristics of late adolescents' music consumption behaviors?

2.2. Psychological Functions of Music Consumption: Emotion Regulation, Identity, and Social Interaction

Researchers emphasize the psychological role of music (Hargreaves, 1986). Merriam (1964) concluded the psychological functions of music in daily life, including emotional expression, aesthetic enjoyment, entertainment, communication, and symbolic representation. North et al. (2000) revealed three motivations for adolescents listening to music: satisfying emotional needs, building social image, and enjoyment. Hargreaves and North (1999) developed the social psychology of music. They highlighted three social functions of music: the formulation and expression of self-identity, the establishment and maintenance of interpersonal relationships, and providing a means of mood management. Scholars have also identified four music uses among adolescents: improving mood, solving problems, achieving personal identity, and marking social identity (Ter Bogt et al., 2011). Current research on the psychological functions of music consumption mainly focuses on three perspectives: the means of emotion regulation in daily life, the formulation and expression of self-identity, and the establishment and maintenance of interpersonal relationships.

Whether music continues to serve the above psychological functions in the daily life of late adolescents is related to changes caused by social and technological developments in the music industry. These changes force us to rethink the psychological function of music listening for late adolescents in the digital native generation. This study employs the three social psychological functions of music proposed by Hargreaves and North (1999) for analysis: emotional function, self-identity, and social networking.

2.2.1. Music, Aesthetics, and Emotion Regulation

The main reason why people engage with music is for the emotional experience (Juslin & Sloboda, 2001). Emotion regulation is usually associated with aesthetics (Levitin, 2006); the aesthetic experience of listening to music can help people obtain pleasure, safety, and immersion, motivating them to seek out music (Levitin, 2006).

Adolescents view music as a resource to satisfy emotional needs, especially for emotion regulation (Saarikallio & Erkkila, 2007). A study based on the uses and gratifications theory found that adolescents use music to improve their moods (Bever, 1988). Adolescence is a typical period of emotional fluctuation; adolescents show emotional polarities. Their emotional variability and stubbornness, such as strong, soft, violent, and gentle, can coexist and exchange (North et al., 2000). Young people in their late teens and early 20s easily experience extreme emotions, such as anxiety, sadness, and romantic passion (Saarikallio & Erkkila, 2007). Adolescents need a safe space to confide troubles, exchange ideas, and keep secrets when facing psychological uneasiness and anxiety. Through music listening, they can regulate their emotions, distract and transfer painful and negative emotions, and gain comfort (Schwartz & Fouts, 2003).

Emotional regulation, coping, and music are fundamental to adolescents' success in adapting to developmental issues and maintaining resilience amid daily stresses and strains of life (Zimmer-Gembeck & Skinner, 2011). Previous research provides two perspectives for understanding the emotional regulation of music. One perspective suggests that music regulates and influences emotions through biological structures and processes (Peretz & Zatorre, 2003). Music activates neurotransmitters associated with pleasure, such as dopamine (Menon & Levitin, 2005), and music can also regulate stress-related hormones, such as cortisol (Khalfa et al., 2003). The experimental research revealed the other perspective that listening to mood-congruent popular music, such as listening to sad music when feeling sad, can provide a sense of emotional sharing, similar to interacting with an empathetic friend (Lee, 2009). Thus, we asked the following question:

> RQ2: Does digital music listening serve the function of emotion regulation and emotional satisfaction? Moreover, how is the function realized?

2.2.2. Music Preference and Identity

Scholars have argued that music has a socially shared meaning (Dillman Carpentier & Potter, 2007), influencing the formation of personal identity (Gunn & Hall, 2008). The interactive nature of digital media further increases the influence of music in constructing identity (Church, 2017).

Music selection and preference become markers of individual and group identity (Hagen & Lüders, 2017). People use music preferences to manage social impressions, assess similarities to each other, and obtain social perceptions about the personalities and values of people they meet (Rentfrow & Gosling, 2006). Studies on popular music indicated that music could distinguish social groups and further affect personal identity formation (Hagen & Lüders, 2017). The media application model posits that adolescents' self-identity determines their choice of media products. Music is a source of social cognitive norms that influence the development of adolescents' self-concept (Kistler et al., 2010). Research on the music consumption process of pre-adolescent girls found that they find their "real me" through music consumption (Baker, 2001). Turner and Tollison (2021) found that pop music can inform the personal identity of moderate to heavy pop music listeners, and their music selection is guided by their desire to align their music listening choices with their self-concept. Their music consumption is a marker of their identity, related to their inner sense of self, and influences how they represent themselves to others (Turner & Tollison, 2021). In addition to searching for themselves, many people search for songs and musical artists that align with or may challenge their personal identities and the social identities they present to others (Miranda, 2013).

Adolescence is also critical for developing musical tastes (Hargreaves et al., 2006). A 21-month longitudinal study revealed that aesthetic appreciation of music develops in early adolescence and stabilizes in late adolescence (Mulder et al., 2010). Adolescence is also a turning point for musical preferences, with most people developing their musical tastes between the ages of 18 and 20. In contemporary society, people's interest in music reaches its peak during adolescence, and adolescents listen to friends' preferred music to find a sense of identity, connect with people they want to be with or have something in common with, or to build a sense of community (Levitin, 2006).

Digital music platforms analyze users' preferences and behavior and then provide users with personalized recommendations and services, further strengthening the type of music that they prefer. So, this study asked:

> RQ3: Do digital music users in late adolescence have significant music preferences? What identity and sense of belonging do they establish through music consumption?

2.2.3. Music Listening and Social Interaction

The essence of musical expression and communication is interpersonal communication, which facilitates social relationships (Turner & Tollison, 2021). Digitization has changed how music is produced, marketed, distributed, consumed, and shared—bringing a new era of interactive music consumption (Pedrero-Esteban et al., 2019). A typical feature of the evolution of digital music platforms is the ability to communicate with others

through music. Social functions embedded in digital music platforms enable users to establish connections and use music as a social object (Hagen & Lüders, 2017). Moreover, digital music platforms integrate social functions; they facilitate a connection between music listening and interpersonal communications, whether based on strong or weak ties (Tepper & Hargittai, 2009).

Music is a social bonding element that strengthens ties with close friends (Lizardo, 2006). As a prominent digital music platform in China, NetEase Cloud Music launched the Share Play program, which allows users to listen to the same music simultaneously with their friends in real-time. This feature enables two friends in different locations to share the experience of listening to a song together, eliminating the sense of spatial distance and maintaining intimacy while they discuss and enjoy their favorite music. Therefore, promoting music as a means of strong social interaction is reflected in interpersonal communication in which music is used as a medium and topic of discussion.

Common musical interests among users can facilitate the formation of weak ties (Baym & Ledbetter, 2009), which scholars call "para-social relationships." The concept of "para-social interaction," introduced by Horton and Wohl (1956), recognizes a subjective sense of interpersonal intimacy or friendship with a mediated character (rather than a real person) based on media exposure. Para-social interaction is evident in the interactions with one's favorite artists and the socialization and engagement generated through a shared interest in music. For instance, as a leading digital music platform in China, NetEase Cloud Music has launched a pioneering music social interaction community called "Cloud Village," allowing users to interact with artists, musicians, and fellow users, as well as to share music and exchange ideas.

The emergence of digital music media allows popular music fans to build direct relationships with their favorite artists on music media. These online social interactions shape the digital music selection process, influence music sharing, and affect the relationships between artists and their fans (Epps & Dixon, 2017). Studies investigating the popular music para-social interaction scale have discovered that music listeners utilize social media to bridge the interpersonal gap between themselves and the artists (Turner & Tollison, 2021). Regular music listeners often report experiencing a sense of kinship, intimacy, and interpersonal connection with their favorite artists (Turner & Tollison, 2021).

In online music communities, users listen to music and follow and build friendships with other users. This weak social relationship is formed by exchanging and sharing music of common interest (Epps & Dixon, 2017). Zhou et al. (2018) examined a group of active users whose NetEase music accounts are associated with their Weibo accounts and confirmed the homogeneity between users and their friends in online music listening. The similarity in music tastes is also the internal cause of promoting interpersonal communication with weak ties. Driven by shared musical tastes, weak ties can trigger a sense of social homophily, including a sense of belonging and group identity. Thus, this study asks that:

> RQ4: How do adolescent digital music users engage in social interaction in the music community? What are the underlying motivations behind the social interactions? How should there be a focus on satisfying these motivations in digital music consumption?

3. Method

3.1. Data Collection

From November 2022 to January 2023, a pre-interview was conducted with 15 university students between the ages of 17 and 19 using a snowball approach. These unstructured interviews, both offline and online, focused on digital music listening habits. Based on responses, the interviewer asked follow-up questions. Each session lasted 30 minutes to one hour.

The pre-interview explored the interviewees' digital music app usage, behaviors, motivations, features, and evaluations. It shaped the design of the formal interview and optimized our data collection approach. Observing a preference for online text over in-person communication among participants, we chose written self-experience reports for the formal interview to encourage more authentic self-expression.

In March 2023, first-year students (aged 17–19) from Nanjing Normal University's School of Journalism and Communication were prompted to track their digital music habits for two weeks and provide self-experience reports. As detailed in Supplementary File Table 1, these reports contained six open-ended questions, addressing topics from self-assessed listening behavior to perspectives on music socialization and media integration. By 30 March 2023, of the 133 reports received, 28 were excluded for lacking detail, leaving 105 valid for analysis.

3.2. Sample

Table 3 of the Supplementary File shows the demographic information of the valid sample. There are 17 males and 88 females, between the ages of 18 and 19. According to the official website of the researched school, the ratio of male students to female students is 1:5. Thus, the sample male-to-female ratio is basically in line with the gender distribution of the first-year students in their school. We also randomly generated numbers (1–105) among the sample for statistics and analysis.

3.3. Thematic and Textual Analysis

For the collected self-reports, this study employed DiVoMiner, an integrated online data analysis tool that merges traditional content, text analysis, and big data analytics. It is designed for coding textual data, statistical

word frequency counting, and associative rule analysis; it has been widely adopted in social science research (DiVoMiner, 2023). Using a predefined codebook encompassing six themes (see Supplementary File Table 2), two coders engaged in dual coding, achieving a Cohen's Kappa coefficient of $\kappa = 0.84$, further delineating the thematic distribution of these self-reports. The open-ended responses show commonalities and individual variations among participants; thus, we further conducted textual based on the interview content to explore the digital music consumption characteristics.

4. Results

4.1. Typical Digital Music Listening Behaviors Among Late Adolescents

The interviewees are digital natives between the ages of 18 and 19 who grew up with digital technologies. Their daily life is closely related to digital media, and their digital music listening also reflects the characteristics of their generation (see Supplementary File, Table 4).

Regarding "do you consider yourself a digital native," 77% ($N = 81$) agreed, and their music consumption behaviors align with their identity as digital natives. As one interviewee (No. 002) said, "We are the digital generation who lives based on the internet, and music listening is also closely connected to the internet." The interviewees show they use at least one regular music streaming application and have used it for six years on average. Of the interviewees, 88% have listened for over four years, and 42.9% have used music streaming applications for over seven years. The self-reports indicate some common characteristics of music listening behavior: greater dependence on music ($N = 36$, 14.8%), accompaniment ($N = 70$, 28.7%), and private and listening experience-oriented ($N = 88$, 36%).

4.1.1. Greater Dependence on Music

The most typical feature distinguishing the interviewees from other generations is that they are more dependent on music and report highly frequent use of music applications. Many say that music-listening has become a habit in their spare time, accompanying many other activities and permeating daily life. On average, the interviewees spend 2.34 hours per day listening to music, and more than 66% of them do so for over an hour per day, showing significant dependence on music. For example: "I listen to music with headphones on almost 24/7 (except for study)," (No. 036); and "as digital natives, we are much more dependent on music, and I can't live without music". I usually put on my headphones for music listening unconsciously" (No. 085).

As stated, "My parents rarely use music applications to listen to music. They usually listen to the car stereo or use Xiaomi or other stereos. They also do not think that no music listening equals missing life" (No. 005). The interviewees are aware of their deep need for and heavy dependence on music. They recognize its importance and believe that "music is an integral part of life" (No. 077). They differentiate themselves from their parent's generation in that their parents do not have the experience of "not being able to live without music" (No. 013).

4.1.2. Habitual and Accompanying Listening Context

Regarding their love for and dependence on music, the interviewees generally view music listening as a habit or a part of life. As music listening only mobilizes auditory attention, it can accompany many other activities that they can do at the same time. This kind of context also reflects the uniqueness of the digital generation.

The first type of context is accompanied by fragmented time (e.g., listening to music when walking or waiting). As reported, "I listen to music more often in fragmented time, such as waiting for the bus or the time on the subway" (No. 103). Other multi-tasking digital activities accompany the second type of context. For instance, they listen to music while playing games, chatting with others online, and doing mechanical tasks online. For example, "I listen to music while doing work without technical challenge simultaneously" (No. 075). The third type of context is related to music being an accompaniment to their whole lives. For example, "Music listening is like the Background Music of my life. It does not cost me much time but is very important" (No. 033). Music serves as a friend when people are in a bad mood, feel bored, or at bedtime—music listening thus becomes a habitual part of their emotional self-regulation.

4.1.3. Personalized Music Listening Enjoyment

As Chinese university students live in groups, their music listening provides a "private" listening experience. The respondents usually use mobile music applications and wireless Bluetooth earphones to listen to music. According to our observations, almost every university student interviewed has earphones plugged into their ears. "I wear headphones when listening to music. It is a sense of ritual to me, and the headphones can separate me from the noisy world for a short time" (No. 030). Earphones help make their music listening a private activity. However, they also listen to music in their personal space with an external stereo. For example, "Usually, I use earphones to listen to music, but I prefer a home pod at home. I like the atmosphere that music is everywhere in my room" (No. 095).

When listening to music, surround sound, earphones, and earplugs improve the personalization of the music listening experience. Because the sound is transmitted to the eardrum through the earplugs, free of external noise, the listener has a much more immersive experience, and they feel a sense of being surrounded by the music or even penetrated by it.

In line with the need for private music listening, interviewees emphasized the importance of the "immersive" sensory experience when using music applications. They also expect to enhance the music listening experience through equipment and software improvement. In addition to the pursuit of earphone quality, the sound quality of tracks and sound effects (e.g., high-resolution vocals, 3D surround, and exclusive stereo) have also influenced their choice of music applications. "It is convenient to enjoy music in an immersive way only with earphones, and you can also adjust the vocal mode, wide surround, and many other modes within the music application features" (No. 056).

4.2. Music Preferences and Self-Identity

4.2.1. Diversity and Personalization of Music Preferences

"As digital natives, we listen to music from different eras with diverse genres and languages. We are very receptive to new things" (No. 086). The interviewees categorized their music preferences and listed the music styles they like and frequently listen to (see Supplementary File, Table 4). Their music preferences reflect strong individual differences and diversity. In addition to Chinese pop music, they also listed Western pop music genres from Europe, America, Japan, Korea, and various niche music genres such as ancient Chinese, instrumental, K-pop, ACG, school ballads, and rock music.

Cultural interests significantly influence music preferences and are an extension of cultural preferences. In self-reports, novel readers are more inclined to listen to fan-fiction music and theme music of audio drama; Japanese anime fans and anime series followers prefer anime-related music; and TV series fans are more inclined to the relevant original soundtrack.

Furthermore, interviewees appreciate the music labeling and intelligent recommendations in music applications: "The song playlist is very necessary! An application without a personalized playlist is terrible" (No. 047). They believe that a labeled playlist reflects how music applications understand them. Labeling users according to their music listening styles in music applications is very popular. For example, "QQ Music labels me as INFP-Healer (a personality type of Myers–Briggs Type Indicator), and a romantic poet, and I like the label" (No. 055); "At the end of 2022, I checked my annual report on Spotify and NetEase cloud music. It is an interesting experience to compare my cyber image built from music tastes on different platforms" (No. 047); "If they label me as a neo-traditional girl or folk youth, I will have a little bit of 'vanity'" (No. 009). The "vanity" mentioned by interviewees is a sense of self-identity established based on music preferences, and self-identity is a self-image built from music listening.

4.2.2. Music Choice of Anti-popularization

Adolescents want to prove themselves through their distinctive and unconventional music tastes, reflected in their preference for "niche" rather than "popular" music choices. The self-reports mentioned the "chain of contempt" related to music preferences. They consider popular music, especially the virally spread music from Douyin, to be at the bottom of the contempt chain, while the more niche the music is, the more worthy it is of being listened to. They also mention that they would follow well-known artists or appreciate the works of talented new singers, internet celebrities, and amateurs. Their unique music preference and choice value reveal a group's resistance to mainstream standards and desire to distinguish themselves through their particular music preference.

Motivated by anti-popularization, late adolescents seek niche and "treasure" music (good but not well-known). They wrote, "I feel annoyed if the public discovered my treasured music and widely spread it in short videos" (No. 007). Regarding music listening, late adolescents prefer the music they like rather than the trending music. They consider themselves more unique when listening to niche music than those who listen to trending music, and they even "do not want [their] favorite music or artist to be famous but to be 'private'" (No. 038).

4.3. The Emotional Value of Digital Music Listening Behavior: From Personal Empathy to Interpersonal Resonance

In terms of the question, "What is the meaning of music listening to you," the answers reflect their motivations for listening to music, including emotion regulation, solitude in self-spiritual space, emotional acquisition, and companionship, emotional resonance, killing time, aesthetic cultivation, improving work/study efficiency, inspiration, fan activities, interpersonal communication, and reminiscing about the past. The emotional value of music is the most mentioned motivation (see Supplementary File, Table 4). The answers to, "How is your emotional need being met?" indicate that music's emotional regulation and resonance mainly reflect the satisfaction of emotional motivation.

Regarding digital music listening behavior and the function of music applications, late-adolescent digital music users can be divided into "music-experienced" and "music-socialized." The "music-experienced" group focuses on satisfying personal music-listening experiences, while the "music-socialized" group relies on music for social networking. Regarding emotional motivation, the music-experienced group listens to music for personal empathy, while the music-socialized group expects interpersonal emotional resonance through music-based social interaction.

4.3.1. Empathy: Satisfying the Emotional Motivations of Music-Experienced Users

For music-experienced users, the emotional regulation of music reflects their emotional satisfaction with the music-listening experience, encompassing pleasure, relaxation, and emotional catharsis derived from music aesthetics.

Music-experienced users aim to discover more music they like and enjoy a more immersive experience when using music applications. The key factors influencing their choice of music applications are concise functions, convenience, rich playlists, and personalized recommendations. For example, "If you are experiencing negative emotions and play a sad song, the application will recommend music with a similar style and tone, which is in line with your current preferences and keeps you in the mood" (No. 041). The accuracy of big data recommendations allows the users "to listen to the recommended music without manually switching song, and then creates the immersive experience of music listening for a long time" (No. 009).

The interviewees show great affection for their used music applications and view the applications as their "friends." They are intensely loyal to their particular applications and unwilling to change them. The main reason is due to the playlists, especially the highly popular personalized recommendation function. The personalized playlists allow users to listen to the music they want and need, and this resonance that it has with them personally makes users feel that "the application understands me like a friend" (No. 007). The annual report of the music application is also attractive. The music application will generate a personalized annual report for users' music-listening data. The music report is an important emotional memory asset for late adolescents. Much like a music journal, they record their personal life and growth through their music listening habits.

In addition, interactive functions, such as music recognition, private FM (frequency modulation), podcasts, and music video appreciation, improve users' personal music experience and gain recognition from music-experienced users. Of the interviewees, 47% (N = 50) supported extending music applications' features, and 33% (N = 35) were against it. The latter group of music users does not use the socialized function of the applications: "Uh, I only need the application for music listening, and I do not need other functions" (No. 101); "I rarely use the social and video viewing features. In my opinion, these functions make music listening more complex" (No. 080). They do not need social interaction when listening to music and consider the socialized function a kind of interference with the music experience.

4.3.2. Emotional Resonance: Satisfying the Emotional Motivation of Music-Socialized Users

Both music-experienced and music-socialized users seek the emotional value of music. Music-experience users pursue emotional communication with music, which is a process of self-propagation. Music-socialized users seek emotional resonance with people who share the same music preferences and build para-social interactions with artists. They want to socialize for interpersonal interaction and gain a sense of belonging through music.

Music-socialized users can be divided into two categories: social interaction with close friends based on solid relationships and hobby social interaction based on weak relationships. The former type of users interacts with friends in real life around music, such as by sharing personal moments and listening to and experiencing music together. They wrote: "In real life, my friends and I often share music that can move us" (No. 017). Also, they use the shared play function to listen to music with friends in different places: "I like that we can listen to the same music at the same time no matter where we are, and music connects our hearts" (No. 035).

The latter type of users find a sense of belonging and identity by commenting, reading song reviews, and joining a music community to communicate with like-minded people. In addition to music listening, reading comments is the most used function by music-socialized users (see Supplementary File, Table 4). The comment is also interpersonal; leaving opinions and comments is a primary means for developing para-social interaction. For example, fans can leave messages to their favorite artists, express their opinions about music, and find a star-struck community: "People who share the same interest gather here. We review and purchase albums and peripherals of our favorite artists and music. It is an online community where people can find their identity and belongingness" (No. 017).

Music users engage in interpersonal interactions through commenting and creating a para-social relationship based on a common favorite music topic. The social function of comments provides a space to communicate, meaning that, as our interviewees stated: "Comments satisfy people's desire for expression and communication after listening to music" (No. 077); "I can always find people who have similar opinions to mine, and I can freely express the happiness brought by music" (No. 039); and "music [is] a way or a medium for me to gain resonance with many netizens" (No. 016).

Users gain an understanding of music and emotional resonance by reading the comments. They exchange songs and ideas when sharing music: "The music and comments make me feel a resonance that I have connected with thousands of strangers worldwide" (No. 019). They have the feeling of being understood, such as "I find similar experiences or emotions from the music comments. I realize there are so many people like me, and I am not alone" (No. 036).

5. Discussion and Suggestion

5.1. The Individualized Approach to the Emotional Function of Music: Emotional Consistency

Emotion regulation is a significant challenge at adolescents' stage of psychological development (Gardner & Davis, 2013), and the fact that music can help them relieve negative emotions and find comfort and approval is one of the reasons why they rely so heavily on it.

People need to form and maintain close relationships characterized by caring, affection, and mutual concern. People often look for emotionally aligned and sympathetic individuals who provide emotional support, belonging, and comfort. The desire to be understood and to receive emotional support is a typical psychological need reflected by the adolescent group. For this group, the role of music is to trigger and amplify emotions (Bever, 1988). When the emotions expressed by the music are consistent with their emotions, the music will play an empathic function, thus becoming a "friend" in their minds.

Music selection is associated with the sense of "inner self" and expresses the mental and emotional state (Liu & Reimer, 2008). Emotionally aligned aesthetic experiences (e.g., listening to sad music when feeling sad) provide a sense of emotional sharing, similar to interacting with a friend. Through this experience, people feel that their emotions are understood and that they are cared for, supported, and validated (Lee, 2009). Thus, through emotionally congruent aesthetic stimuli, people seem to have found an empathetic friend, gaining a sense of friendship in music listening (e.g., "music is my friend"). This ability of music to evoke the presence of others may explain why adolescents use it to alleviate loneliness (North et al., 2000).

Digital music personalized playlists and recommendations can realize emotional consistency (Webster, 2021). Thus, the unique and personalized listening experience has become a typical feature of digital music consumption and can be a core feature determining the competitiveness of digital music platforms. However, the personalized recommendations also have drawbacks for users, such as by creating "emotional cocoons." The music recommendation of "emotional consistency" may limit users' access to other styles, thus making users become immersed in music with the same emotional atmosphere and so especially vulnerable to the possible adverse effects of negative emotions.

5.2. From Personal Experience to Collective Empathy: The Communicative Power of Musical Experience

Turner and Tollison (2021) emphasized that music consumption is interpersonal interaction, especially for digital music. This study also supports this finding. People who share the same music interests or follow the same artists communicate with each other on digital music platforms about their listening experience and music reactions, and they can become friends within the online community and the music platform due to the sense of homogeneity created by the communication.

Bever (1988) argued that the key to music's emotional power is that it stimulates cognitive operations that free people's private emotions. Although music listening is a personal experience, the emotional power of music is further stimulated through interpersonal communication, allowing music listening to promote a sense of belonging and connect self-awareness to a larger community or even a "generation" of peers (van Dijck, 2007).

Music has an interpersonal value that transcends strong ties and builds shared musical tastes (Lizardo, 2006). The realization of individual music experience to collective resonance is aided by communication and the advent of sharing in the digital music listening process. Music is a collective experience that transcends the individual; the "we" in the music experience is not equivalent to the same social class or group, and it is an emotional community that is felt due to emotional resonance in the musical experience (Morris, 2013). Researchers explain it as a result of interpersonal homogeneous "attraction" (similarity), where people tend to form friendships with those who are similar rather than different and tend to form bonds with like-kind rather than other types of groups (Centola et al., 2007). Integrating social functions also allows users to become musical partners with each other (Hagen & Lüders, 2017).

Digital media breaks down one-way social relationships, and multidirectional exchanges between music lovers and artists promote intimacy in para-social relationships (Turner & Tollison, 2021). With the development of digital technology, music apps have developed more social interaction functions, such as live streaming, but the interviewees also expressed concerns. For example, some social interaction functions are irrelevant to music and even reduce the experience of music applications. Therefore, how to promote "homogenous feeling" is the focus for developing the social function of music applications.

5.3. The Balance Between Personalization and Socialization

This study finds that two types of users (the music-experienced and the music-socialized) have opposing views on the need for social functions in music applications. Music-experienced users focus more on the immersive personal experience of music listening. In terms of digital music listening, surround sound, earphones, and earplugs improve the personalization of the music listening experience. The earplugs transmit the sound to the eardrum, and the listener feels surrounded by the music or even penetrated by it, thus providing a much more immersive experience, isolated from outside noise. Furthermore, personalized music recommendations, more user-friendly interactive interfaces, and

immediately available options make it easier for people to immerse themselves in the sensory aesthetics brought by music. Thus, digital music is more likely to bring people to an undisturbed and isolated music environment, which enhances the sensory aesthetic experience of music. They dislike functions irrelevant to music listening and believe these functions will reduce the simplicity of the interface and the convenience of use. They also express concerns about the possible loss of privacy through social functions.

In contrast, music-socialized users believe the current music application provides a "music software + social software" combination. They want more practical social interaction functions from the music application but want the application to stay consistent with the essence of music software.

Thus, when developing functionality, balancing the satisfaction users get through music listening and social interaction is a significant issue for digital music applications.

6. Conclusions

This study observed that late adolescents exhibit unique characteristics in music consumption, which are influenced by the digital media environment and their media usage behavior. Their music-listening behavior tends to be concurrent with other activities, indicating a multi-tasking approach, and they seek an immersive sensory experience. Additionally, they highly rely on music; it has a significant role in their lives. The findings suggest there is potential for a research focus on this group.

This study finds that music helps late adolescents manage emotions, form self-identity, and facilitate interpersonal interaction. Regarding emotional management, late adolescents match their sentiments with music, further validating the emotional consistency theory. In digital music consumption, they attempt to express their uniqueness through the "distinctiveness" of the tracks they listen to and confirm their "distinctiveness" through their music preferences. This finding further validates the role of music in fostering the formation of self-identity among adolescents. Additionally, digital music's interactive and social attributes promote interpersonal communication based on music topics and experiences, which further attests to the significance of digital music in improving social interaction and interpersonal communication among this age group.

This study highlights the coexistence of personalization and socialization in their music-listening behavior. The findings suggest that this coexistence has essential implications for developing digital music products. From a practical standpoint, the study emphasizes the need for the digital music industry to recognize the unique music consumption habits of late adolescents and cater to their desire for immersive experiences. Additionally, it suggests that the industry should address late adolescents' psychological need for self-identification through music consumption by labeling personalities based on different music preferences. Moreover, music applications can utilize algorithms to analyze personality traits associated with music preferences and recommend music accordingly, thereby strengthening late adolescents' sense of self-identity. Lastly, while social interactions facilitated by digital music apps can enhance emotional resonance in music listening, it is essential to balance personalized experiences and social functions.

This study has limitations in that the interviewees are first-year university student volunteers, which cannot fully reflect the entirety of digital music users aged 18–19 in China. This limitation suggests that future research needs to consider the diverse characteristics of this group. Furthermore, this study has yet to consider the impact of differences in demographic characteristics on behavioral differences. The impact of demographic differences such as gender, education, occupation, and economic level on digital music consumption behavior, motivation, and preference needs further exploration in future research.

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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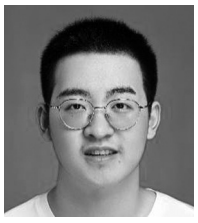

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Article

Idols of Promotion and Authenticity on TikTok

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Abstract
TikTok's rapid growth in the past few years, especially in the younger demographic, may signal a market shift. With children, teens, and young adults reportedly making up 40% to 60% of its user base, the platform is becoming the strongest challenger to YouTube, Facebook, and Instagram. The most followed TikTok celebrities are mostly young people who have either grown up with the platform or recently extended their popularity from other platforms to reach new audiences. This research investigates the discursive strategies and persona performances employed by the top 25 TikTok celebrities under the age of 25 in both popular content and content marked as advertising. A large sample of TikTok content metadata was collected using API interrogation. From each of the 25 young TikTok celebrities, up to 1,000 videos per user (N = 22,650) are explored using quantitative approaches. Two subsamples are analysed using visual, rhetorical, and narrative analysis to evaluate the most popular content (N_p = 226) and content marked as advertising using the TikTok ad flagging (N_a = 213). The findings include the identification of seven persona performance types and a significant difference in terms of performed ordinariness in content marked as advertising.

Keywords
authenticity; celebrity; idols; ordinariness; promotion; semantic networks; social media celebrities; TikTok

Issue
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1. Introduction

TikTok is a social network type system where users can create, publish, and consume short videos of typically under 60 seconds but ranging up to 10 minutes. The system is unidirectional (users can follow other users), and content is aggregated across hashtags and sounds. The mobile interface centres around the For You Page, often abbreviated as FYP, which displays a feed of algorithmically-driven recommendations that can be navigated one by one. In just five years, the vertical short-video-sharing app has risen in popularity to over 1 billion users, challenging the dominance of YouTube, Facebook, and Instagram as the most downloaded app of 2022 (Ceci, 2023).

Like other popular social media, TikTok is not only a "feel good space" for "silly fun" but also new forms of civic engagement through social media such as "lip-sync activism" or what we could call "duetting and stitching dialectics." TikTok's Chinese ownership and its popularity among very young users (Zeng et al., 2021) have also attracted criticism and scrutiny. During the intensely mediatised US Congressional hearings, concerns were raised around the use of TikTok by children and teenagers. A recent report (Qustodio, 2023) shows that TikTok is the social media app that children spend the most time on—an average of 107 minutes/day—and that TikTok is the most blocked app by families worldwide. The platform attempted to mitigate concerns by introducing features for teens and families in March 2023 (Keenan, 2023). Other issues raised by TikTok's popularity include the representation and self-representation of youth using the platform. Kennedy (2020, p. 1072) points out that the "so-called silly, unashamed and unfiltered

girlhood on TikTok, which is epitomised in a figure like D'Amelio, is highly constructed." Hypervisible teenage and young adult TikTok celebrities—some of whom have "grown up" on TikTok—serve as models whose performances are attended to and replicated by young users ("imitation publics") who tend to engage with the platform the most (Statista, 2023).

Concern over social media content targeted at children and teenagers is a catalyst for research into discursive practices emerging on popular video platforms, especially when these develop in conjunction with influencer marketing practices. There is little research into TikTok celebrities and platform-specific influencer marketing discursive strategies. However, existing research into YouTube "kid influencers" (Tur-Viñes et al., 2018) uses established models for content analysis focusing on engagement strategies (McRoberts et al., 2016) and brand presence (Smith et al., 2012) that can be partially transferred to the analysis of TikTok content.

Social media content creators whose fame and recognition have commercial value from a marketing perspective are said to have "influencer" status. Marketing practitioners categorise "influencers" by platform or by audience size (Ruiz-Gómez, 2019): (a) micro-influencers; (b) macro-influencers; (c) mega-influencers; (d) social media celebrities—this latter category being the object of this research. Although research on TikTok communicative forms (Schellewald, 2021; Vizcaíno-Verdú & Abidin, 2022), celebrity (Abidin, 2021); and various influencer/microcelebrity categories (Jaramillo-Dent et al., 2022) has been emerging, and the importance of observing the constructedness of the most popular TikTok celebrities has been argued in previous works (Kennedy, 2020), there is no research into the most followed TikTok content creators worldwide: social media celebrities who reach audiences of tens of millions, beyond the reach of what are usually classified as influencers.

To fill a gap in current scholarship, this research focuses on the top 25 most popular teenage and young adult (under 25) TikTok users and explores discursive practices employed in their most viewed videos to categorise the persona performances that they construct with respect to the desirable values of authenticity and relatability. Another goal is to identify the emergent discursive practices of promotion and self-promotion in terms of adapting persona performance to a promotional context. Considering the platform's memetic processes, TikTok celebrities' performances and discursive practices may constitute templates for other content creators. This study provides much-needed insight into how the platform's young celebrities construct authenticity and relatability, attract and retain users' attention, while also monetising their fame and large audiences (most likely made up of children, teenagers, and young adults who aspire to gain similar status) through ads and paid partnerships.

2. Literature Review

The short-video social media platform TikTok has emerged in recent years and has the fastest-growing popularity among the younger generation. Scientific interest in the platform initially focused on the platform's affordances and has identified communication forms and memetic processes that engage "imitation publics." With the emergence of new platforms and new types of networked publics, new types of celebrities emerge, and TikTok research meets scholarship on "mass idols" and mediated celebrity dating as far back as the first half of the 20th century. However, our research is also framed by a contemporary research focus on the instrumentalisation of new-found fame and attention for marketing purposes by the liminal social media influencers—both "ordinary" and "extraordinary," simultaneously promoting and self-promoting.

2.1. The Affordances of TikTok

Beyond the appeal of similar social media apps, derived from "providing a stage for self-presentation and social connection" (Papacharissi, 2010, p. 304), the affordances of TikTok have been the subject of recent scientific research. Affordances are understood as properties that do not dictate behaviours but shape the users' engagement by configuring the environment in a certain way (boyd, 2010). Bhandari and Bimo (2022, p. 3) reflect on "self-making" as a key set of "intertextual and flexible practices, conventions, and norms of both the production and consumption of visual content" and identify three themes that stand out with respect to users' perception of TikTok: (a) awareness of the algorithm, (b) content without context, and (c) self-creation across platforms. The environment configured by TikTok presents "a very different vision of sociality based on repeated engagement with the 'algorithm'" (Bhandari & Bimo, 2022, p. 10). Schellewald (2021) broadly categorises short videos on TikTok into communicative forms such as (a) comedic, (b) documentary, (c) communal, (d) explanatory, (e) interactive, and (f) meta. More recent work focusing on the platform's affordances identifies the enactment of "TikTok as a 'feel good space'"—especially in the context of the 2020–2021 lock-downs—characterised by perceptions of relatability, authenticity, and closeness to the users' "idea of self, taste, and current life situation" (Schellewald, 2023, p. 8). According to the same research, TikTok is perceived as more of a locus for ordinary people than social media celebrities and influencers. Content is consumed in the context of an algorithmic reflection, the FYP feed—a self-representation made up of preferred images and performances of others that can be imitated and shared. Bhandari and Bimo (2020, p. 3) concluded that TikTok is fundamentally different as a social media experience built on "intrapersonal engagement," "directed toward the individual instead of an 'audience.'"

Zulli and Zulli (2022) look at "TikTok as a memetic text," with its digital structure initiating "imitation publics" in two major ways: (a) through imitation and replication of specific videos; and (b) through general memetic processes (content/user groupings referred to as "hashtagged publics") such as Straight TikTok, Queer TikTok, Alt TikTok, Deep TikTok, etc. The TikTok structural support for "imitation publics" is perhaps illustrated in the memefication of intergenerational politics through the #OkBoomer memetic trend (Zeng & Abidin, 2021). Recent research (Peña-Fernández et al., 2023, p. 49) shows that in the case of controversial social media debates, TikTok is "a less partisan and more dialogue-based network than Twitter." Literat and Kligler-Vilenchik (2023, p. 1) argue that "TikTok is a vital space to study social movements due to its centrality in youth lives and its ability to give voice to youth political expression," but emphasise the need for balanced and complex approaches that also consider concerns such as misinformation and polarisation fostered on the platform and avoiding the glorification of TikTok activism.

We explore TikTok celebrities' use of hashtags and sounds to identify their positioning with respect to TikTok's publics, as meme founders for "imitation publics," or as mobilisers/participants concerning particular "hashtagged publics." Hence, the first research question is

> RQ1: What are the main textual and audio discursive practices associated with the performance of the most followed young TikTok celebrities?

2.2. Idols, Celebrities, and Influencers

The beginning of the 21st century saw major transformations of the popular media landscape in what Turner (2006) called a "demotic turn" towards "the ordinary," first through reality TV, then through social media fame and celebrity. Lowenthal (1944) looked at the "mass idols" constructed and served for consumption through popular magazine biographies. Duffy and Pooley's (2019) "idols of promotion" are overwhelmingly situated in the sphere of entertainment (film, television, music), following the trend detected by Lowenthal in the 1940s. However, success in the 21st century is owed to promotional skills and self-branding, articulated through three key tropes: "(a) a promise of meritocracy; (b) a spirit of cross-platform self-enterprise; and (c) an incitement to express oneself authentically" (Duffy & Pooley, 2019, p. 28). Concepts such as "familiar strangers" (Milgram, 1977) and "para-social interactions" (Horton & Wohl, 1956) still provide theoretical grounding to many of the contemporary conceptualisations of mediated celebrity (Rojek, 2015).

Traditional celebrity studies have produced various fame taxonomies (Rojek, 2001; Ruiz-Gómez, 2019), with types of fame such as (a) ascribed, (b) achieved, or (c) attributed; and other celebrity types such as (d) celetoids, (e) celeactors, (f) infamous, (g) accidental celebrities, and (h) subcultural celebrities. The age of social media and digital platforms saw the rise of various other nomenclatures and taxonomies for internet celebrities (Gamson, 2011): (a) anticelebrities or accidental celebrities, (b) do-it-yourself celebrities, and (c) microcelebrities.

Research into influencer marketing identifies endorser types (celebrities or influencers) as well as content-control types (content creators vs. paid promoters) and shows that consumers think influencers have "more expertise, trustworthiness, more correspondent inferences, and more authenticity" (Kapitan et al., 2022, p. 347). This research provides a categorisation of persona performances constructed and employed by top young and teenage TikTok celebrities, focusing on features of authenticity and promotion.

2.3. The Construction of Authenticity

Members of the networked publics most often bring up authenticity as a criterion for following certain content creators. It then becomes an important value for creators and marketers. In social media—as with tourism—authenticity becomes a "selling point" or "source of credibility" (van Nuenen, 2016). An analysis of three categories of content producers on YouTube—science YouTubers, stay-at-home mothers, and make-up artists—points out that sometimes tactically adopted "ordinariness and amateurship markers contribute to the online construction of the authentic persona" (Riboni, 2020, p. 22). Riboni (2020) identifies three aspects of authenticity in mediated public discourses: (a) the parasocial features of the constructed media persona (Horton & Wohl, 1956), which social media transform into potentially social (Marwick, 2013)—the social media celebrity is more approachable than the TV celebrity; (b) the degree of homophily between content creators and their audience, contributing to relatability; (c) emphasising the viewers' importance to the content creator through "synthetic personalisation." We can see evidence of this when YouTubers, Instagrammers, or TikTokers address messages in the live chat, respond to specific comments, or simply imply some shared complicity with their viewers.

In Duffy and Pooley's study (2019, p. 41), constructed authenticity is key to self-promotion since "cultivating a true-to-self persona is a form of value-creation." Through self-effacement in TV interviews or social media posts, celebrities construct themselves as relatable, ordinary people. Lee (2020) provides a three-component model for authenticity in (mass-oriented) computer-mediated communication: (a) authenticity of source, (b) authenticity of message, (c) authenticity of interaction. The model was applied to exploratory research into the self-perceived authenticity of social media influencers (Balaban & Szambolics, 2022).

Riboni (2020, p. 36) also points out the paradoxical commodification of authenticity and applies the

notion of "emergent authenticity"—from tourism studies (Cohen, 1988)—to designate "the gradual shift from inauthenticity to authenticity" that may happen over time to make an experience be perceived as authentic or more authentic, even if it is not. Goffman's (1959) dramaturgic approach distinguished between front-stage and back-stage. The front-stage personas are fabricated, inauthentic social performances, whereas in the back-stage, in intimate settings, people disclose their genuine, authentic selves. However, later interpretations (MacCannell, 1973) consider the possibility that the back-stage self is also constructed as inauthentically as the front-stage. Riboni (2020) points out that this type of "staged authenticity" is dominant in social media discourses.

To explore the constructed performances of popular young TikTokers, we used Goffman's (1959) dramaturgic approach and expanded the classical categories (stage, props, costume) with categories that allow the classification of the persona performance with respect to the platform's memetic processes. In our analysis of discursive practices employed by popular TikTokers in their most viewed videos and also in content marked as advertising, we draw from Frye (1957) to code the persona/protagonist constructed in relation to ordinariness. We apply the systematic representation of the four archetypal mythoi (comedy, romance, tragedy, satire/irony) and five modes corresponding to ethos performance (ironic, low mimesis, high mimesis, romantic, mythic) mapped to degrees of ordinariness performed: less than ordinary, ordinary, more than ordinary, extraordinary, more than extraordinary. The four pre-generic plot structures provide a meaningful way of categorising content and distinguishing between broad categories. Accounting for the liminality of social media celebrities, we try to identify the ethos of each performance analysed to ascertain their variability across popular content and content marked as promotional. Furthermore, we employ a taxonomy of communicative forms that combines the typology identified by Schellewald (2021) complemented by the time-tested taxonomy of modes proposed by Nichols (1991). Thus, the first three aspects of the conceptual model proposed here (mythos, ethos, and form) also fit with the broad memetic aspects defined by Shifman (2013; content, stance, and form). The second research question is formulated with respect to the elements that make up the persona features that can be identified in the popular TikTok performances and to thus identify coherent persona performances adopted by the TikTok celebrities:

> RQ2: What type of persona performance features are employed in the most popular videos?

2.4. Promotion, Self-Promotion, and Emergent Discursive Practices

In an era dominated by digital mobile platforms, Marwick (2013) suggests that our perceptions of celebrity are intrinsically linked to the affordances of web and mobile media technology—rewarding those whose behaviour and use of self-presentation strategies engage people's attention with higher social status. Abidin (2017, p. 1) provides a useful point: for influencers and aspirational influencers, being a microcelebrity is "an established career with its own ecology and economy." Turning influencer status into a career prospect or expectation is perhaps most visible in the case of micro-microcelebrities (Abidin, 2015), "lifestyle" influencers (Abidin, 2016), and child microcelebrities of "family influencers" (Abidin, 2017). Abidin (2017, p. 1) defines calibrated amateurism as a complex practice and aesthetic employed by actors in the attention economy who craft contrived authenticity, which portrays "the raw aesthetic of an amateur."

Social media celebrities, "influencers," microcelebrities, and "ordinary users" engage in similar self-aware promotion, especially self-promotion strategies. For both "idols of promotion" and "ordinary users," the projected identities in everyday self-performance on digital platforms are "both personal and employable" (Duffy & Pooley, 2019, p. 43). A similar point is made by Negreira-Rey et al. (2022) about the blurring boundaries between "ordinary" content creators, microcelebrities, influencers, and professional public communicators such as journalists. Mellado and Hermida (2021) identified new roles for journalists on social media: (a) the promoter, (b) the celebrity, and (c) the joker. Earlier research that looks at contemporary shifts in the professional roles of journalists (Hanitzsch & Vos, 2018) acknowledges emergent roles that help publics navigate three areas of the domain of everyday life: (a) emotion, (b) identity, and (c) consumption. As the new public communicators fill a void left by the younger generation's disengagement with news media, it is appropriate to use these categories to identify the specific roles that social media celebrities and influencers fulfil.

In her conceptualisation of "calibrated amateurism," Abidin (2017) further details three calibration spectra: (a) selectively toggling technology use from smartphones to professional studio equipment; (b) toggling between "anchor"/main content for which the creator is recognised and followed, and "filler"/impromptu/casual content; (c) correlating performances and apparent spontaneity with reflexive, behind-the-scene revelations. Furthermore, Abidin (2017) points out five ways in which the "amateur" aspect anchors reliability: (a) daily frequency of "filler" content; (b) mundanity and privacy of "filler" content; (c) capitalising on platform affordances and subverting use to show images with and without beauty filters or enhancements, outtakes, and actual-takes; (d) reinforcing or challenging the norms of the platform by willingly breaking the constructed persona or engaging in meta self-parody; (e) turning the occasional behind-the-scenes content into a genre. From Riboni's (2020) analysis of YouTuber discourses, we draw several persona types such as (a) "the ordinary expert," (b) "the passionate non-specialist," (c) "the

life guru," and (d) "the expert influencer." Barta and Andalibi (2021) notice that the "normative authenticity" of TikTokers is connected to the perceived anonymity of both creators and audience members, which in turn facilitates sharing emotional content—both positive and negative/traumatic/stressful—and eliciting support, empathy, or solidarity responses.

Abidin (2020) attempts to map internet celebrity on TikTok and finds that in the TikTok attention economies, (a) "post-based virality is privileged over persona-based fame," (b) "audio memes are the driving template and organising principle," (c) video editing is a marker of expertise, and (d) observable memetic histories foster competitivity. The music challenge content has also been found to constitute more of a mode of transmedia storytelling rather than a competitive practice (Vizcaíno-Verdú & Abidin, 2022) that allows for self-expression and the construction of ad-hoc communities based on various in-group affiliations.

The final components of our proposed conceptual model are drawn from (a) the domains of everyday life (Hanitzsch & Vos, 2018) within which public communicators construct contexts for the development of parasocial relationships; (b) Abidin's (2017) conceptualisation of "calibrated amateurism"—the "anchor"/"filler" content labels; and (c) previous research into brand presence on social media (Tur-Viñes et al., 2018). In our investigation, violence and sexualisation (as clarified by Poppi & Dynel, 2021) were also analysed to observe the phenomenon of young performers' sexualisation identified by Vizcaíno-Verdú and Tirocchi (2021). In order to identify the changes that occur in the constructed persona and performance when celebrities engage with their audiences as promoters, we reach the final research question:

> RQ3. What persona performance features are more salient in the context of promotion and advertising videos?

2.5. Conceptual Model

The proposed conceptual model introduced in Sections 2.3 and 2.4 is summarised in Table 1.

3. Methods

3.1. Data Collection and Sampling

The sample was constructed based on the Tokboard top (https://tokboard.com/users/top) most followed TikTok users by excluding any users above the age of 25, based on platform data as of November 2022. The website is unaffiliated with TikTok and uses automated data collection from the platform. The top was compared for reliability against rankings provided by another independent source (SocialBlade). As this research is focused on teenagers and young adults, celebrities above the age of 25 were excluded, as the literature suggests that greater homophily between content creators and consumers greatly contributes to relatability (Riboni, 2020).

As Table 2 shows, ages range from 15 to 25, while follower numbers range from 36 to 151 million. Fifteen of the 25 are based in the US, while another four are based in Mexico, making the sample more anchored in American culture. There is only one content creator under the age of 18. For each of the 25 users (Table 2), the TikTok API was interrogated using the Clockwork TikTok Scraper on Apify (https://apify.com), and a maximum number of 1,000 video metadata records were extracted for each user. Due to some users having posted less than 1,000 videos overall, the final sample size was N = 22,650. Two subsamples are analysed by coding the categories in Table 1:

1. A popularity subsample: top 10 videos by view count for each content creator—N_p = 226 (24 videos initially included in the sample were no longer available for analysis in the coding phase);
2. An ads subsample: content marked as advertising in the metadata ("IsAd" = True)—N_a = 213.

3.2. Data Analysis

We used frequency and co-occurrence analysis on the metadata to observe the systematic use of certain ways to address TikTok publics as well as the overall use of platform features such as sounds and filters.

Both the TikTok advertising sample (N_a = 213) and the most popular content sample (N_p = 226) were independently coded by two researchers. Before coding, both researchers underwent a training session covering all coding categories. To ensure consistency, a set of 30 videos from the popularity sample was used for training purposes. The intercoder agreement for the advertising sample was calculated to be 81.22%, while the intercoder agreement for the popularity sample was found to be 86.28%.

The co-occurrence analysis of hashtags and the semantic network of concept codes were generated using KH Coder (Higuchi, 2016, 2017). The hashtag co-occurrence analysis was run on the entire dataset (N = 22,650), while the semantic network represents the coded concepts for the cases in the popularity sample (N_p = 226).

We used formal concept analysis (Ganter & Wille, 2012) to generate a conceptual diagram of discursive features using the FCA Tools Bundle (Kis et al., 2016). The formal context was based on the dominant codes occurring more than once for each content creator in the popularity sample.

4. Results and Discussion

4.1. The Overview of Discursive Practices

The most popular young TikTokers produce and publish very short videos (between 10 and 20 seconds), with only

Table 1. Conceptual model and codes (full descriptions available in additional tables).

Code Category	Code
Mythos (adapted from Frye, 1957)	Comedy Romance Tragedy Satire/irony
Ethos (adapted from Frye, 1957)	Less than ordinary Ordinary More than ordinary Extraordinary More than extraordinary
Form (Nichols, 1991; Schellewald, 2021)	Poetic Communal Expository/explanatory Observational/documentary Performative/documentary Participatory/interactive Reflexive/meta
Domain of everyday life (Hanitzsch & Vos, 2018)	Emotion (mood manager) Identity (friend) Consumption (marketer) Identity and emotion (connector) Consumption and emotion (inspirator) Consumption and identity (service provider) Emotion, identity and consumption (guide)
Calibrated amateurism (Abidin, 2017)	Anchor/main Filler/casual
Brand presence (Smith et al., 2012)	Visual/text/oral mention/sound/use (own brand excluded)
Stage (Goffman's, 1959, dramaturgic approach)	Indoor/outdoor/combined
Props (Goffman's, 1959, dramaturgic approach)	Yes/no
Costume (Goffman's, 1959, dramaturgic approach)	Casual, Relaxed/uniform, roleplay costume, N/a
Reference	Internal/external/N/a
Sexualisation	Yes/no
Implied violence	Yes/no

jamescharles producing slightly longer videos (26 seconds on average). The most played videos (on average) are those of bellapoarch and charliedamelio. However, as Figure 1 shows, this may be due to several videos becoming viralized, as in the case of bellapoarch, who has a relatively smaller number of uploaded videos but has produced three that total over 3 billion plays. Beyond the virality of several videos, charlidamelio, a former competitive dancer, attracts on average the highest numbers of diggs, shares, and comments, emerging as a typical young TikTok celebrity, also capable of extending her aura of social media celebrity to her family and social network. Celebrities with large audiences on other video platforms, such as mrbeast, seem to be able to transfer their success formula to TikTok. Table 3 provides an overview of metadata.

A third of the videos in the sample (7.245, 32%) feature sound or music uploaded to the platform by others (musicOriginal = false). These are trends and challenges that the most followed TikTokers start or in which they participate. Figure 1 shows the most played such videos. In most cases, it seems that the performance constructed by one of the TikTok celebrities clearly dominates the stage set by each sound—this is likely the case when the celebrities are trend starters or meme founders (Shifman, 2013). There are some cases where the views

Table 2. The top 25 young user sample.

Username	Followers	Age	Country
khaby.lame	151,332,761	22	Italy
charlidamelio	148,430,289	18	US
bellapoarch	92,263,756	25	US
addisonre	88,739,523	22	US
kimberly.loaiza	69,320,353	24	Mexico
domelipa	60,546,176	21	Mexico
dixiedamelio	57,515,068	21	US
lorengray	54,525,286	20	US
justmaiko	52,305,642	22	US
mrbeast	53,272,688	24	US
youneszarou	48,806,588	24	Germany
homm9k	46,011,746	19	Kazakhstan
brentrivera	45,527,500	24	US
riyaz.14	45,409,826	19	India
itsjojosiwa	44,415596	19	US
avani	42,653,370	19	US
joealbanese	42,210,216	20	US
elrodcontreras	41,821,474	22	Mexico
xoteam	38,983,356	18	US
ondymikula	38,656,108	21	Czechia
anokhinalz	38,569,631	15	Russia
jamescharles	37,454,512	23	US
dobretwins	36,583,194	23	US
montpantoja	36,403,341	20	Mexico
babyariel	36,088,970	21	US

are more evenly distributed among two or more. This is because young TikTok celebrities not only initiate memetic phenomena, they also participate in communal platform rituals, challenges, and trends, adding to their performance authenticity; they participate in such "silly fun" as a performance of their ordinariness, adding, of course, their own interpretation.

Even though navigating across trending sounds is one of the characteristics of TikTok, hashtag use has the potential to engage with specific issues and communities, the so-called "hashtagged publics" (Zulli & Zulli, 2022). It seems, however, that the most followed young TikTok celebrities do not engage with specific publics, mostly keeping to a positive, mainstream addressability and using hashtags that encourage parasocial relations, such as #yzfamily or #loveyouall.

The analysis of the hashtag network shown in Figure 2 reveals, as expected, the most used hashtags to be #foryoupage (888), #foryou (770), #fyp (567), #fürdich (504) (pointing towards algorithmic practices; Abidin, 2021); #duet (1,555), #dúo, #дуэт, #duetto, and other localisation of the platform's interaction feature/format (indicating interaction practices; Abidin, 2021); and lastly #ad (441), #partner (119), and several other hashtags containing a brand name and "partner."

To briefly answer RQ1, the celebrities function as meme founders and engage with communal rituals but do not seem to engage with specific "hashtagged publics," mostly keeping to mainstream addressability.

Compared to the Ads subsample (N_a = 213), we noticed that ads are mostly not marked as advertising in the metadata ("IsAd" = True). This result is consistent with previous results published in a Mozilla Foundation Investigation (Mozilla, 2021), which concluded that "TikTok has a major weakness when it comes to influencer advertising" because ads aren't placed through the platform's advertising system, resulting in much less oversight and more likelihood of users being misled in paid promotions/advertising.

4.2. The Personas and Performances

The performances in the most played videos subsample (N_p) vary between the ethos of "ordinariness" and

Table 3. The overview of video metadata (*N* = 22,650).

Author	Videos	Average video duration	Average play count	Average digg count	Average share count	Average comment count
addisonre	1,000	15	32,923,800	4,068,337	67,289	42,827
anokhinalz	1,000	11	8,711,728	1,080,774	3,420	7,960
avani	1,000	16	4,033,565	601,647	7,482	3,648
babyariel	1,000	15	3,397,156	529,283	4,991	2,259
bellapoarch	533	13	39,350,094	3,995,845	103,857	45,823
brentrivera	1,000	16	9,934,124	1,402,906	10,760	7,268
charlidamelio	1,000	17	39,955,600	4,810,441	292,151	72,382
dixiedamelio	382	17	12,033,081	1,566,201	20,093	12,441
dobretwins	1,000	15	5,675,973	799,998	2,920	4,596
domelipa	1,000	17	14,869,100	2,022,798	13,692	17,499
elrodcontreras	1,000	16	7,611,593	1,099,872	4,797	14,335
homm9k	1,000	12	7,324,697	860,662	3,238	5,983
itsjojosiwa	1,000	19	9,977,844	1,161,742	5,063	7,879
jamescharles	471	26	22,553,715	2,236,997	22,518	22,925
joealbanese	1,000	14	5,222,866	633,447	4,357	3,697
justmaiko	1,000	17	10,447,500	1,358,244	11,437	6,335
khaby.lame	1,000	16	21,866,685	2,439,152	22,326	16,892
kimberly.loaiza	1,000	18	14,458,100	1,781,849	9,086	19,861
lorengray	1,000	15	7,567,556	1,025,208	10,314	5,877
montpantoja	1,000	14	8,994,100	1,478,430	5,631	6,965
mrbeast	264	17	15,564,773	2,154,283	59,769	54,084
ondymikula	1,000	13	3,842,544	196,633	4,337	36,615
riyaz.14	1,000	14	9,367,900	980,438	10,652	6,401
xoteam	1,000	15	7,884,038	558,446	2,098	3,991
youneszarou	1,000	14	12,984,703	799,119	3,497	2,600

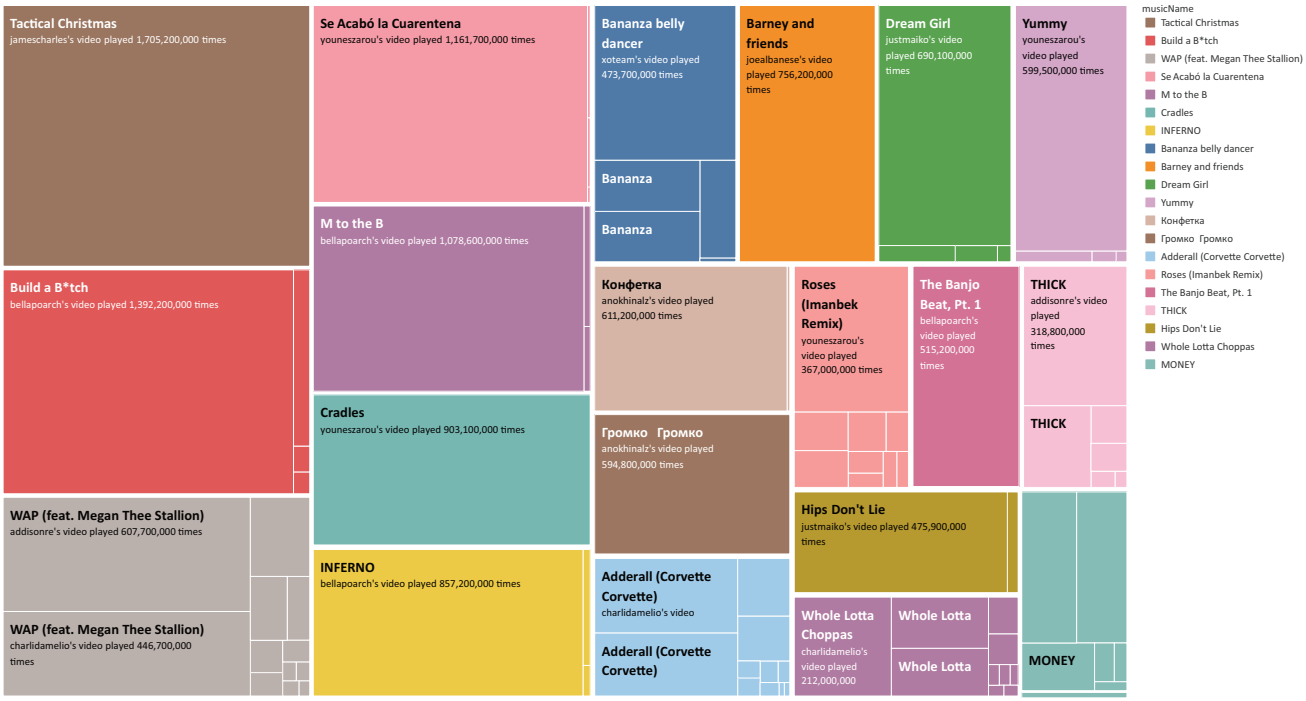

Figure 1. The top 20 most played sounds (musicOriginal = false).

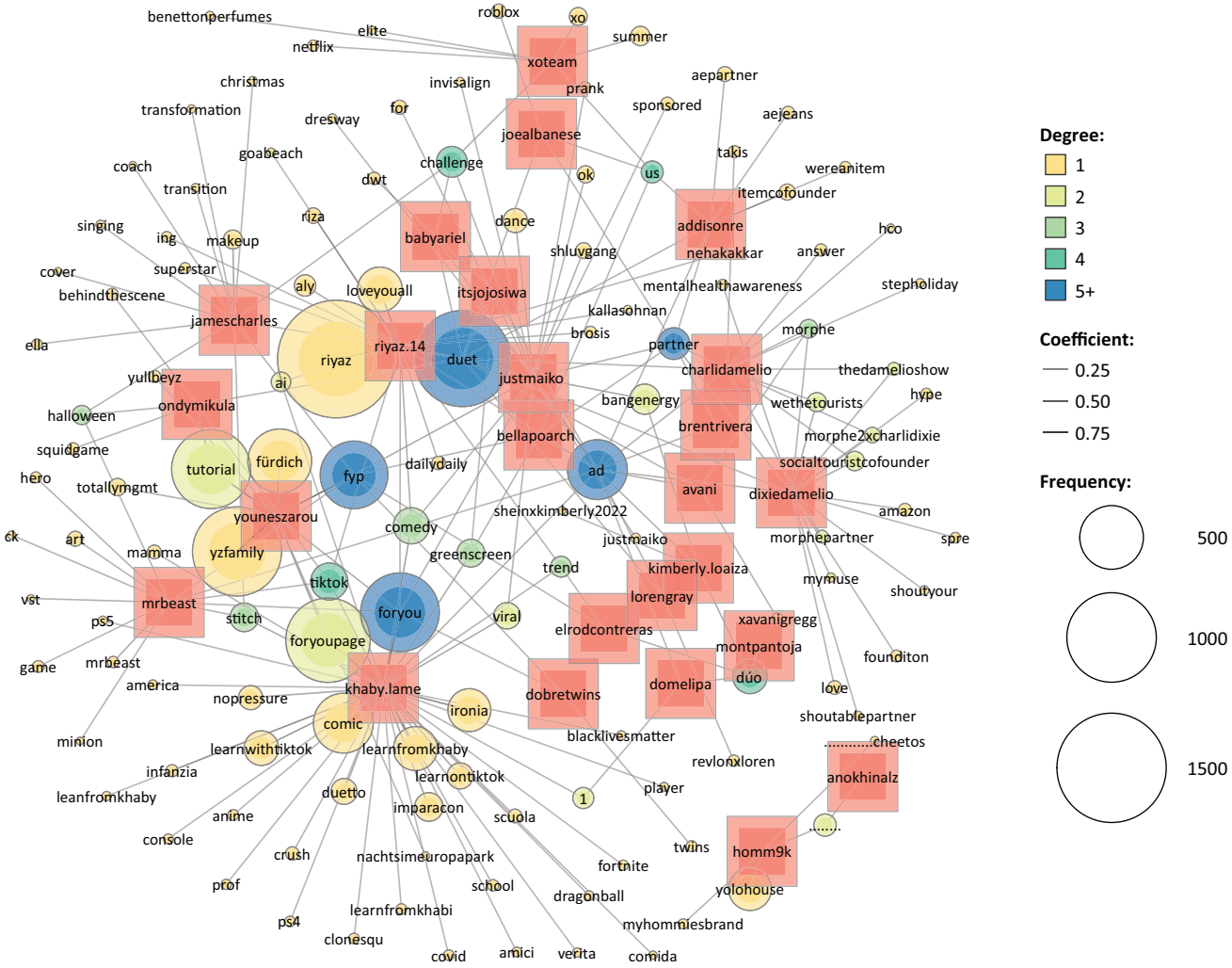

Figure 2. Co-occurrence diagram of all hashtags used in sample metadata (*N* = 22,650).

"more than ordinariness." Authenticity is constructed through alternating "anchor" and "filler" content, participating in challenges and trends. The dominant mythos or pre-generic type is that of comedy—TikTok is celebratory in either poetic or communal modes of expression. However, there are also alternatives, such as the Romantic, larger-than-life exploits of mrbeast, who carries over to TikTok his YouTube content/recipe of displaying status, spending large amounts of money seemingly on a whim. Furthermore, the most followed TikToker in the sample, khaby.lame, uses satire and deconstructs platform content tropes, thus performing authenticity ironically. Figure 3 shows the semantic network of codes and creators.

To group persona features described in the conceptual model, we employed formal concept analysis (Ganter & Wille, 2012) and selected the features that were coded more than once for each of the 25 celebrities to construct a formal context. Formal concepts were then computed using the FCA Tools Bundle, and the resulting concept diagram is shown in Figure 4. Concepts (groupings of the celebrities based on feature combinations) were then used to identify and describe the distinct persona performances presented in Table 4.

Figures 3 and 4 show that in the case of the most viewed videos, several discursive practices emerge as distinct persona performances presented in Table 4. For each of the proposed categories, the intension (list of coded features) and the extension (list of celebrities who match the combination of coded features) of the formal concepts are listed. The formal concept analysis method yielded the concepts represented as nodes in Figure 4. The concepts at the top are more general (as they correspond mostly to only one feature), while the concepts at the bottom are more specific (as they correspond mostly to only one celebrity). The seven persona performances were selected based on representativity, coherence, and good balance between generality and specificity.

To answer RQ2, the persona performances employed by young TikTok celebrities in their most popular videos are mostly comedic and liminal (between "ordinary" and "extraordinary") in the first four of the seven persona performances. However, there are notable exceptions—with satirical/ironic, romantic, and tragic persona performances sometimes emerging either somewhat idiosyncratically or contextually—the latter three. The "ordinary expert," the "plebeians," and the "empowered victim" fit with categories proposed in previous research

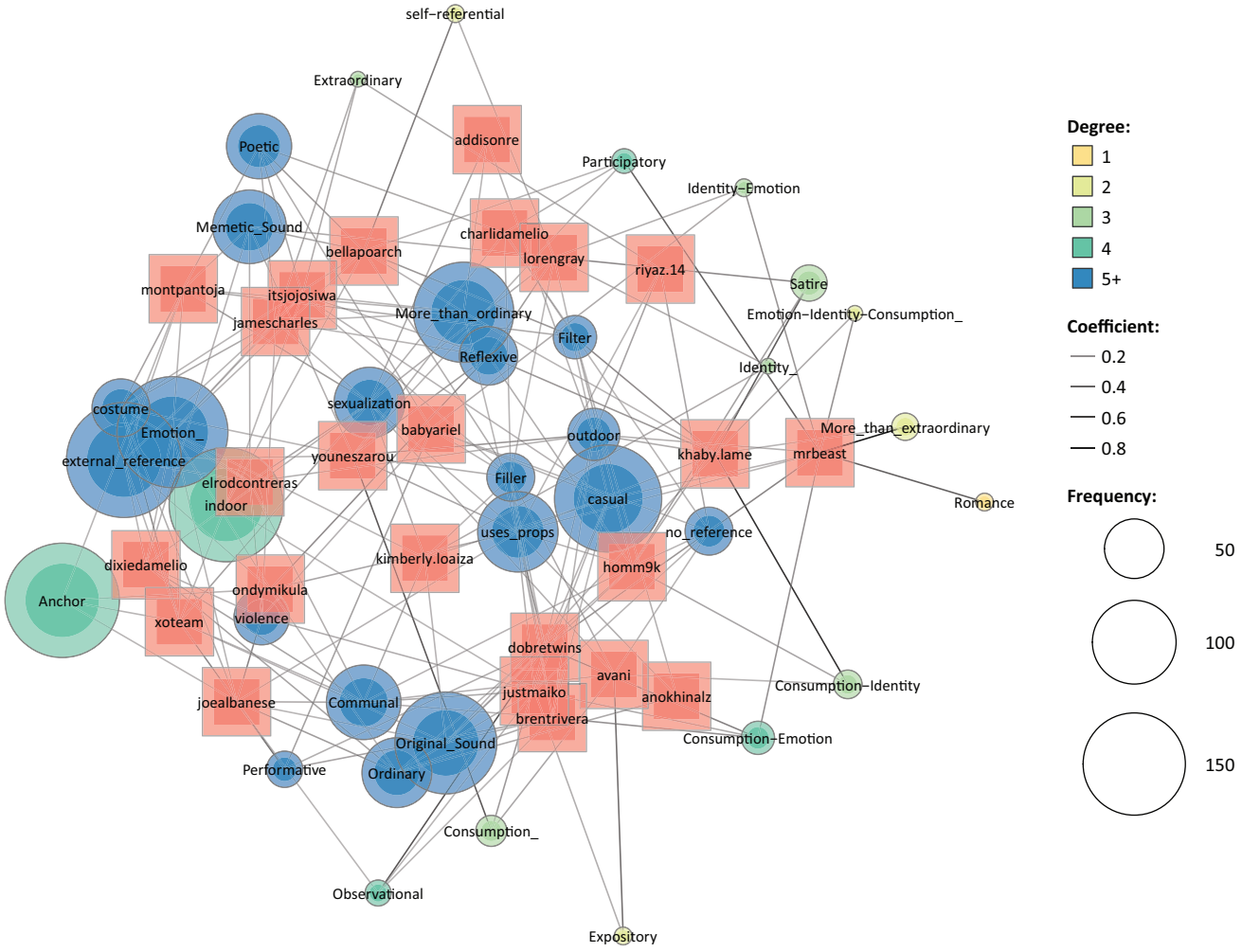

Figure 3. Semantic network of concept codes and creators in popularity sample (Jaccard coefficient > 0.05).

on the construction of authenticity on YouTube (Riboni, 2020). The "MC" and the "platform sweetheart" are platform adaptations of charismatic vloggers, streamers, and Instagram celebrities. The "star among us" is relatively atypical—perhaps also encountered in the case of mainstream media celebrities using the platform—while the deconstructive "raissoneur" persona sets itself on the outside, in a meta stance, satisfying perhaps a need for critical reflection on the platform's discourses on authenticity and "DIY" ethos.

4.3. The Ordinary Promoters

While the mythos of comedy clearly dominates, ethos performance fluctuates between "ordinary" and "more than ordinary" for most of the videos in the popularity subsample. However, the content marked as ads through the platform metadata contains a dominant proportion of "ordinary" performances, as shown in Figure 5. Furthermore, even though the "poetic" and "communal" forms (dancing, nonverbal, memetic challenges) are still dominant, "expository" performances are more common in the ads subsample than in the popularity sample.

Brands are rather seen (through use, visual identity, and text mentions) than heard (through brand sounds or oral mentions), which constitutes an interesting result given the platform's affordances—specifically its memetic sounds and lip-sync video formats. Most of the content marked as ads is not representative of a TikToker's usual discourse, being mostly filler/casual posts (n = 182) in contrast to the 31 posts where the ads follow the expected anchor/main style. To answer RQ3, persona performances in the context of promotion tend to be more oriented towards "ordinariness" and showing rather than telling.

4.4. Discussion

In terms of posts' aesthetics, our findings are in line with the ones theorised by Abidin (2021): the theatrical, flawless reality proposed by pre-Covid 19 Instagram influencers suffered visible transformations due to the Covid 19 restrictions, the TikTok content shifting towards a more discursive content. Thus, in the popularity sample, 73% (n = 165) of the type of costumes used as a part of self-presentation strategies display comfortable,

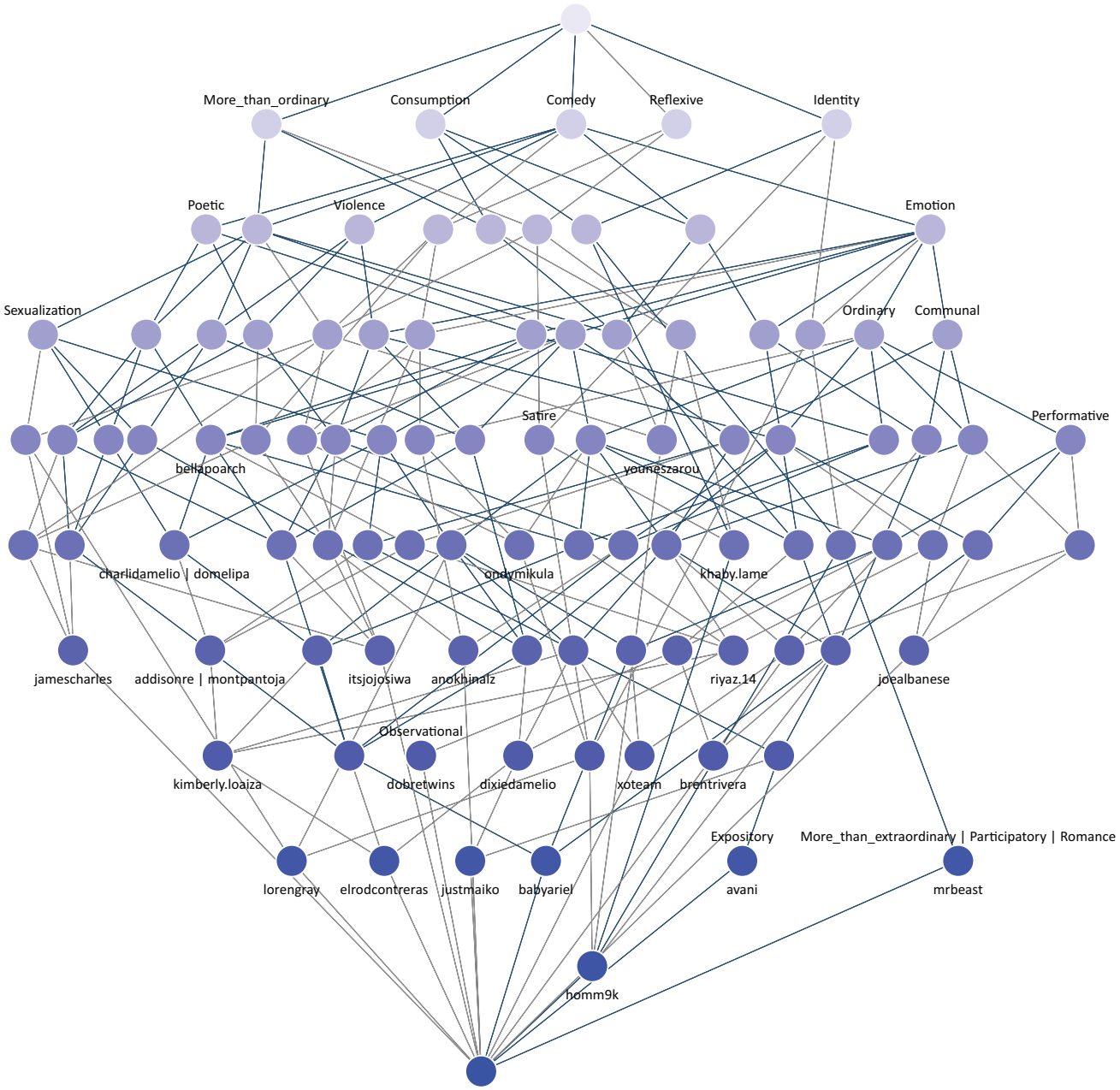

Figure 4. Concept lattice diagram for the dominant discursive features found in the most viewed videos based on formal concept analysis.

casual, and sporty outfits, while 82.74% (*n* = 187) out of the total posts (*n* = 226) feature home-based activities presented in videos made indoors, moving away from a staged, picture-perfect background. This visual construction of the "calibrated amateurism" of the TikTok influencers is complemented by the self-presentation as an ordinary person disclosing their daily life experiences (*n* = 69) but succeeding in doing better than the rest because they are smarter, more talented, more beautiful, craftier, and stronger (*n* = 144).

Nevertheless, it is difficult for internet celebrity aspirants to construct a complex and coherent persona because they are permanently forced by the logics of the platform to seek out, learn, participate in, and engage in what is "going viral" at the moment in order to remain visible to others on the app (Abidin, 2021). Therefore, apart from the memetic emotion-triggering performances, TikTok celebrities also propose relatable performances with multiple characters, such as high school romance, pyjama parties, duet or group dances, and teen pranks (communal *n* = 79).

Cohesion is also affected by promotional content. The TikTokers' desire to separate their persona from the brands that sponsor them, to maintain an authentic relationship with their community, and the brands' requirements that specific information be conveyed leads to posts being constructed on different templates than the anchor content and less consistent personas. TikTok's

Table 4. Persona performances of young TikTok celebrities.

The MC (master of ceremonies)	Performs enthusiastic participation in communal, ritualistic performances such as memetic challenges, setting an example, encouraging certain trends, or just joining an already popular trend as an ordinary member of the platform (comedy, communal, emotion, more than ordinary/ordinary: avani, brentrivera, dixiedamelio, elrodcontreras, homm9k, justmaiko, kimberly.loaiza, riyaz.14, xoteam)
The platform sweetheart	Delivers poetic and communal performances in the realm of emotion, mostly comedic, using memetic sounds and nonverbal expression, lip-synching, and dancing—a teen idol, eliciting admiration and parasocial relations (comedy, emotion, more than ordinary, poetic, sexualisation: addisonre, babyariel, charlidamelio, domelipa, elrodcontreras, kimberly.loaiza, montpantoja)
The plebeian(s)	Deliver(s) slapstick comedy performances, often based on/staged in real-life situations, also involving interactions between two or several personas (comedy, emotion, ordinary, performative: babyariel, brentrivera, dobretwins, joealbanese, xoteam)
The "ordinary" expert	Delivers performances based on expertise/status, sometimes about how to make successful TikTok content and includes reflexive "behind-the-scene" or "peek-behind-the-curtain" sequences (comedy, consumption, more than ordinary, sometimes reflexive: avani, brentrivera, dobretwins, homm9k, justmaiko, youneszarou)
The raisonneur	Deconstructs and satirises platform tropes and trends, allowing elevation above "ordinary" users in ambivalent stances—critical of platform practices, yet involved (identity, more than ordinary, reflexive, satire: homm9k, khaby.lame, lorengray)
The benevolent star	Delivers performances of generosity, displaying status in real-life and virtual interactions with others—it is the traditional media celebrity performance (comedy, romance, communal, consumption, emotion, identity, more than extraordinary, participatory: mrbeast)
The empowered victim	The tragic mythos is rarely found in most played videos. It is, in fact, more frequent in the Ads subsample. However, when it is performed, it is coupled with "ordinary" or "less than ordinary" ethos performance in a self-referential poetic or reflexive form as "the empowered victim," eliciting sympathy and solidarity, apparently instrumentalised for self-promotional strategies (bellapoarch and dixiedamelio in their musical content)

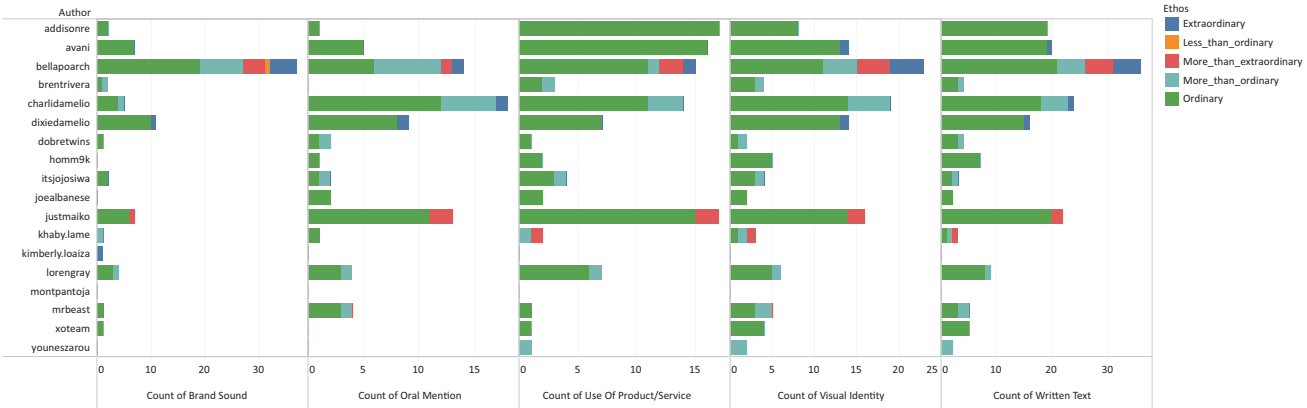

Figure 5. Brand presence and ethos performance in the Ads subsample.

"idols of promotion" calibrate "ordinariness" to satisfy marketing requirements and expectations for authenticity and relatability. Brand advertising should account for anchor and filler content templates, persona performance types, as well as the celebrities' own promotional strategies and the viewers' awareness of social media marketing. As TikTok users tend to watch more content from creators they do not follow, marketers should aim

to integrate advertising in the most engaging performances. Integration as a revelation in behind-the-scenes "ordinary" or as a facilitator for the "more than ordinary" or "extraordinary" performances are two plausible approaches.

Based on the affordances of the platform, several of the top young TikTokers (charlidamelio, addisonre, kimberly.loaiza, dixiedamelio, lorengray, avani, elrodcontreras, xoteam, montpantoja, babyariel) engage in performances (dancing, lip-sync, acting) that result in different degrees of sexualisation of the sampled video content (31.41%, *n* = 71), indicated by body exposure combined with provocative outfit, perpetration and gaze, facial attractiveness, lascivious gestures and movements, similar to the sexual objectivation techniques used in the music industry and advertising. But, as the literature suggests (Vizcaíno-Verdú & Tirocchi, 2021), this self-sexualisation is perceived by the performers as a form of empowerment, while the sexualised content featuring other female performers is assessed as a form of objectivation.

Implied violence (dance moves mimicking fist fighting, strangulation of the partner, obscene signs, etc.) is only exceptionally associated with most of the sampled TikTokers (19.02%, *n* = 43), with few exceptions: joealbanese, jamescharles, and elrodcontreras.

5. Conclusions

The research complements existing research on TikTok by looking at the most successful young celebrities emerging on the popular short video platform. It is relevant, especially in the context of recent concerns over the platform's management of child users.

The main findings indicate that, as expected, comedic, predominantly nonverbal content dominates the performances constructed by the most followed young TikTokers. The TikTok celebrities do not specifically engage with "hashtagged publics" (Zulli & Zulli, 2022), presumably because they address the mainstream and seek broad popularity. Their construction of authenticity relies mainly on acting out either an "ordinary" or "more than ordinary" ethos. The use of hashtags reinforces the main content (the tongue-in-cheek #learnwithkhaby encourages parasocial relations or signals advertising content), in most cases circumventing the platform's advertising system. It is also interesting to note that a significant part of their performances include self-sexualisation and implied violence—elements that open up paths for future research.

In the context of platform memetic logics, TikTok celebrities' performances are often the origin of founder-based memes (Shifman, 2013). Beyond individual short videos, "imitation publics" may turn persona performances into memes, thus creating templates for the performances of millions of young users. The proposed persona types play out ordinariness in different styles: (a) the "master of ceremonies" is a ritualistic persona that creates or engages with trends and challenges; (b) the "platform sweetheart" thrives in the space of nonverbal dance performances and instrumentalises sexualisation; (c) the "plebeians" similarly instrumentalise violence with their slapstick humour; (d) the "ordinary experts" set themselves up for easy switching into influencer performances. Furthermore, some notable performances fall outside this type of construction of authenticity: (e) the "raissoneur" persona proposed by khaby.lame's satire; (f) the "benevolent star" persona transferred to TikTok by the YouTuber mrbeast; (g) the "empowered victim" triggers sympathy and solidarity by revealing or implying uncomfortable personal tragedies. Since TikTok also sets itself apart from other social media systems by allowing users' consumption patterns to construct a fluid, algorithmised self (Bhandari & Bimo, 2022), the persona performances function as both templates and reflections.

When the young TikTokers perform in the context of advertising or partnerships and endorsements, they tend to perform differently than their established main persona—ads rely on "filler" content where the persona constructed is notably "ordinary." Findings confirm and complement previous work by Abidin (2017, 2018, 2020) and Riboni (2020).

The conceptual framework constructed for this analysis and the resulting proposed persona performance types constitute the main contribution of this work. The conceptual and analytical approach allows for the characterisation of performances through the analysis of several layers. The size of the two subsamples constitutes a limitation for this research. A larger sample of videos—including the less successful videos or those marked as ads in the hashtags but not in the metadata—would yield interesting results. The scope of our research was limited to popular performances, and future research is needed to validate the framework and proposed personas on samples that better represent the diversity of TikTok content creators.

Conflict of Interests

The authors declare no conflict of interest.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited). The additional tables provide further details on the conceptual model and the main/"anchor" content for each celebrity account.

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Article

Online Success as Horizon of Survival: Children and the Digital Economy in Lagos, Nigeria

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Abstract
Literature on the impact of the digital ecosystem on youth is largely grounded on Western case studies and Eurocentric in its working assumptions; yet African children and teenagers—who account for most of the continent's population—have been early adopters of social media's possibilities and are exposed to distinctive risks. This article shows how, in the absence of viable institutional structures for self-actualization in post-liberalization Nigeria, digital platforms turn children into central actors of economic flexibility. With transitional pathways disappearing, formal employment and traditional markers of adulthood are no longer on the horizon of African youths. Uncertainty, hustling, and extraordinary aspirations are part and parcel of their socialization process, with "survival" and "success" increasingly perceived as intertwined, requiring everyone, from the youngest age, to "perform." From rags-to-riches stories of viral children groups to racist images and videos of children feeding China's livestreaming boom and the meme culture across the world, commodified African childhood is projected into the flows of digital popular culture, enabled by legal and socioeconomic vulnerability and the internalization of visibility as an avenue of opportunity. Nigeria in particular, with the world's largest population of out-of-school children on the one hand, and an internationally booming entertainment industry on the other, delineates a palpable, yet unsustainable mode of aspiration and wealth acquisition through engagement with social media. This article draws on a year-long ethnographic investigation in Lagos among (a) groups of teenage aspiring dancers seeking to "blow" online and (b) marketing professionals who use children in their commercial strategies.

Keywords
African youth; digital economy; hope labor; African cultural industries; Nigeria; Global South

Issue
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1. Introduction

"Entrepreneur," "public figure," or even "entertainment mogul"—these descriptors are all commonly found in the biography section of Lagos teenagers' online profiles. With the prospect of social reproduction foreclosed for the majority of African youths (Biaya, 2000; Comaroff & Comaroff, 2006; Honwana, 2012; Simone, 2006), "survival" and "success" are increasingly perceived as intertwined, requiring everyone, from the youngest age, to "perform." The liberalization of African economies introduced by the Structural Adjustment Programs (SAP) in the late 20th century caused an "immense sense of anguish among an entire generation of young, educated persons" (Mbembe & Roitman, 1995, p. 350), yet today's African children and teenagers are growing up in an environment where the condition of flexibility has largely been normalized (Piot, 2010). The existential anxiety that their parents experienced witnessing the unraveling of postcolonial economic structures—and, with them, the aspirations associated with middle-class respectability—has become an internalized and individualized condition. Uncertainty, hustling, and extraordinary aspirations are part and parcel of the contemporary socialization process for average African children (Cooper & Pratten, 2015; Langevang, 2008; Thieme, 2018; Weiss, 2009).

Nigeria, in particular, has the world's largest population of out-of-school children (UNESCO, 2022). In this context of extreme precarity, youths appropriate digital platforms' affordances to perform their aspirations, but are also enacted as resources themselves. From rags-to-riches stories of viral children groups, such as Ikorodu Bois in Nigeria or The Ghetto Kids in Uganda, to the exploitative use of images of anonymous African children fueling the Chinese live-streaming boom and the global meme culture, commodified African childhood is projected into the flows of digital popular culture. This is enabled by legal and socioeconomic vulnerability and the internalization of visibility as an avenue of opportunity.

Young Africans are expected to account for close to half of the world's youth by 2030 (Population Reference Bureau, 2019). With half of its inhabitants aged 18 or under (United Nations Population Fund, 2023), Lagos is predicted to become the most populated city in the world (Hoornweg & Pope, 2017). African children's interactions with the digital ecosystem thus offer critical insight into present and future global dynamics. Furthermore, Alessandro Jedlowski argues in relation to the Lagos film industry that social changes and risks carried by media transformations tend to "manifest themselves first, and with their sharpest and most immediate consequences, in the [Global] South" (2016, p. 174). As the "frontier in the unfolding history of neoliberalism," Africa can be considered to be "running ahead" of Euro-America (Comaroff & Comaroff, 2012). In a giant media market such as Nigeria, the "government's light handedness" on digital companies and the media industries indeed "allows for testing practical commercial arrangements and if one doesn't work, one can remodel at almost no cost" (Oyeniyi, 2016, para. 15). While celebrated for the tremendous growth that it has brought to the Lagos entertainment industries (Krings & Simmert, 2020; Okoli & Atelhe, 2018; Olusoji, 2015; Simon, 2022), the nimbleness of the Nigerian digital media ecosystem means that children are exposed and exploited as part of various digital strategies. This condition deserves particular attention, especially since digital media in Africa is increasingly constructed as a space for social experimentation by both local and multinational actors (Gravett, 2020).

Bringing together literatures on the "hope boom" (Kleist & Jansen, 2016) in Africanist anthropology and "hope labor" (Kuehn & Corrigan, 2013) in the creative industries, this article shows how in the absence of viable institutional structures for self-actualization, the perceived opportunities associated with performance on digital platforms are positioning children and teenagers as central actors of economic flexibility. Premised on the productivity of uncertainty (Cooper & Pratten, 2015), anthropological studies of urban African youth describe a subjectivity significantly orientated towards future success (Comaroff & Comaroff, 2000; Guyer, 2007; Sarró, 2015; Turner, 2015), organized by the cultural principle of chance, or the miracle. "Hope labor," in contrast typically deployed in Western contexts, "keeps people chasing illusory outcomes" (Kuehn & Corrigan, 2013, p. 17) through the logic of investment in one's employment prospects. The intersection of the African "hope boom" with "hope labor" is epitomized by the pidgin phrase *e don blow*, which captures the aspiration to valorize youth leisure pursuits in Lagos, the commercial capital of Nigeria and home to its thriving entertainment industries. "Blowing" refers to gaining access overnight (through a viral song, dance, or skit) to online popularity that will unlock the virtuous cycle of monetization, and structures much of youth's imaginaries around survival and success.

2. Research Problem

Africa has over 400 million social media users, and that figure is expected to double by the end of the decade (Statista, 2022). In Nigeria alone, over 100 million people use WhatsApp (Statista, 2022). The instant messaging service commonly mediates social and economic spheres, which impacts children in a particular way in a context where close to half of children aged 5 to 14 work (Enebe et al., 2021; US Department of Labor, 2022). Yet, even as "there have been several thousand studies about the effects of media on youth" (Valkenburg & Piotrowski, 2017), they rarely reflect African experiences. Scholarly debates on social media are largely grounded on Western case studies and Eurocentric in their working assumptions (Costa, 2018). This marginalization is all the more troubling as African teenagers have been early enthusiasts of digital media, investing it spontaneously with "connective ambitions" (Marler, 2022). In her study of Accra Internet cafes in the 2000s, Jenna Burrell describes Ghanaian teenagers' hope to "leverage the barest thread of connection…to hook something from the vast sea of possibilities" (Burrell, 2012, p. 3). The early adoption of digital technology by Lagos youths and its transformative impact on the Nigerian music industry is also well established (Adedeji, 2010; Fry et al., 2018). Relegated to African studies or international development, or confined to local and regional journals, these engagements with digital media, however, rarely inform the broader theoretical frameworks of media studies. This is a general problem in social sciences, with less than 1% of the research samples coming from Africa in some disciplines (Mughogho et al., 2023). While there is growing consensus that the relationship between youth and media requires nuanced, empirically grounded research to make sense of the "sweeping and rapid changes in the media landscape" (Valkenburg & Piotrowski, 2017), our understanding is limited if it excludes whole sections of the world population, while media strategies in the digital age are increasingly global in scope.

The "Grand Visions of connectivity" (Friederici et al., 2017) promoted by international organizations have often attributed a self-evident developmental impact to

the digital inclusion of African youths, even if unsupported by empirical evidence. Policy actors' focus on bridging the digital divide leaves a blind spot as to how increased digital access impacts survival strategies in the context of dramatic inequality and equally dramatic aspirations. Addressing this blind spot calls for expanding the notion of digital inclusion to take into account "digital disadvantage" (Stuart, 2020), that is, the qualitative differences in the uses and consequences of technology. This requires empirically grounded research on the situated encounters of African youths with digital technology. Attention to the social imaginaries that shape the moral and material potentialities of digital media is needed to understand its "affordances-in-practice" (Costa, 2018) in contexts very different from the one in which those technologies were initially thought and developed.

In Nigeria, such studies, while numerous, generally have a restricted focus. Most research on digital media's impact on children and adolescents conducted in Nigerian universities has examined the moral aspect of what is perceived as exogenous technologies. The negative effect of "anti-African" values conveyed to youth by social media, particularly in relation to issues of sexuality and family, has received significant attention (Adegboyega, 2020; Bolu-Steve et al., 2022; Chukwu & Onyema, 2019; Ofoegbu, 2022; Onah & Christian, 2014; Orlu-Orlu & Nsereka, 2014). International studies, on the other hand, have mainly addressed risks associated with African youth's use of social media through the lens of political economy and surveillance. There is a common denunciation in Western academic literature of the "corporate takeover" (Haynes, 2018; Jedlowski, 2016), or "recolonization" (Osumare, 2014), of African popular culture involved in the platformization process. The (geo)political stakes of "digital neocolonialism"—the collection of African users' data by foreign companies—have also generated particular interest in the Euro-America, since much of Africa has come to rely on Chinese companies for digital infrastructure (Gravett, 2020).

Re-centering the analysis on users in their specific sociocultural context, this article is innovative in examining Lagos youths' interaction with digital media from below. Taking a bottom-up approach to issues of power and inequality, it shows how the rise of digital media impacts the very way in which children and teenagers in Lagos relate to—or are used by—their direct social and economic environment. It is well established among historians and anthropologists that "youth" is a historically constructed social category and, as a relational concept, its contours fluctuate according to power configurations (Durham, 2000). The dramatic collapse in Africa of rites of passage such as initiation, the transition from school to work, and the delaying of marriage has impacted the construction of youth as a category, restraining young Africans' access to the attributes of adulthood through what has been widely described as "waithood" (De Boeck, 2007; Honwana, 2012; Jua, 2003; Masquelier, 2005). This postmodern ambiguity is reflected in academic literature, in which "white preadults" are typically "teenagers," while their black counterparts are "youths" (Comaroff & Comaroff, 2006). This liminal space delineated by social and demographic indicators is the site onto which uncertainty, but also possibility, are projected.

As social media repurposes life on the margin through "unlikely" creators (Lin & de Kloet, 2019), I show that the investment in the self that characterizes post-liberalization Africa (Archambault, 2021; Ayorinde & Ajose, 2022; Gilbert, 2019; Serres, 2020; Shipley, 2013) now starts from childhood, reconfiguring the social category of youth. From the surplus population that the SAP had made them into (Ferguson, 2015), youths have emerged as the carriers of future-making aspirations for Africa, the "young continent." Nigeria in particular, with the world's largest population of out-of-school children on the one hand, and an internationally booming youth-led entertainment industry on the other, outlines a palpable, yet unsustainable, trajectory of self-sufficiency that mobilizes the circulation and conversion of value afforded by visibility on digital platforms. In this context, even young children and teenagers seek to deploy an aspirational economic agency on social media. Encouraged by the neoliberal discourse of corporations (Gillespie, 2010; Hoffmann et al., 2018) and development institutions (Friederici et al., 2017; Osumare, 2014), but also by their direct environment, they "find themselves charged with the requirement that they perform as economically active…citizens" (McRobbie, 2007, p. 727), in a similar way that women's "empowerment" has previously been linked to promoting a working identity (Duffy, 2016; Gill, 2008; Koffman & Gill, 2013). At the same time, they are mobilized as a resource themselves in a digital environment governed by commercial concerns.

3. Methodology

The data presented in this article is based mainly on one year of in-person ethnography conducted in Lagos in 2019–2020, complemented by five years of daily digital ethnography. The physical component of the research was organized through an affiliation as visiting researcher with the University of Lagos, as part of doctoral research at Oxford University. The fieldwork involved: (a) ethnography among groups of aspiring dancers and singers seeking to "blow" on social media, during which I analyzed their interactions with established artists and corporate structures who use them in their marketing campaigns; and (b) ethnography among entertainment and marketing professionals, during which I analyzed how they conceptualize and use children in their commercial strategies. These two different prongs of the fieldwork will be presented through the two case studies in Section 4.

The aspiring dancers and music artists participating in the study were aged between 14 to 30, with the majority of them between 16 and 20. All considered themselves "youths," and would probably fall within

what scholars call "waithood." Several of them had dropped out of school and moved to Lagos on their own, while their families lived in different Nigerian states. They were therefore vulnerable, but also extremely autonomous for their young age. Initial research participants were recruited during large events that I attended in Lagos. They showcased their skills during the waiting time before the main acts would come out (a common practice in Nigeria, where over a dozen young people commonly sing or dance during the protracted "warm-up" times) and I would approach them backstage. I explained the project and consent procedure. Few participants were surprised, to the extent that a researcher coming from a European university to study them fit perfectly within the narrative of global visibility that governed their engagement with digital media. I then expanded my recruitment outward through the snowball method. For dancers, I spent time in the urban spaces where groups hang out and practice, and accompanied them to shoot social media content, attended neighborhood events, and sometimes followed them to social and family spaces. Aspiring music artists generally called for a more individuated research dynamic. I developed personal relations with some of them that allowed me to attend hang-out sessions in home studios (which included countless discussions about social media "strategies") and followed them as they tried to approach industry professionals.

As for entertainment and marketing practitioners, a significant part of their work is devoted to creating and entertaining social ties, which considerably facilitates the anthropologist's task of establishing connections with informants. They attend conferences, concerts, parties, club nights, music video and advertisement shoots, studio sessions, and other gatherings that cut across the professional and social spheres, while constantly interacting on social media. I quickly became embedded in the hectic dynamic of the entertainment industry and enacted this spatio-social network as my research field. I conducted about 50 semi-structured interviews with key players, each lasting between one and three hours. I used the interviews to gain factual and historical information on the functioning of the industry, while documenting self-presentation practices through elicited biographical narratives. Yet, most of the data underlying this article was obtained through direct observation, informal conversations, and "deep hanging out" (Geertz, 1998). Observations were then discussed with research participants to incorporate their own discursive constructions, while cross-checking them across differently situated informants.

4. Case Studies

4.1. Teenage Aspiring Dancers in Surulere, Lagos

Nigerian children who complete uninterrupted primary and secondary education typically graduate from secondary school around the age of 16 or 17. Gaining admission to a university is usually a challenge, due to long waiting lists and an opaque selection system that may require significant spending from the applicant's family. It is thus not uncommon for teenagers to take a forced "gap year" from education, while they wait to gain a place in a university. Higher education has long been considered a prerequisite to the aspirational middle-class life that governed ideals of (self-)development following Nigeria's independence. However, more and more teenagers are voluntarily choosing to forego it. This is the case of several of the research participants, who aspired to follow the path paved by Nigeria's hyper-visible pop stars and, increasingly, dancers. At the time of the fieldwork, a handful of young Nigerian dancers had managed to gather hundreds of thousands of online followers and were actively using their platforms for partnerships with corporate brands and Afropop artists. Delineating a new avenue to financial independence and social legitimacy, these figures embodied the possibility of online success for everyone.

Several of the dancers participating in the study met with other teenagers from different impoverished parts of Lagos monthly to showcase their skills in various styles. The events were filmed, and snippets shared on social media in order to attract attention. In a social field increasingly enacted on digital platforms, the gatherings were also intended to develop a sense of community amidst the everyday struggle. This is why some felt that having an entrance fee—sometimes strategically set at a bottle of Coke in hopes of getting noticed by the brand—defeated the purpose. One particular night, a girl who was part of a local dance crew complained: "You ask me to pay to watch my fellow dancers, what kind of nonsense is this?" The sound kept cutting due to issues with the electric generator—a necessary piece of equipment when the national energy company only supplies a few hours of electricity daily. The young organizer took the mic for a public announcement:

> Guys, you see why we need this money—to buy fuel for the gen[erator], or we can't even get sound! So people, don't forget to keep tagging Coke, Red Bull, Nike, and everyone on your posts—we will get there, they should see us now!

Going through the social media profile of one of the aspiring dancers who participated in my research, the first video that caught my eye was a bright and simple dance routine featuring an abundance of special effects. The colors were those of a prominent Nigerian commercial bank, and the audio and moves described the various financial products offered by the bank. In an environment where corporate sponsorship is considered the ultimate sign of success, I was surprised to find out that one of my young informants was affiliated with such a powerful and respected commercial institution. But it turned out that he was not. This was one among

several videos on his profile meant to attract the attention of large corporations whose resources and symbolic charge Nigerian teenagers dream of tapping into. He had self-choreographed, directed, and painstakingly edited the full one-minute commercial in pursuit of a cash prize. Failing to win, the video remained on his profile as a free advertisement for the bank.

These aspiring dancers typically practiced on the abandoned grounds of the National Stadium, where they shared space with the small community of bicycle motocross (BMX) riders. The BMX riders were featured in a documentary produced by Red Bull's global media arm and released to social media in 2018. Starring young riders with names directly inspired by the Nigerian music industry's successes—Starboy, KK Money, and S King—the corporate-sponsored film was viewed by over ten million people on YouTube at a time when Nigerian media and brands had no knowledge of, let alone interest in, that community. Despite the omnipresence of dance in Nigerian popular culture, dancers as a constituency share the socioeconomic marginality of BMX riders. They have largely been disregarded by Lagos-based companies, with the social stigma of poverty limiting their inspirational potential in the eyes of the public, and in turn their opportunities for sponsorship. In that context, Red Bull "blowing" the BMX riders had redrawn the bounds of the situated imagination of teenagers self-training in the shade of the dilapidated stadium.

The ethnographic scenes above evoke both the contingency and ubiquity of relations, actual or desired, to the sponsorship economy mediated by online platforms. Corporate brands permeate the lifeworld of even those most marginalized from global consumption, such as teenagers in the overcrowded areas of Lagos longing for a way out of poverty. Sponsorship opportunities structure an aspirational path for the future, where other forms of support barely exist. The trajectory of the National Stadium where young Lagos dancers train—a 1970s monument embodying post-colonial state-led modernity—offers a stunning demonstration of why these young Nigerians place their hopes in social media rather than public education. It symbolizes how the state went from a development actor to a nuisance that needs to be overcome. Indeed, after leaving the stadium to decay since the end of the 20th century, in 2020, the Nigerian government demolished without notice the small shops and refreshment spots catering to the various teenage communities that had grown organically in the ruins of the building once meant to inspire youth. Access was limited for dancers and others who used its grounds to nurture dreams fueled by the videos of inspirational Nike ads that they watched on YouTube during their breaks.

The path that corporate brands offer to the Nigerian youth is encapsulated in the popular pidgin phrase *e don blow*. Understood as sudden and unpredictable for those far from the corporate offices where decisions are made—almost an "overnight" process—the phenomenon of "blowing" evokes that of miracles and is a source of hope for many youths who perceive no other opportunities for their future. With a moral dimension grounded in the bible verse from Mark 11:24: ("whatever you ask in prayer, believe that you have received it, and it will be yours"), it involves "claiming" what is "rightfully" yours by tagging companies on social media, mentioning them in songs and other creative content. The quasi-religious terminology around brand sponsorship is not particular to Nigeria, and circulates through "inspirational" social media clips shared across the Black Atlantic, in which stars explain how they "manifested" their corporate deals. This provides both a conceptual and material framework for negotiating everyday life amidst uncertainty. The organizer of the monthly dance event has been tagging Coca-Cola on his social media posts for over a year. He believes that the marketing team is following his community-building efforts, just waiting for more growth before they reach out for a partnership. Having dropped out of school for lack of job prospects and struggling with severe depression, the imagined sponsorship opportunities give him the strength to create motivational social media content every day. This hope is then passed on to his 13,000 followers (mostly teenagers aspiring to become dancers or artists), packaged in cultural representations shaped by the perceived opportunities offered by corporations.

Toheeb, a recently appointed marketing manager at multinational energy drink company Red Bull, explained to me how his job involved creating ties to the young Lagos hip-hop dance community. The brand is associated with extreme and urban sports across the world, and the multinational sought to retain this specificity even in Nigeria, where such sports have little public traction. Toheeb described fumbling through social media to identify Nigerian hip-hop dancers, unconvinced that such a category even still existed, given the overwhelming visibility gained by Afropop at the expense of foreign genres in recent years. A professional who had started his career as a corporate finance analyst at a bank, Toheeb proceeded to message dancers aged 16 to 25 on video-sharing apps. He was worried that he might not master the codes of his young interlocutors on digital platforms, and apprehensive about their perception of his affiliation with the energy drinks giant. Yet, his fears were quickly dispelled. "I was shocked," he recalled, "it was as if they had been waiting for me, even the kids were like: 'Oya let's work!' " From the perspective of the young dancers, gaining the support of a corporation is indeed understood as a legitimizing step, framed in moral terms. Their social media posts thus frequently indicate "paid partnership"—this is not to comply with consumer protection laws that, if in existence, would hardly be enforced, but to signal their achievement in being a party to transactional (i.e., valuable) relationships.

4.2. Nigerian Marketing Professionals' Use of Children for Online Campaigns

In 2020, the short-form video platforms TikTok and Triller were the emerging marketing tools taking the Nigerian music industry by storm. With virality as their organizing principle, these new digital platforms fed the social and economic imaginary around "blowing." Rising artists of the time Ckay and Rema, who both started their commercial careers at 18 in Lagos, would go on to reach the top of music charts around the globe with what started as TikTok hits ("Love Nwantiti" and "Calm Down," respectively). As I was conducting research with various Nigerian music marketing professionals during that period, I witnessed how they were looking to tap into local resources to drive virality. Their conceptualization of the resources lying at their disposal quickly grew to include anonymous African children, whose smiles and energy became a common feature in short-form promotional videos. One example of this strategy is the campaign devised by a Lagos music consultant to promote the song "ODG" by Eltee Skhillz.

"ODG" was released on all digital platforms in January 2022. A few weeks later, a video of children from a Ugandan orphanage dancing to the song gained traction on social media. Unbeknownst to the public—and to the orphanage—the artist's marketing consultant had layered the song on a video of the children dancing to thank a benefactor. When the orphanage found out about the altered video through social media, its official account liked it and commented on it excitedly. The Lagos music consultant had not previously envisioned that his marketing video might ever travel back to its original creators, but he was relieved to see that the orphanage supported the unapproved use of the children's image for commercial purposes. On that note, he reached out to the orphanage and coordinated with its director to release a new video by the Ugandan children. The new video, fully synchronized to the song, and further edited by the artist's public relations team in Nigeria, was then publicly "discovered" and shared by the artist. The children's eye-catching talent—highlighted through the professional production—received wide-ranging acclaim and the video started to circulate across the continent, taking a life of its own in Europe and North America. The sight of African children confidently dancing despite their modest surroundings (the video was shot on a dirt road) struck a chord with a wide range of constituencies. Countless online blogs and social media pages devoted to Black identity, Afrocentric culture, and entertainment and dance reposted it. With its carefully crafted choreography and enthusiastic solo performances, the video countered the pathological "image of the starving, isolated child" spawned by Western mainstream media (Wesseling, 2009, p. 148).

The response to the children's dance eventually largely overshadowed the "ODG" song that it was meant to promote. The marketing consultant in Lagos thus soon conceived a plan to further capitalize on the Ugandan children's appeal. The children's group was now to be flown to Lagos and featured in the official music video for the song. The trip itself was widely publicized on social media, narrated through the lens of opportunity. The fact that young kids who are simply trying to survive in an orphanage in Uganda could be invited to experience the glamour of the Nigerian music industry fed the perception of social media virality as productive. The artist's team in Lagos further wielded this ideological construction, as they did not see the need to financially compensate the children for their performance, convinced that the online fame would in and of itself convert into future benefits for the children and the orphanage. In fact, the children were later invited to London by the BBC and to Paris by the PSG football club, on the basis of the online fame that they gained through the online marketing campaign for "ODG."

Nigerian music professionals who plug children and teenagers into the cogs of digital capitalism are both a driving force and witnesses to the social dynamics that govern African youth's engagement with the digital economy. Aware that the stakes of online visibility reach far beyond their own bottom line, they are mediating agents in a complex system of meaning-making, as their actions shape youth imaginaries. The marketing consultant who recruited the Ugandan children lamented to me that desperate Nigerian teenagers sometimes contact him, presenting themselves as willing to do "whatever it takes" to gain visibility, which they associate with emancipation from poverty. In this particular context, "whatever it takes" commonly refers to exploitative ritual practices, which are understood to accelerate the path to fame (Hanmakyugh, 2020; Okwori, 2003; Salihu et al., 2019). He therefore worries that the "rags-to-riches stories" on social media are leading a precarious new generation astray.

His position, like that of the other millennials managing the Nigerian entertainment industry, is thus ambivalent. Having started his career in his teenage years at the turn of the millennium, at a time when "socially conscious" music was dominant as Nigeria was emerging from military rule, he is well-versed in Nigeria's visionary history of inclusive development. But today, two decades after the country formally transitioned to a democratic regime, the general sentiment is that the political and economic situation has only gotten worse despite countless artists "denouncing" everyday suffering (Obadare & Adebanwi, 2010; Yékú, 2022). In these circumstances, he derives his only hope for the country from seeing the young people he works with at least performatively save themselves and become icons of a modern, digital kind of success. He took it upon himself to ensure that the Ugandan children would have "the time of their life" when visiting Lagos for the video shoot, and he was widely celebrated by his colleagues for "mentoring" poor children.

Lagos music professionals generally believe that through branding as a moral and material practice, the entertainment industry guides the new generation in navigating global neoliberal capitalism, in the absence of effective political leadership. Thus, they embed their commercial actions in a moral framework. As they have rapidly and aggressively seized upon the entrepreneurial possibilities offered by the near-universal reach of social media, they challenge the world to rethink how hegemonic structures operate through marginality. Regarding themselves as moral agents of visionary capitalist utopianism (Pier, 2015), they reinterpret their appropriation of capitalist value from children and other marginally situated constituencies as the spearheading of an Africa-based project of modernity and globalization. Aware of the lack of prospects for current-day children, they are keen to value youths' social production as a path to integrate Nigeria's new generation into the global economy. Yet, "whether social production leads to a future career or not, hope labor's work in the present is already done" (Kuehn & Corrigan, 2013, p. 21). In addition to social media firms, the local entertainment and marketing industries valorize children's activities for their own purposes in the present.

5. Discussion

With the state-sponsored hopes of the post-independence era receding into the distance, formal employment and middle-class respectability are no longer the horizon—or even the aspiration—of Lagos youths. Early in their lives, they are inducted into a hustling ethos underpinned by stories of fantastic success. AbdouMaliq Simone observes that:

> Africa's increased dependence on the city as a locus of imagination, performance, dissimulation, and 'the making of something out of nothing' correspond [sic] with the effort being made to socialize Africans as proficient navigators of the virtualities inherent in ICT and the New Economy. (2006, p. 134)

The discursive construction of digital opportunity "ultimately filters the individual's social activities through the lens of business and marketing" (Hoffmann et al., 2018, p. 209), filling the educational, cultural, and economic vacuum left by the institutional collapse experienced by Nigeria at the turn of the millennium in the wake of the SAP. The digital economy in Lagos is being constructed as a viable option for children and teenagers to invest their future in, as they navigate an environment from which transitional pathways to adulthood have disappeared.

The sense of necessity that characterizes young Nigerians' engagement with social media was eloquently articulated in response to a veteran journalist who decried "the age of meaningless." Nigerian artist Banky W commented: "We want to learn but your generation has to teach. We want to read but the government must provide libraries. We want to go to school but the lecturers keep going on strike." The theme of forced self-reliance mediated by digital tools pervades Nigerian youth, often in oppositional ways. In the song "Jungle" released to YouTube, aspiring artist Tega Starr sang:

> See dem no [they don't] teach us how to make money from school; So we got to learn am [it] from the hood….It's all about the money this is true; Na the only way to make my dreams come true; Was born in the hood with no damn spoon or little food; See our government bad oh; Them no want give a ghetto man job oh; So we dey find [are finding] a way to survive oh; And now SARS don dey threaten [are threatening] our lives oh

With SARS (Special Anti-Robbery Squad) set up in the wake of the SAP to police the rising level of youth crime that followed austerity measures and nowadays focused on cybercrime, the song refers to online scams (in particular, "love scams" on social media) that are (in)famously committed by Nigerian teenagers (Burrell, 2012; Hanafi, 2020). Thus morally ambivalent and ontologically unstable, social media is yet widely constructed by young Nigerians as their only resource in the stifling environment built by their elders and perpetuated by the current government.

Mayssoun Sukarieh (2016) has described how in Jordan, the work of the non-profit organization Save the Children converges with the government's interests in creating the organizational as well as subjective conditions for youth entrepreneurship. Sukarieh observed that these efforts are relatively successful—not because of their ideological appeal, but as a result of the economic and other material incentives and constraints that push and pull Jordanian poor children to take up the subject positions that these programs offer them. Where, in other African contexts, the valorization of entrepreneurship and private initiative has similarly been linked to state ideas of progress being overtaken by neoliberalism (Ntarangwi, 2009; Perullo, 2011; Pier, 2015; Shipley, 2013; Stroeken, 2005; Weiss, 2009), the Nigerian entertainment industry has promoted the notion that public education is hopeless at fostering the culture of entrepreneurship necessary to survive in the contemporary environment. In contrast to Rwandan youths who are required to undergo classroom training in "entrepreneurship" for six years in secondary school (Honeyman, 2016), many Nigerian teenagers are dropping out of school precisely because Nigerian education is widely deemed to stifle entrepreneurial spirit and be unable to cope with the demands of a digitally connected world.

6. Conclusion

Kuehn and Corrigan explain that "we ultimately know that the realization of our hopes is fundamentally beyond our control. We lack agency, so we hope" (2013,

p. 17). The future-making practices of African youths widely analyzed through the terminology of "hope" can be better characterized as a manifestation of hopelessness, a "loss of belief in the possibility that they can one day become rich through honest work" (Lockwood, 2020, p. 47). Faced with an absence of prospects, countless Lagos youths cling on to the possibility of "blowing" through a digitally viral song, dance, or skit. The unpredictable and seemingly accessible nature of online work fits within a paradigm of uncertainty that emphasizes the barest thread of opportunity, offering a moral and conceptual treatment to the numbing despair that otherwise negates any form of agency to youths, in a system that yet requires them to fend for themselves.

Used to being defined as victims of forces and histories beyond their control, and portrayed as helpless through terminologies such as "waithood," Lagos youths invest their aspirations into social media precisely for the reasons that make it suspect to scholars analyzing it through the lens of political economy and imperialism. With its negation of scale and power dynamics (Gershon, 2011; Hoffmann et al., 2018) and its performative potential (Adkins, 2005; Lury, 1993), the digital economy—and the neoliberal ideology that underlies it—offers them a trope to reject the exceptionalizing narratives that the African post-SAP generation is usually the subject of. In the process, it extends the costs and risks of digital information production to even further territories, reconfiguring children as responsible for their own salvation.

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Conflict of Interests

The author declares no conflict of interests.

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Article

Advertising on Video-Sharing Platforms in the Toy and Food Categories in Spain

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Abstract
This article reviews the advertising content on the YouTube channels featuring kid influencers with the highest number of subscribers in Spain. The goal is to observe the evolution of the elements that define this type of content as advertising content, even though the vast majority of the advertising content is not labelled as such. An analysis was conducted of all the videos posted during the 2022 Christmas period on the 15 YouTube channels with the largest audiences, which produced a sample of 61 videos that possessed the pertinent characteristics. Content analysis was applied and the degree to which the content complied with food and toy advertising regulations was examined.

Keywords
advertising; food; influencers; kid influencers; media regulation; self-regulation; toys; YouTube

Issue
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1. Introduction

The business of kid YouTubers originated in 2011 with Evan Snyder, better known on YouTube as EvanTubeHD, one of the pioneering kid vloggers in the US. His channel began to be professionalised when he was eight years old, paving the way for a new commercial venture on YouTube (Counsel for Center for Digital Democracy and Campaign for a Commercial-Free Childhood, 2015; Ramos-Serrano & Herrero-Diz, 2016). Very soon, other children also began to appear on their own channels, such as four-year-old Ryan whose channel (RyanToysReview) obtained 28.9 million followers (Social Blade, 2023). The current leader in this sector is the top-rated kids' YouTube channel Kids Diana Show with 110 million subscribers, followed by Vlad and Niki with 96.4 million subscribers (De Veirman et al., 2017; Social Blade, 2023). This shift in leadership in this area stems from the fact that the original kids are growing up (as have their followers) and are no longer of an age to create kids' toy content; they have created a strong personal brand in the market but have had to refocus their product in order to continue monetising their brand (Millet, 2022). At the same time, other kid vloggers have emerged to replace them and are generating new content for other children in channels in which brands from the toy and food sectors are still keen to be present (De Jans et al., 2019; Goldate, 1996; Hartmann, 2004; Hudders et al., 2017; Marsh, 2016). YouTube is the preferred platform for children aged between 4 and 15 years old (Ofcom, 2023; Qustodio, 2020), as well as having the largest amount of entertainment content for this target audience (PWC, 2019).

In our analysis, building on other studies which have looked at kid YouTubers in Spain such as those by Vizcaíno-Laorga et al. (2019), Tur-Viñes et al. (2019), Martínez Pastor et al. (2021), Castillo-Abdul et al. (2020), Bolás et al. (2022), and Nicolás Ojeda (2023), we have observed that the channels initially examined (as from

2015) have been evolving strategically or even disappearing, due to the children featured in them reaching either adolescence or adulthood. In the case of the MikelTube channel (a channel whose stars were two young siblings, featuring toy and video game content), which has 8.8 million followers, even though the stars of the channel are now teenagers, the family has created another channel (FamilyTube) which has 2.2 million followers (as of 2023) where they have centred on the family, not the children, in order to reposition their business and continue using their brand as a source of earnings. Another case is that of Martina D'Antiochia, aged 17 years old, who focuses on other content related to books, food, and travel. This indicates that as a brand they are seeking to produce other content and lead other sectors in order to keep monetising their brand (Millet, 2022). It is also important to analyse the degree to which the YouTube videos comply with the regulations in view of the fact that this is now a consolidated business, that the regulations governing the toy and food categories are increasingly clearer and that these rules should be complied with.

This study will therefore focus on analysing whether the advertising content in the videos is explicitly identified and differentiated from the editorial content as expressed by the European and Spanish legislation, specifically in the case of toys and food. Previous studies have analysed these practices and demonstrated that they were common. However, with the new regulations and the evolution of the YouTuber ecosystem itself, we are interested in ascertaining whether this has changed. Furthermore, we must not lose sight of the fact that those who were kid YouTubers have grown older and many are now in their teenage years; therefore their business is changing during the course of this development, and for us it seems important to identify those changes.

2. Current Status of Research

Araújo et al. (2017) carried out a quantitative analysis of different elements of children's YouTube channels, such as the category of the advertised products, the target audience, and the content and whether it was identified as advertising in the videos. Other work includes that by Craig and Cunningham (2017), who studied the unboxing phenomenon in children's videos, and the research by Marsh (2016), who endeavoured to understand why children feel attracted by content from other children and, in particular, by the unboxing format which aimed to lead viewers to believe it was editorial content. The study by Vizcaíno-Laorga et al. (2021) analyses the channels of Spanish kid YouTubers in which the children interacted with toys with a specific narrative in order to promote them and publicise the brand without their audience identifying that content as being advertising. That study compared the data of the videos under analysis from during and outside the Christmas period, focusing on the channels with the largest follower numbers. The authors viewed 250 channels from 2016 to 2018 and analysed the brands portrayed, the type of products advertised and the advertising formats used, as well as the marketing resources and potential breaches of advertising legislation by the content (97% of the cases). De Veirman et al. (2019) focused on the need to analyse and promote media literacy among children in order to offer them tools to protect themselves from the marketing practices used by influencers; they defended the importance of increasing the number of studies that analyse the socialising role these practices play in relation to minors and of enhancing children's protection against influencer-based marketing by means of guidelines and regulation. Along the same lines, Garlen and Hembruff (2021) have identified corporate, parental, and social responsibility in protecting childhood "at risk," critical media literacy and children's agency as social actors on the internet as regards to kid YouTubers.

In recent years, another line of research around this topic was interested in the type of food-related products appearing in the YouTube channels of kid vloggers. Folkvord et al. (2022) performed a focused narrative review highlighting the positive effect among children of food promotions and proposed that a promotional strategy be undertaken to increase the appeal of fruit and vegetables among children as brands do, given that their system works. The study by Martínez-Pastor et al. (2021) identified the food products on the YouTube channels of kid vloggers through a comparative study of Spain, the US, and the UK, to discover whether they fostered a healthy diet. Their sample consisted of 450 videos (6,750 minutes) from between 2016 and 2019. Their key findings were that the foodstuffs appearing most frequently (71%) were unhealthy, as opposed to healthy products. The country in which the presence of unhealthy foods was greatest was the US, followed by the UK and Spain. Another study performed by Martínez Pastor and Vizcaíno-Laorga (2023) centres on identifying the healthy foods and habits appearing on the YouTube channels of kid vloggers, as well as the brands, strategies, and gender associated with each food product. There continues to be no clear indication of whether there is food advertising content. Coates et al. (2019) studied how YouTuber food advertising content affects children (aged 10 and 11 years old). Among their findings, they highlighted that children understood that it was advertising content and that this did not bother them and even triggered a positive attitude towards such content. Along these lines, in Spain, Castelló-Martínez and Tur-Viñes (2020, 2021) have also focused on food advertising in the YouTube channels of kid vloggers. Qutteina et al. (2019) identified the advertising for unhealthy foods that children (12 to 18 years old) found on social media. Over one week the children took screenshots of promotional food messages on their mobile phones; a total of 611 images of foods were taken, of which 69% were unhealthy foods. In many of these, the consumption of the foods was associated with social activities such as eating and having fun with friends. Attention must therefore be paid to this

platform as a matter of urgency to safeguard children from content that is unsuitable for a healthy diet. Coates et al. (2019) examined the impact of influencers eating unhealthy foods and how this was reproduced by the children who viewed them; curiously, seeing healthy foods did not encourage their intake. They called on the public administration, video-sharing platforms (VSPs), and influencers to take measures regarding these kids' channels.

Under both European regulations and national regulations in Spain, covert advertising has always been forbidden—the directive concerning unfair commercial practices, the audiovisual media services directive and Spain's Unfair Competition Law 3/1991, of 10 January (1991). Despite this prohibition, on YouTube, as earlier research has indicated, the commercial nature of the advertising content has seldom been clearly stated. In addition, at the present time, the sector (VSP content creators) is not clearly regulated. Although the European Union's Audiovisual Media Services Directive (2018) expressly mentioned content creators, the reality is that the transposition of the directive into Spanish law, through Spain's General Audiovisual Communication Law 13/2022, of 7 July ([LGCA], 2022), fails to resolve the question of what an influencer is and how to regulate them. In fact, in this very recent legislation, so-called influencers, vloggers, or opinion leaders are referred to as "*usuarios de especial relevancia*" (literally, "particularly relevant users"; Law 13/2022 of 7 July, 2022, Article 94) and have come to be considered, as in the case of VSPs, audiovisual communication service providers. This is, at the very least, striking and contradictory, because while it equates—at a legal level—influencers with large audiovisual corporations, it exempts the latter (VSPs) from any responsibility with regard to illegal or harmful content. This approach pays no heed to the fact that their business is based on the content uploaded by the content creators. The law is very imprecise, as it does not specifically define essential elements, such as what it means to say by "*ingresos significativos*" ("significant income"; Law 13/2022 of 7 July, 2022). Indeed, it fails to indicate the threshold or point over which it can be considered that the economic return is significant nor the instant when, in what is also an extraordinarily changeable environment, income should be calculated in each case (Andersen, 2022). Thus, in truth, this situation leads to considerable uncertainty about what should understood by "particularly relevant users," and is an issue that must be developed by each country. In addition, according to the legislation, the function of the service provided (in order to be considered a particularly relevant user) must be confined to three very specific objectives: informing, entertaining, or educating. This would imply that influencers whose videos are simply advertising (even if they are also entertaining) are left outside of that category, which, in point of fact, does not seem to be the spirit of the law. The European Regulators Group for Audiovisual Media Services (ERGA) has published the report on its workshop discussing the regulation of vloggers on VSPs (ERGA, 2020) in which it highlighted the limited regulation in place regarding influencers and, more recently, the report *How to Identify and Localise Vloggers and Regulate Their Commercial Communication?* (ERGA, 2022) indicates how the directive to identify influencers has been transposed into law in various countries.

The most important parties in the advertising ecosystem are, on one hand, video-sharing service providers (which we have already mentioned) and, on the other hand, the users who create this video content. The former offer video sharing services through their platforms, the main function of which is to host that content (created by different users and aimed at the general public). This is the case of YouTube, TikTok, Instagram, and Twitch, which—as explained above—have no editorial responsibility over the content of those materials (Law 13/2022 of 7 July, 2022, Article 2). This lack of responsibility is due to the fact that they do not have the power to dictate the programming (something that is, however, part of the traditional media, which does schedule the timetable for the content broadcast and therefore does have a degree of responsibility), and instead are limited to organising the videos based on presentation, tagging, and sequencing. By contrast, users who are video creators (such as YouTubers or Instagrammers) are responsible for the content they upload, including advertising material, regardless of the format.

While VSPs should clearly inform users about the advertising content appearing in their videos, this will only be an obligation if the platform is aware of the commercial purpose of the content contained within it, either because they have been notified by the user who uploaded the material or because they have been made aware of it by other means, such as a third-party complaint (Law 13/2022 of 7 July, 2022, Article 91.3; and Law 34/2002 of 11 July, 2002, governing information society and electronic commerce services).

At this point, we have to clarify that VSPs host two types of advertising: On the one hand, the advertising formats for the platform itself, which each platform controls directly, has to announce, and is responsible for; and on the other, the advertising contained in the content created by users (Lambrecht et al., 2018), notification of which is not the obligation of the VSPs and nor are they responsible if it is illegal unless they have been informed about this by those who upload it or by a third party. This seems unreasonable due to its limited effectiveness. It would be more consistent with the law if the platforms could require all those who upload a video to indicate what advertising their material contains, so that the platform is truly aware and, if those uploading did not reveal this, that there are consequences for the corresponding content creators, as expressed by the Spanish competition regulator, the National Markets and Competition Commission (Comisión Nacional de los Mercado y la Competencia, 2020), even if this meant that platforms would have to develop appropriate technologies or

implement protocols to identify and detect all manner of advertising formats. We understand that this type of issue does not solely depend on the understanding or good reasoning of the users, as provided by Article 91.3 of the LGCA (2022). The LGCA is restrictive as regards permitted and prohibited content in audiovisual media, especially in relation to children and adolescents (law 13/2022 of 7 July, 2022, Articles 88 and 89). In fact, minors are protected from products that may negatively affect their health or that do not foster healthy eating habits, while they are encouraged to eat a balanced diet and do physical exercise—the POAS Code, a Spanish code on co-regulation of advertising of foods and drinks aimed at children, prevention of obesity and health (Federación Española de Industrias de Alimentación y Bebidas, 2012). In addition, this standard cannot be understood without taking into account the rest of the self-regulating codes and standards governing advertising that targets children such as, with regard to toy advertising, the Toy Advertising Self-Regulation Code (Código de Autorregulación de la Publicidad Infantil de Juguetes [CAPIJ]; Asociación Española de Fabricante de Juguetes, 2022).

Several articles of the CAPIJ from the Spanish Toy Manufacturers' Association have been amended to improve the safeguarding of children and the advertising content they consume (Asociación Española de Fabricante de Juguetes, 2022). The main changes to the code, updated in 2022, can be separated into four categories: (a) relating to the product's appearance (it must be clearly indicated what its characteristics are, if assembly is required, if it needs batteries, if it comprises accessories, etc.); (b) relating to the message (they should not generate gender roles or expectations of social success, or encourage immediate consumption through words and phrases such as "now" or "right away"); (c) relating to advertising (it must be identified as such, with clear expressions that are easily understood by children); and (d) relating to understanding the adverts (they must be tailored to the age of the children being targeted, with visibly legible texts of a clear size displayed for a specific length of time to enable reading). The food advertising that appears on kid YouTuber channels must respect the prevailing legislation and the PAOS Code, which determines limitations on advertising messages, focusing on: (a) the product (it must avoid unhealthy habits, replacements for healthy habits, and it cannot portray exaggerated behaviour); (b) the characters portrayed (the influencers, or opinion leaders, who appear in the adverts must not abuse the trust placed in them by the children); and (c) the message and values (they must avoid dangerous situations, encouraging consumption and creating expectations, and must take care with the language used and other persuasive messages such as prize draws or kids' clubs; Serrano Maíllo & Martínez Pastor, 2023). In addition, all advertising content must be clearly differentiated from the editorial content according to the Spanish legislation the General Advertising Law 34/1988, of 11 November, and the Unfair Competition Law 3/1991, of 10 January (1991), as well as the recent LGCA (2022) and the Code of Conduct on the Use of Influencers in Advertising (Asociación Española de Anunciantes & Autocontrol, 2020), which all state that advertising must be clearly indicated through clear text or audio formats.

3. Objectives and Hypotheses

The main objectives of the study are two-fold. Firstly, it is to quantify the presence of promotional content for toys and food present in the videos posted on the YouTube channels with the highest number of followers in Spain featuring kid YouTubers, during the 2022 Christmas period. For this, we: (a) analyse the presence of promotional content compared to entertainment content according to the total number of videos posted per channel; and (b) identify the channels which have the highest number of promotional videos posted during the analysed period.

The second objective is to review the degree to which these videos comply with the regulations of toy and food advertising in Spain, in light of the LGCA, the CAPIJ, the Code of Conduct on the Use of Influencers in Advertising (Asociación Española de Anunciantes & Autocontrol, 2020) and the PAOS Code, in order to be able to establish a discussion about the worth of the new regulations in terms of their application and the commercial nature of this content during the 2022–2023 Christmas period.

The initial hypotheses are:

H1: The commercial content present in kid YouTuber channels continues to be posted as editorial and entertainment content. Only in some cases is it identified as commercial, promotional, or advertising content.

H2. The products advertised in this type of format mainly belong to the product categories of food and toys.

H3: The advertising content of these videos is not in line with the regulations currently in force or the self-regulation codes.

4. Methodology

The methodology used was exploratory and descriptive (Araújo et al., 2017; Craig & Cunningham, 2017; Marsh, 2016). An analysis sheet was designed to examine the content of the videos in the sample (Martínez & Nicolás, 2016; Nansen & Nicoll, 2017; Vizcaíno-Laorga et al., 2021), the variables of which attempt to group the results into three major areas, in line with the division of the objectives of the study. The first block of variables contains the profile and advertising elements of the channel. The second block analyses the variables associated

with the regulations governing toy and food advertising in Spain (Table 1). The sample for the study was made up of 15 Spanish kid YouTuber channels. The collection and analysis of the data were performed manually using codifiers.

The criteria and sources for selecting the channels and the content were the following: We consulted, on one hand, the ranking of YouTubers compiled by Social Blade, filtered by using the criterion of "country: Spain," and, on the other, the YouTuber ranking published by marketing4ecommerce on its website (Basteros, 2023).

The criteria for selecting the channels consisted of: The top 10 channels in each of the selected rankings starring kid YouTubers; and other popular kid YouTubers not present in those rankings, whose videos attract similar audiences to those of the channels in the top 10 for the sources used.

Table 1. Codebook.

Codebook	
Block 1: Advertising profile of the channel	
Channel	Name of the YouTube channel
Address	Record of the web address
Title	Name of the video
YouTuber	Name of the YouTuber
Date	Date the video was posted on the channel
Views	Number of views when the video data was logged
Type of product advertised	(1) Toys (2) Food (3) Multi-product (when the video contains advertising for more than one product)
Product	Record of the trade names of the products in order of appearance
Product category	(1) Toys: 1.1 Toys and accessories; 1.2 Model vehicles; 1.3 Sports; 1.4 Animals; 1.5 Action figures; 1.6 Other figures; 1.7 Electronic toys; 1.8 Toy weapons (guns, swords, etc.); 1.9 Building and construction toys (2) Food: 2.1 Chocolates and sweet bakery products; 2.2 Snacks and crisps; 2.3 Carbonated beverages; 2.4 Other foods (3) Multi-product: 3.1 Books; 3.2 Fashion; 3.3 Merchandising; 3.4 Travel; 3.5 Other
Block 2. Regulations	
Is it indicated through a caption that the video contains advertising or if it is sponsored?	Yes/No
The name of the product is indicated in the video's title	Yes/No
Informational caption about the use of batteries, USB ports, or internet connection	Yes/No
References price	Yes/No
Differentiation between products and accessories, such as "sold separately"	Yes/No
Creation of male stereotypes	Yes/No
Generating gender roles (nurses—girls, technology—boys, etc. [Asociación Española de Fabricante de Juguetes, Article 37])	Yes/No
Generating gender roles: Use of colour	Yes/No
Observations and comments	Section created to collect explanations about the situations identified for each code

The criteria for selecting videos and content was the time period: The period of study centres on Christmas 2022 (videos published between 1 December 2022 and 7 January 2023). For the final selection of the sample, all the videos posted on the channels during the selected period were viewed. The total number of videos viewed was 114, while the total size of the sample was made up of 61 videos from 15 different YouTube channels (Spain).

The analysis sheet was created in accordance with previous work carried out by Martínez Pastor and Vizcaíno-Laorga (2023) and by Martínez-Pastor et al. (2021) in which the authors examined whether kid YouTubers communicated healthy eating habits or not and under what conditions, whether they promoted brands, and whether they abided by the legislation. The study by Vizcaíno-Laorga et al. (2019) analysed different lines of research into advertising and children in Spain in the last 10 years. Furthermore, and along the same lines, in the article by Tur-Viñes et al. (2019), the authors performed a systematic review of young influencers, carrying out an analysis of 65 academic articles published since 2008 in which they analysed motivation for use, type of content, and parental intermediation, as well as the pending legal, regulatory, and educational aspects and the marketing strategies used by brands and their effects. Another study by Martínez Pastor et al. (2021) focused on analysing the type of family portrayed on the YouTube channels of children aged under 14 years old in Spain, the US, and the UK. They analysed a total of 450 videos from 15 channels from 2016–2018. The main findings were that the media representation of family members continues to maintain a traditional family structure, cultural differences in how the family participates in the videos according to the country, and the presence of the father or mother as a co-star.

5. Results

The order in which the results have been presented seeks to demonstrate, in quantitative terms, how the advertising relationship between the main young Spanish YouTubers and toy product brands remains active during the Christmas period, while also demonstrating how this has been supplemented by a relationship with food product brands. Furthermore, it highlights the relationship between the total volume of videos published and the volume of videos with advertising content of each channel, with the aim of showing which channels favour publishing videos with advertising content over posting entertainment content during this period (Table 2). Subsequently, this work identifies and classifies the videos according to product category, so as to demonstrate in which cases the videos: focus solely on toy advertising or solely on food advertising; present multiple products from a single category; advertise more than one category (foods and toys); and advertise products that belong to neither of these categories (Table 3).

One of the results that this article seeks to highlight, due to its importance with regard to the legislation that regulates this activity, is in which cases these videos acknowledge that they contain commercial content. To this end, of the most viewed videos containing advertising content, the results show how many identify in some way that the video contains advertising and how many of them identify their commercial nature in the video title (Tables 4 and 5). Lastly, the article analyses a sample of cases that demonstrate how these types of videos continue to contravene some of the laws and regulations that regulate the advertising elements of their content, such as gender-based differentiation by colour or the use of products that are hazardous to children.

5.1. Presence of Brands and Products by Channel

As can be seen in Table 2 the channels with the most videos posted during the analysed period are Vanesa Basanta, Karina & Marina, El mundo de Indy, Mika Sofi BOMS, Las Aventuras de Dani y Evan, FamilyTube, and ArantxaParreño. These data coincide almost entirely with the data that lists the channels in order according to the number of videos they posted containing content that may be construed as advertising. However, it was observed that despite Las Ratitas and SaneuB channels not being those with the largest number of posts, all of their videos contain some kind of advertising.

5.2. Product Category

The two categories with the highest number of videos are "multi-product" and "toys." Although the multi-product category records products such as books, fashion, or make-up, in all of them there are toys that complement the carousel of products that appear. This demonstrates the sway that toy advertising still has in the production of this content, despite the evolution of these channels and the increase in age of the original young YouTubers. This is due to the fact that most of these videos are located in family- or group-based channels which are associated with consumers of different ages: children, teenagers, and families. The presence of videos that contain food products is limited compared to toys as just seven cases (11%) were observed, of which only one encouraged good eating habits (see Table 3).

5.3. Identification of Advertising

We observed that just 30% (18/61) of the videos indicated by text in the description, overlaid over the video or verbally that the video contains advertising content. This practice occurs mainly in the "toys" category, although only 50% of the videos in this category indicated this situation, rising to 72% for "dolls and accessories" in particular (Tables 4 and 5).

Analysis of the most viewed videos reflects several pieces of information of interest. First of all, it is

Table 2. List of products according to channel.

YouTuber/Channel	Total videos posted	%	Total videos posted with sponsored content detected	%	Videos with advertising content out of total videos posted (%)
Las Ratitas	3	3%	3	5%	100%
SaneuB	2	2%	2	3%	100%
Team Nico	6	5%	4	6.5%	67%
Vanesa Basanta	12	11%	6	10%	50%
MikelTube	7	6%	4	6.5%	57%
LeoTube	7	6%	3	5%	43%
FamilyTube	8	7%	5	8%	63%
Arantxa Parreño	8	7%	5	8%	63%
Familink	5	4%	3	5%	60%
NenoFamily	5	4%	3	5%	60%
Mika Sofi BOMS	9	8%	3	5%	33%
Karina & Marina	13	11%	4	6.5%	31%
El mundo de Indy	11	10%	7	11%	64%
Las Aventuras de Dani y Evan	11	10%	4	6.5%	36%
Jugando con Abby	3	3%	2	3%	67%
El mundo de Clodett	4	3.5%	3	5%	75%
Total	114	100%	61	100%	54%

noteworthy that eight of the 10 most viewed videos had achieved over one million views at the moment when the videos were logged. However, only five clearly indicated that it was a sponsored or advertising video. This circumstance only occurs when the product category is that of "toy" or "toy shop" (Table 4).

5.4. Compliance with legislation

Almost none of the videos analysed expressly indicated that the product being advertised required assembly, that it included batteries (or not), or that the accessories shown are included in the product purchase or are sold separately. We can only interpret that some videos do express that assembly is required when they explicitly demonstrate that assembly is part of the playing process (Figure 1).

As regards to the use of colour associated with building gender roles, the identifying of products by colour, generating expectations, social success, or encouragement of consumption, several different noteworthy situations were observed. These included a trend of creating

Table 3. Product categories most present in the videos sampled.

Product category	Number of videos	%	Products associated with the category
Food	7	11%	Chocolate bars (1), snacks (1), biscuits (1), crisps (1), carbonated soft drinks (1), sweets and biscuits from other countries (1), healthy food (1)
Toys	21	34%	Dolls and accessories (11), board games (10)
Toys and food	3	5%	Chocolates (1), toy guns (1), sweets(1)
Multi-product	22	35%	Board games (5), Christmas decoration (1), merchandising (1), toy stores (2), fashion, clothing, and accessories (7), electronic products (1), swords (2), music (3), events (1), video games (1), gifts from the Three Kings (6)
Books	2	3%	
Events/Amusement parks	4	6.5%	
Video games	2	3%	
Total	61	100%	

Table 4. Identification of advertising and presence in videos' titles.

Channel	Category	Type	Name in the title
Las Ratitas	Toys	Toys and accessories	Yes
	Toys	Electronic toys	No
SaneuB	Toys	Toys and accessories	No
MikelTube	Toys	Dolls and accessories	Yes
	Toys	Dolls and accessories	Yes
	Video games	Video games	Yes
LeoTube	Toys	Dolls and accessories	Yes
	Toys	Dolls and accessories	Yes
FamilyTube	Toy shop	Toy shop	Yes
TeamNico	Food	Institutional campaign: Opromar, Superpeixiño	Yes
Vanesa Basanta	Toys and food	Toys and food	Yes
El mundo de Indy	Toys	Toys and accessories	No
Karina & Marina	Toys	Boardgames and music	No
	Toys	Boardgames and music	No
	Multi-product	Boardgames and music	No
NenoFamily	Toys	Cars	No
Las Aventuras de Dani y Evan	Toys	Dolls and accessories	Yes

Table 5. Top ten videos viewed.

Ranking	Channel	Title of the video	Views	Product category	Is it identified as advertising?
1	FamilyTube	*24h en Tienda de Juguetes* (24 hours in the toy shop)	4,951,491	Toy shop	Yes
2	FamilyTube	*GADGETS de INTERNET Feria en casa* (INTERNET GADGETS Fair at home)	2,469,900	Multi-product	No
3	LeoTube	*Leo prueba algunos sets de PLAYMOBIL para estas navidades con su familia* (Leo tries out some PLAYMOBIL sets for this Christmas with his family)	2,325,951	Toys	Yes
4	FamilyTube	*Día de Reyes Magos 2023* (The Three Kings' Day 2023)	1,812,697	Multi-product	No
5	LeoTube	*Leo y Mikel descubren los Nuevos SMASHERS Dino Island* (Leo and Mikel discover the new SMASHERS Dino Island)	1,791,677	Toys	Yes
6	MikelTube	*Mikel Estira Goo Jit Zu y descubre Thrash Mobile* (Mikel stretches Goo Jit Zu and discovers Thrash Mobile)	1,717,078	Toys	Yes
7	FamilyTube	*Olimpiadas Navideñas en Casa* (Christmas Olympics at Home)	1,143,940	Toys and food	No
8	FamilyTube	*Probando Dulces de Noruega* (Testing Norwegian Sweets)	950,239	Food	No
9	MikelTube	*24h de Construcción LEGO StarWars* (24h of Building LEGO StarWars)	945,217	Toys	Yes
10	Vanesa Basanta	*EL QUE MEJOR LO DIBUJE SE LO QUEDA *REGALOS DE NAVIDAD** (WHOEVER DRAWS IT BEST GETS TO KEEP IT *CHRISTMAS PRESENTS*)	777,550	Multi-product	No

Figure 1. Video *24h de Construcción LEGO StarWars* (24h of Building LEGO StarWars).

videos, which can be considered a category or video format, where the classification of the products or the execution of the activities revolve around product colour. This situation is made evident from the title of the video itself and although they cannot be considered videos which as a whole foster or associate gender roles according to product colour, certain situations were observed where this was the case, highlighting the presence of the brand involved in the challenge and the classification of the products associated with the colour and gender of the person (Figure 2). We observed four videos in which this situation is noteworthy, where their titles indicated the classification of the toys based on their colour, the person and the consumption time frame (Christmas): *Abriendo Regalos de Navidad de 1 Solo Color* (Opening Christmas Presents of a Single Colour); *Comprando Todo de un Solo Color: Azul vs Rojo/Stitch VS Mickey Mouse* (Buying Everything in Just One Colour: Blue vs Red/Stitch vs Mickey Mouse); *Comprando Todo de un Solo Color para Navidad: Rojo vs Verde* (Buying Everything in Just One Colour for Christmas: Red vs Green); *Comprando Todo de Mickey Mouse vs Harry Potter: Regalos para un Amigo Invisible* (Buying Everything of Mickey Mouse vs Harry Potter: Secret Santa gifts).

No encouragement of consumption was observed associated with clubs, prizes, competitions, or prize draws, although a trend was observed of projecting a compulsive accumulation of toys or products in the "multi-product" category. When reviewing their titles and content, it was noted that several define their activity as discovering, opening, and showing off the gifts from the Three Kings or Santa (Figure 3), therefore acting like a catalogue of numerous and varied products and brands associated with the age of each of the featured children. In certain cases, it was observed that the same toys shown in the videos about Santa were repeated among the Three Kings' gifts, with this situation occurring among videos on the same or sister channels.

The presence of risky situations is almost non-existent in the sample, although certain scenarios were

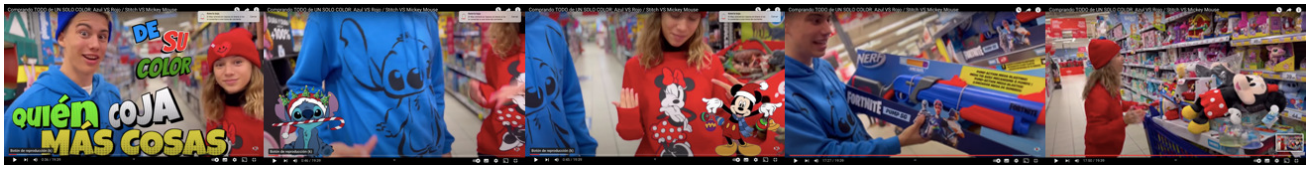

Figure 2. Video *Comprando Todo de un Solo Color: Azul VS Rojo/Stitch VS Mickey Mouse* (Buying Everything in Just One Colour: Blue vs Red/Stitch vs Mickey Mouse).

Figure 3. Screenshots of several analysed videos.

observed that are worthy of mention. These are related to the presence of products such as swords or scooters for adults where although the recipient of the gift meets the legal age requirement for having or using the gift, these activities may be considered dangerous or inappropriate given the characteristics of the product, the channel's audience, and the participation in the activity by a child aged under 15 years old (Figure 4).

Ultimately, this work only detected seven videos from the analysed period that portray or promote the consumption of food products. Of these, two were identified as advertising videos and in both the fostering of good dietary habits was observed. The rest of the situations feature fast food products, sweets, or food products from Korea or associated with the Christmas advertising context, such as chocolates or biscuits (Figure 5).

6. Discussion and Conclusions

We centre our discussion on the continued and high degree of non-compliance with the regulations detected in this study. Firstly, very few videos identify their advertising content as such despite Spanish legal regulations expressly indicating this and prohibiting, as illegal advertising, covert advertising—the General Advertising Law 34/1988, of 11 November, and the Unfair Competition Law 3/1991, of 10 January (1991), as well as the LGCA (2022), the Code of Conduct on the Use of Influencers in Advertising (Asociación Española de Anunciantes & Autocontrol, 2020), and the Toy Advertising Self-regulation Code (Asociación Española de Fabricante de Juguetes, 2022). The advertising practices analysed here are an indication of a widespread reality on social media which has been clearly defined as unfair (article 26 of Spain's Unfair Competition Law 3/1991, of 10 January (1991), which was modified in 2022) and therefore illegal, due to these being covert commercial practices (Lambrecht et al., 2018; Martínez-Pastor, 2019). This approach coincides with the position of Spain's Ministry of Consumer Affairs, specifically its Subdirectorate-General for Inspection and Sanctioning Procedures, which requires YouTubers to pay tax on any profit obtained (Ministry of Consumer Affairs, 2023). In Spain, a number of different web pages have been created to explain how to report such practices, by alerting either the social media platforms themselves or the various user and consumer associations who may start legal proceedings if the advertising affects a collective interest of users (Comunidad de Madrid, 2023). The consequences for influencers who breach the regulations include fines of more than €100,000 or their social media account being closed.

Furthermore, Autocontrol has, in many different resolutions, indicated that advertising must be clearly identified with verbal or textual wording as being advertising (such as "*publicidad*" or "*publi*"—"advertisement" or "ad"), with unclear names such as "info," "legal," "brand," or "slogan," and links that lead to the advertised brand being unacceptable (Autocontrol, 2019, 2021, 2022, panel decisions dated 28 November, 5 March, and 15 September, respectively). This situation is observed particularly in the videos classified as "multi-product." This is so because it is difficult to assess how many products and brands among those appearing in the videos have been featured following an economic agreement reached with the channel. Although it was observed that the videos that identify themselves as being advertising content do so in a clear manner, the diverse nature of collaborations between brands, products, and kid YouTubers hampers the ability to define all these videos as being advertising and, even more so, the ability to assess to what extent the regulations (consisting of the different codes that regulate these practices) need to evolve. Likewise, on occasions, the self-regulatory code regarding advertising toys to children fails to be respected. Thus, although there is a trend towards

(a) (b)

Figure 4. Videos: (a) *Abriendo Regalos de los Reyes Magos 2023*!!! (Opening Gifts From the Three Kings 2023!!!); and (b) *Abrimos los Regalos de Papá Noel 2022!!!* (We Open the Gifts from Santa 2022!!!) https://n9.cl/15dhx

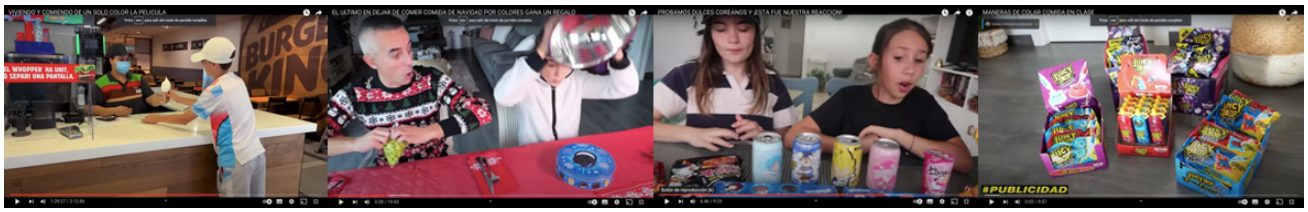

Figure 5. Food products: Compilation of clips from different videos.

equality, the use of sexist stereotypes persists in these channels. The colour pink, dolls, and beauty products are associated with female influencers and competition or strength with male influencers. These channels also continue to have little regard for the regulations which are however respected in other media formats (such as the television), where explanations are provided as to whether the advertised product comes with batteries, requires assembly, or includes accessories. These are elements of advertisements which under the regulations must be fulfilled in any advertising messages. However, in the platforms, it seems that they follow different guidelines than the regulations, as is shown in the example in which a katana appears as a Christmas gift.

Although this is not habitual in all channels, there are some videos, within the "multi-product" category, where the YouTubers move through the walkways with toys from shopping centres and select the products based on the colour associated with the gender of the person who chooses it, which is reminiscent of the traditional classification of products by colour used by Christmas toy catalogues to identify consumer gender. In addition, on occasion and in relation to healthy habits, it does not seem that certain creators pay attention to the PAOS Code either, given that they are promoting unhealthy food. While it is true that the narratives of these channels are always entertainment-based, their *animus jocandi* does not always justify content that clashes with the current legislation pertaining to identifying advertising and to protecting children with regard to the toys portrayed and healthy habits. This is the case with certain occasions of promoting obesity by showing eating obsessively as a type of game and promoting unhealthy habits through products with an excess of refined carbohydrates, sugars, trans fats and colourants, additives, and preservatives (which are generally artificial).

There are clearly boundaries that are being overstepped. This should be limited by those who promote the self-regulation codes and by the administration, so that the rules are clear. There is no point in regulations that are applied in the way that appears to have been happening for years in this medium.

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Conflict of Interests

The author declares no conflict of interests.

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Article

Generation Alpha Media Consumption During Covid-19 and Teachers' Standpoint

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Abstract
With the development of digital technologies that are part of everyday life, new cultural norms and patterns are developing with which children play, learn, communicate, and socialise in the digital age. Technologies are also fundamentally changing teachers' attitudes to education. This study aims to determine the motivation of teachers of generation Alpha for using technology and mobile applications, what technologies were preferred by generation Alpha after the second wave of the Covid-19 pandemic, and for what reason. The research sample included one segment of the Alpha generation, pupils of primary schools (*N* = 53) and their primary school teachers (*N* = 83). A qualitative research design was used. The data processed by thematic content analysis identified the themes associated with using digital tools by generation Alpha, according to the teachers. The results showed the teachers' motivation for using digital technology with generation Alpha, such as meeting their physiological, safety, social, cognitive, aesthetic, and self-actualisation needs. Generation Alpha's media applications saturated four needs: entertainment, information, education, and games. They were covered by 12 applications. The findings show that the digital communication activities of generation Alpha refer to the audience's intentionality, selectivity, and involvement with the media. The presented research opens other possible research topics, such as how new communication and mobile apps influence the behaviours of Alpha generation, value orientation, and well-being, and how effectively to use mobile apps in education praxis.

Keywords
Covid-19; digitalisation; education; generation Alpha; media consumption; mobile applications; motivation; teachers

Issue
This article is part of the issue "Digital Media and Younger Audiences: Communication Targeted at Children and Adolescents" edited by Olga Kolotouchkina (Complutense University of Madrid), Celia Rangel (Complutense University of Madrid), and Patricia Núñez Gómez (Complutense University of Madrid).

1. Introduction

Mobile phones and apps are the most frequently used tools for digital communication across all social classes and generations. The idea that digital communication has a negative effect on the human brain and behaviour, especially on the development of children and youth, is supported by some studies (Carr, 2010; Gottschalk, 2019) and is part of public discourse. Negative assessments of digital communication were based on the fact that the most frequent form of networked digital communication—mobile communication—began to crowd out the more socially rich interpersonal communication and even caused social isolation and an addiction to mobile applications.

The emergence and spread of new communication platforms and technologies have allowed young people to participate more actively in the media world, creating a participatory culture (Horst & Gaspard, 2022). Young people are now more involved in creating and sharing content online, transforming how they interact with the world around them. They know how to use digital applications, communication platforms and technologies (e.g., streaming media, social media, public wi-fi),

personal social networks, and platforms (e.g., YouTube, Vimeo, TikTok) to present their knowledge, attitudes, values, and interests as active producers (Káčerková, 2019; Šramová & Pavelka, 2023).

In both theory and pedagogical practice, opinions are being promoted that mobile communication among the young generation needs to be regulated and encouraged. On the other hand, mobile communication and its applications represent a new, essential, and effective tool for education and entertainment. These applications work and strengthen the well-being of the young generation in the heated social conditions created by the Covid-19 pandemic as well as in more normal times.

The Covid-19 pandemic (2019–2021) has highlighted the importance of digital technologies and their role in enabling communication and education during crises. In this context, mobile devices and apps have become critical tools for young people to maintain social connections (Nadeak, 2020; Viner et al., 2020). It is crucial to be aware of the potential negative consequences of using mobile devices and apps, such as addiction, social isolation, and cyberbullying. Therefore, it is essential to balance the benefits and risks of using digital technologies and promote the responsible use of mobile devices and apps among the young generation. It is only possible to do so if we have up-to-date, relevant data.

The topic of this article is to find the answer to that problem. The research problem is as follows: What do teachers demand from mobile apps targeting children in general? What are their ideas, opinions, requirements, and needs? According to educational experts, what purposes and objectives do they want to achieve through the mobile applications used by generation Alpha and which mobile applications are able to accomplish them? Are there differences between the ideas and requirements of Alpha generation teachers for mobile applications and the communication practice of the Alpha generation? Is there any correspondence between the two? In which areas do the ideas and needs of teachers and the practice of alpha generation differ, and in which do they coincide? The object of the research is one segment of the Alpha generation, pupils of the first grade of elementary schools. In the foreseeable future, this generation will represent the client base for the secondary and higher education domestic and foreign educational market and their teachers. The research is based on data collected from children and their teachers after the second wave of the Covid-19 pandemic in Slovakia, where, even after the school gates opened, it was impossible for foreigners or researchers to enter. We focused on a similar aspect in our previous research on a comparative analysis of generation Alpha and generation Z in the Czech Republic (Šramová & Pavelka, 2023).

The contemporary Slovak Republic and the Czech Republic formed one state prior to 1991. As of today, both states are culturally, politically, and economically similar, including the school system and the curriculum. Education in Slovakia and the Czech Republic is based on standard foundations and traditions. Due to the lack of data, it is worth taking a closer look at the youngest generation in the contemporary Slovak cultural and national region before looking at cultural differences or similarities. This step is a prerequisite for creating a methodology for the practical and socially desirable use of digital communication in the education of the young generation in general.

2. Digital Technologies and Mobile Applications

Digital technologies, which laid the foundation of the fourth industrial revolution (Schwab, 2017), affect all spheres and areas of social life and are a factor in dynamising social change. Digitisation and related computerisation, miniaturisation, cyberisation, and the Internet of Things have entirely transformed production practices and processes in the labour market (Degryse, 2016).

The new visual, audio, and audio-visual forms of digital communication disrupted the hegemonic position of the hitherto sovereign interpersonal and group communication and created new communication rituals and standards, freed from time-space barriers and capacity limits of traditional mass communication (Curran & Gurevitch, 2005; Curran & Hesmondhalgh, 2019). In the digital environment, new communication platforms, tools, and applications were created, rented, sold, and used for commercial and non-commercial purposes. The most used and influential include, among others, e-mail, SMS and multimedia MMS messages, navigation and geographic applications, institutional portals offering and selling goods and services, streaming platforms, and cloud storage.

A key position in this communication segment has been acquired by social media, functioning as an interactive personal social network and group communications platforms, e.g., LinkedIn, Facebook, YouTube, Twitter, Pinterest, Quora, WhatsApp, Instagram, Snapchat, and TikTok, which were launched successively between 2003–2016. Mobile phones have become the dominant communication device in digital network communication, having gradually supplanted and replaced PCs and touch tablets (Jha et al., 2019; Rideout, 2016). Smartphones became a significant turning point in the development of the mobile phone market.

With the increasing accessibility and affordability of digital technologies, young children are exposed to and become familiar with digital devices early (Chaudron et al., 2018). This has led to the integration of digital technologies into their daily lives. They offer convenient and accessible ways to contact peers, family, and friends. Digital technologies, the internet, and mobile devices have performed multiple social and cultural functions such as leisure, entertainment, gaming, informing, education, and social communication.

Several research projects have already created a solid base of empirical data that allow both the generalisation

of knowledge from the field of children's online lives and the theoretical modelling of young people's online communication practices (Burns & Gottschalk, 2020; Green et al., 2022; Livingstone et al., 2019; O'Mara et al., 2022). Surveys provide an overview of activities and empirical research knowledge in children's digital communication overview studies specialising in sub-areas of children's online lives (Bedrošová et al., 2018; OECD, 2022; Smahel et al., 2020; United Nations International Children's Emergency Fund, 2023).

Each young generation has its specific features and needs, which are determined, on the one hand, by their physiological and psychological development and, on the other hand, by the socio-political situation in which they grow up. These traits and needs need to be known and reflected upon, and education needs to be adapted. Teachers, alongside parents, represent process actors. Generation Alpha's teachers face new problems and tasks due to the revolutionary changes in the field (Yurtseven, 2020). Media communication includes areas and forms and is a crucial component of social life linked to long-term communication competencies and routines and passed on in educational processes from generation to generation as part of cultural heritage.

Generationally stratified teachers of the Alpha generation found themselves in an unusual, unique situation. They were forced to learn new, introduced digital media and their applications, while the Alpha generation encountered them from the earliest age as a natural part of their communication space, allowing them to master it as their mother tongue. Under this situation, communication routines and educational standards were also formed. The view of teachers of the Alpha generation on this issue represents one of the ways reflecting media consumption realised by the first generation, which can be described as digital natives. Therefore, we ask:

> RQ1: What are the needs and requirements for mobile apps targeting children, according to the teachers of generation Alpha?

3. Generation Alpha

Generation Alpha is the youngest generation born after the early 2010s (Jha et al., 2019; McCrindle et al., 2021; Ziatdinov & Cilliers, 2021). In 2023, the oldest members of generation Alpha are 13 years old. A generation is entering a formative process, i.e., a process that influences their attitudes, values, and collective consciousness. The iconic media images, the toys they play with, the digital games they enjoy, the icons they look up to, and the social networks they use to interact with their peers and inspire them are all part of the generation's collective consciousness.

Generation Alpha was born into a digital environment; surrounded by digital technologies from birth, they have learnt to control them intuitively. They live in the era of drone delivery, augmented reality, self-driving cars, electric vehicles, smart homes, robots, cashless payments (cashless society), and integrated technologies (embedded technologies; McCrindle et al., 2021). According to Prensky's (2001) categorisation, generation Alpha is in the position of "digital natives" who are addicted to digital media and have good knowledge and skills in digital technologies, while adults, parents, and teachers of the Alpha generation are in the position of "digital emigrants" who have problems with the digital technologies.

It is essential to mention that the "digital natives" and "digital emigrants" concepts, even though it has orientation and classification value, became the object of critique (Facer & Furlong, 2001; Kirschner & De Bruyckere, 2017). Alpha generation is not homogeneous but differentiated. Many of their members, if they come from socially weaker strata, still have limited access to the internet and, therefore, have different knowledge and skills in digital communication and technologies (Valentine et al., 2002). On the other hand, many parents and teachers of generation Alpha acquired excellent knowledge and skills in the digital area (Jones & Czerniewicz, 2010). Analysis of survey data points out that the differences between an older generation of parents and a younger generation of children are not fundamental (Eynon, 2020).

For generation Alpha, virtual reality and mobile phones or tablets, which they use for playing games, watching programs, advertisements, and exciting things, have become a regular and natural part of their lives. Therefore, this generation is labelled as *homo tabletus*, generation Glass, screeners, or screenagers (Tootell et al., 2014; Williams, 2015). It is also called Net generation, the Onliners, Global generation, generation Surf, generation Screen, and generation Tech. Members of generation Alpha were born into artificial intelligence, robotics, and humanoids (Jha et al., 2019). They are skilful navigators through various apps (Turk, 2017).

According to the conducted research, the members of generation Alpha are impatient and always tied to their digital devices (McCrindle et al., 2021); they expect visual, aural, and kinaesthetic methods to be used in school (Apaydin & Kaya, 2020). The digital world is helpful to them in many ways but also has negative consequences. The adults are aware of that threat mainly because their children want to be online 24/7. However, these children are also optimistic and able to take risks; tech-savvy and digitally literate, they can connect socially with people across geographic boundaries thanks to social media platforms such as TikTok, YouTube, Snapchat, and Instagram. There is an awareness that generation Alpha is isolated and lacks social relations and life skills (McCrindle et al., 2021). Generation Alpha is not only a visual generation but a visual-action generation. In other words, they want the movement and sound in visual materials used in school (Apaydin & Kaya, 2020). Therefore, we ask:

RQ2: What are the purposes and goals of using mobile apps by generation Alpha and which mobile apps meet these purposes and goals for generation Alpha?

Teachers' views on the use of digital technologies and mobile applications by primary school pupils and the communication practices of this segment of generation Alpha are the foundation of the research problem: What correspondences and differences exist between the ideas and demands teachers of generation Alpha for pupils' and students' mobile communication on one side and the mobile communication praxis by generation Alpha on another side? For this reason, we ask:

RQ3: To what extent do teachers' ideas about using mobile applications correspond with the communication practice of generation Alpha pupils?

4. Methodology

4.1. Research Participants

Based on the previously mentioned reasons, our sample group was composed of members from generation Alpha and their primary school teachers. Generation Alpha participants were Slovak pupils in the 1st grade of elementary school (*N* = 53, *AM age* = 9.8, range 7–11 years). Pupils were recruited by trained interviewers, university students who interviewed their own and other children in their immediate surroundings in the Slovak Republic. The reason for such recruitment was anti-epidemic measures eliminating contact between strangers. Ethical principles relating to research on children and young people were followed (Fraser et al., 2004; Harcourt & Sargeant, 2012).

The second group of participants were primary school teachers (*N* = 83, *AM age* = 38.5, range 22–55 years) supplementing their education at Comenius University in Bratislava, Slovakia. They were recruited after the second wave of the Covid-19 pandemic (September–October 2021) when the school opened its doors to children but not to strangers (e.g., researchers). The individual interviews with children started only after the parents' signed informed consent. The length of interviews with participants of generation Alpha was 30–45 minutes. Interviews with teachers in elementary schools were collected simultaneously with children; the interview duration was 45 minutes and the aim was to find their attitudes to digital applications in general.

4.2. Research Method

For data collection, we used a semi-structured interview with every participant (Gubrium et al., 2012) recorded via smartphone. Interviews were processed by thematic content analysis, identifying the patterns (themes) that capture something significant or engaging in the data (Braun & Clarke, 2006, 2020). The inductive approach allowed the data to be determined into themes. To ensure reliability, multiple researchers were used for data collection and analysis.

The authors recommended six phases that are not necessarily linear but, in our case, we followed them from one step to the next: Phase 1 ("become familiar with the data") took the form of reading and re-reading the transcripts; we took notes and recorded early impressions. Phase 2 ("generating initial codes") was the process of organising our data meaningfully: We utilised open coding to reduce the data into small chunks of meaning, the theoretical thematic analysis was used, and we analysed the data concentrating on addressing the research questions in mind. Each data segment was coded if it were relevant to, or caught something of interest to, our research questions. As we worked through the chunks of text, we generated new codes and sometimes modified existing ones. We did this by hand using pens and highlighters. Phase 3 ("search for themes") aimed to find themes by their significance. In phase 4 ("review themes") we reviewed, modified, and developed the preliminary themes from phase 3. Phase 5 ("define themes") aimed to "identify the 'essence' of what each theme is about" (Braun & Clarke, 2006, p. 92). This step was made to search the subthemes, interactions, and relationships to the central theme. Finally, phase 6 ("the write-up") represents a summary of the research results and the endpoint of the research. The results are included in this article (see also Braun & Clarke, 2006, 2020).

Recognition/discovery of emerging themes was accentuated. The reference theoretical framework is A. H. Maslow's theory of needs and the uses and gratifications theory (see also Rubin, 2009). Maslow (1998) created a hierarchy of needs as motivational forces of human behaviour, which he grouped into six consecutive levels or stages. The initial base consists of "physiological" needs, followed by the need for "safety" and then the need for "belonging and love." They are followed by "social needs" or "esteem," needs of "self-actualisation," and "transcendence." The uses and gratifications theory represents an extension of Maslow's theory of needs because it offers an approach that leads to understanding how and why people consume communication media to satisfy their needs (Leung & Wei, 2000).

5. Results

Based on qualitative thematic content analysis, the study uncovered 23 key themes that were important to digital communication actors in the Slovak context. These included themes related to education, entertainment, relaxation, rewards, aesthetics, security, information seeking, competition in games, time limitations of access to applications, banishing boredom, escape from the routine, being "in," happiness, self-esteem, adults control, personal identity, social identity, sensation seeking, setting a good mood, companionship, social interaction,

independence, and autonomy. Having gathered these themes, the researchers refined them into two main groups and six sub-themes, according to the teachers of the Alpha generation.

The study's findings align with the theoretical framework, revealing both similarities and differences in themes and attitudes between two groups of communication actors based on the generational approach (Šramová, 2019; Šramová & Pavelka, 2023). According to Lieberman (1979), the transgenerational approach is not a rigid scientific method for transitioning family culture and tradition, which is associated with the family. Instead, it is rooted in transgenerational theories that originated in family dynamics and are also referred to as intergenerational or multigenerational (Nelson et al., 1993). These theories examine the rules for communicating acquired practices, behaviours, and beliefs across generations (Kocourek & Čočková, 2017; Lieberman, 1979). The transgenerational approach has broad applications not only in marketing but also in education.

5.1. Children's Needs, According to the Teachers of Generation Alpha

Findings show the requirements of teachers' generations Alpha mobile apps targeting children were classified into two primary themes inspired by Maslow's (1998) theory without deficiency needs (Figure 1) and growth needs (Figure 2).

5.1.1. Deficiency Needs

The first theme, deficiency needs, comprises physiological, safety, and social needs (Figure 1). The subtheme, physiological needs, is formed by sensory-motor coordination, quick fingers, and relaxation. Teachers appreciate the training of sensory-motor coordination and quick reaction to the stimuli offered by the apps: "Children are skilled in quickly swiping, scrolling, and switching between various applications" (P32). In the 21st century, in developed countries, the need to use technology has become fundamental, where there is a need for speed, accuracy, and ease of operation. They are no longer basic needs for the existence of the human body, such as the need to eat or drink.

Teachers recognise children's dependence on technology and acknowledge its importance in their lives. However, they also feel that some apps should be available to help children relax and relieve stress, given that young people live in times of high stress and pressure. They believe that there should be a selection of apps that can promote relaxation and a sense of calmness in the younger generation: "I use apps for relaxation for the young age. It is awesome that it could help them to have joy and to push their steam" (P22). It is remarkable that teachers are not primarily negative about the technologies the younger generation uses and take a sober look at the phenomenon. This fact opens up further possibilities for using the teaching community to develop their competencies and to remove the stereotypical view of teachers as a group that rejects new technologies.

The second subtheme of deficiency needs focuses on safety needs related to security, tension release, and anxiety reduction. Given the current uncertain times, with dangers in both the natural and virtual worlds, it is unsurprising that young people are increasingly concerned about their safety: "It is essential to use an app to track children because the world is hazardous" (P42). Security is closely linked to trust in both other people and technology. Creating a safe environment is critical for developing a healthy and self-confident personality. However, generation Alpha is constantly taught about the dangers of physical and online environments (Gottschalk, 2019; Vavoula et al., 2007). For digital technology makers, the security of their customers must be a vital issue if they want to be their trusted service provider. Education focuses on developing knowledge and skills about online technologies, privacy, and digital citizenship (Gerstein, 2019).

Social needs are a part of deficiency needs, as people are social creatures who need interaction. Social needs are crucial for human development, as people rely on feedback and interaction with others to shape their values and attitudes. Mobile apps play a significant role

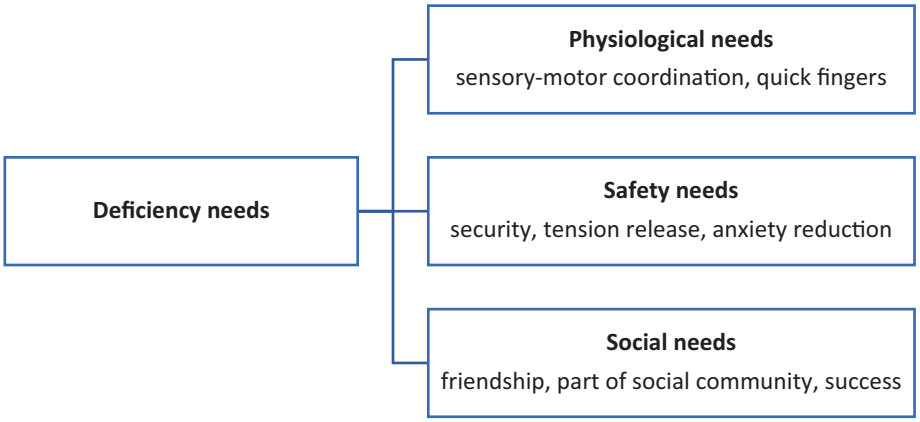

Figure 1. Thematic map of the teachers' expectations of apps for generation Alpha in deficiency needs.

in fulfilling these needs by creating ambient awareness (Levordashka & Utz, 2016), allowing individuals to capture the mood and experiences of others as if they are in the same room: "During the Covid-19 pandemic, social networking apps enabled children to stay connected with their friends and peers, preventing them from feeling isolated during periods of enforced isolation" (P55).

The human being is, by nature, a social creature who seeks information on social networks in the technological world and confronts his attitudes, opinions, and experiences with his peers. A sense of belonging gives the individual a feeling of being valued and respected, knowing that the social network is there for them in times of uncertainty, turmoil, and failure. In the school system, thanks to technology, a child can easily and quickly build social learning support networks (personal learning networks) and the individual gains a sense of belonging from some communities.

5.1.2. Growth Needs

The second theme, growth needs, comprises cognitive, aesthetic, and self-actualisation (Figure 2). The subtheme of cognitive needs is created by attention, memory, curiosity, and joy. Teachers believe that mobile apps can help children develop their attention, memory, curiosity, and joy: "Mobile games have a positive association with better concentration" (P11); "I like games with [an] educational aim….For example, with the learning of foreign words, lows of nature, and animal behaviour in the wild" (P48). Technology opens new opportunities for everybody and promotes children's creativity and effective learning (Gerstein, 2019). Teachers want apps to have beautiful designs and be user-friendly: "I like the beautiful, simple and clean design not only for children'' (P5).

There are main requirements collectively named aesthetic needs, the second subtheme of growth needs. It could be associated with cultivating children's aesthetic emotions. Children like creating videos, photos, video games, and artwork.

The third subtheme was self-actualisation, which was saturated with fulfilling activities, happiness, personal satisfaction, and autonomy: "I like the apps that bring children happiness and personal satisfaction" (P7). It corresponds with the individual's deep need for self-creation, sharing, and connection with the social world. Empowering a community of users through technology is an essential means of building brand loyalty to a product or service. On the one hand, people have a solid need to be part of a social community. On the other hand, they desire autonomy and uniqueness, with an emphasis on individuality. Technology helps independence in the learning process and develops the learner's metacognitive functions (Anthonysamy, 2021). They can manage their own pace of learning, control their results and thus increase their motivation to learn. Self-managed students have ownership of the learning process.

5.2. Consumption of Mobile Applications by Generation Alpha

Understanding media consumption and the need for gratification is essential to effectively design and develop mobile apps for the younger generation. By identifying the platforms and purposes that are most popular among the target audience, developers can create apps that cater to their needs and interests. Therefore, the finding of these two aspects, i.e., media consumption and need gratification, is crucial. In the case of generation Alpha, the most common uses for mobile apps are entertainment, education, information seeking, and game applications (Figure 3).

Reaching for mobile apps is often motivated by the desire to have fun and unwind. Disney+, Google Photos, and Instagram fulfilled a need for entertainment: "I like to try a different form of photo creation" (P15). It is not just about filling time during boredom but also about having fun entertainment and an active form of relaxation combined with creative activity.

Duolingo, YouTube, and Netflix, especially documentaries, are sources of education and learning of

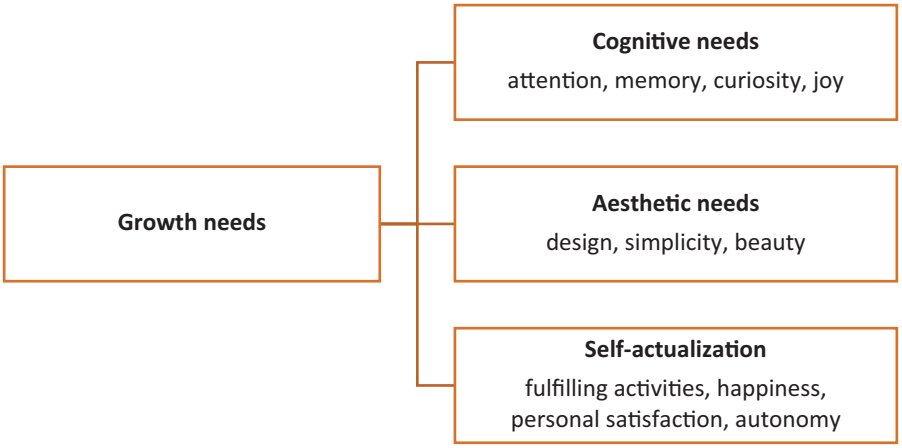

Figure 2. Thematic map of the teachers' expectations of apps for generation Alpha in growth needs.

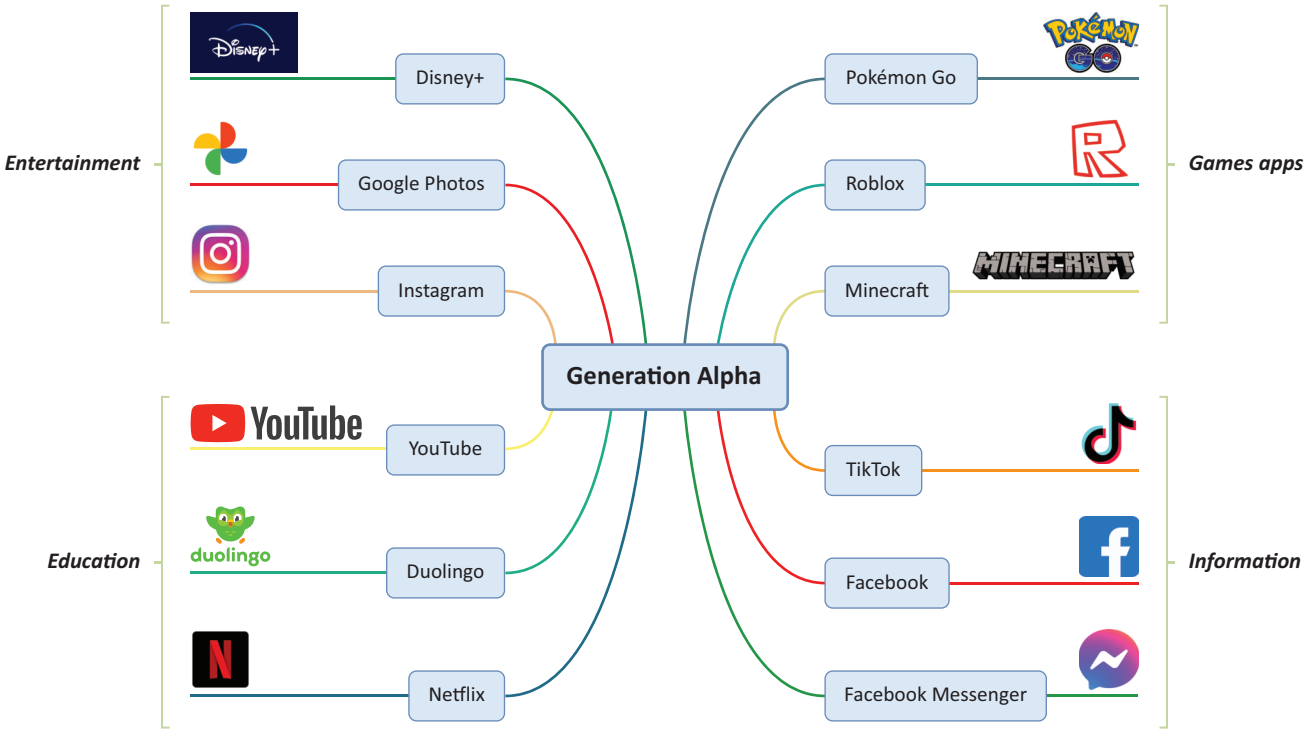

Figure 3. Purpose of using the apps by generation Alpha.

many subjects (i.e., history, nature, architecture, etc.): "My favourite program is *David Attenborough: A Life on Our Planet*" (P24); "I like to watch science experiments for children. My older brother and I tried to do some of them at home. It was funny" (P17). It is positive that pupils are interested in learning foreign languages, which regularly come under criticism for the rigorous teaching methods in school. Technology allows them to spark and reinforce their interest, making learning the much-feared science subjects and history more attractive. The inclusion of a gamification element in the learning process enhances attractiveness. A prime example of gamification in language learning is Duolingo, which supports long-term study habits and makes learning fun. Netflix is one of the personalised learning technologies (Roberts-Mahoney et al., 2016) for language education oriented toward non-native speakers. If customers prefer watching programs in the original language, the programs are served precisely based on the customers' preferences, behaviours, and interests through digital platform algorithms. Netflix is a personalised service for customers that combines interest, entertainment, and learning.

Generation Alpha searches for information on platforms such as TikTok, Facebook, and Facebook Messenger: "If I must find something very quickly, I use TikTok and Facebook. There is much advice too" (P24). These are platforms that research shows are both sources of entertainment, social comparison, acceptance, and experiences for children and were trusted sources of information during the uncertainty of the Covid-19 pandemic (Modrzejewska et al., 2022; Southwick et al., 2021; Štefanec & Švrčičová, 2022). Surprisingly, generation Alpha also followed Facebook, the typical platform for their grandparents' generation. However, their explanation was spot on. The grandparents, from whom they were isolated during the Covid-19 pandemic measures, became role models for their grandchildren. It is highly likely that Facebook—thanks to algorithms—generated personalised offerings and that the content was tailored to the interests, preferences, and desires of generation Alpha.

Game applications have a special place in the use of generation Alpha technologies. They offered more uses and gratifications to the generation, such as escape from reality, socialisation, relaxation, and self-actualisation. In our sample, the most used games were Pokemon Go, Roblox, and Minecraft, played after the second wave of the Covid-19 pandemic. The mobile augmented reality game requires players to go to different places to capture virtual characters. It was one of the reasons why Pokemon Go was very popular among children: "We play Pokemon Go with our schoolmates, and I am more successful in finding Pokemon….I find him as the first last time" (P36). The principle of physical activities linked to socialisation and competition are vital factors in children's attraction to these activities (Khamzina et al., 2020). The game improves social life, well-being, and family bonding (Wang, 2021).

Roblox, an online game which includes socially interactive learning environments, supports learning thanks to a virtual reality environment and promotes cognitive and noncognitive learning abilities (Han et al., 2023). Minecraft allows players to use simple blocks to build

a shared world: "Do you know how beautiful a city I created? When I become an adult, I will be an architect" (P33). The application encourages creativity, so it can also be used for educational purposes to trigger collaborative learning and facilitate skills development in mathematics classes in the 21st century (Rustad & Andersen, 2022).

5.3. Teachers' Ideas About Using Mobile Applications by Children and the Communication Practice of Pupils at Schools

This part of the article will analyse to what extent the ideas and expected needs associated with the children's use of mobile applications correspond with the communication practice of children at elementary schools. A comparison of teachers' attitudes towards the use of technology, especially mobile apps, by the younger Alpha generation in general and the actual reasons for pupils' use of apps after the second wave of the Covid-19 pandemic showed some correlations and connections.

Children's physiological needs, which were mainly associated by teachers with speed in mastering technology, were saturated by children's choice of digital games (e.g., Pokemon Go) that required physical activity and the need to get out of their comfort zone on a comfy chair into the outdoor terrain (Khamzina et al., 2020). The security needs teachers believe are important for technologies aimed at children did not prove to be a criterion for children's selection or use of mobile apps.

Despite being in the concrete operational stage (Piaget, 2005), the children were able to meet their social needs, not only through entertainment apps but also through those designed for play and education. Children valued collaborative learning to a high degree, which was accomplished through apps fulfilling primary educational needs and fun and play activities.

Similarly, the cognitive, aesthetic, and self-actualisation needs that teachers expect technologies designed for children to satiate evidently do motivate children to use them. Teachers appreciated that several apps are built on customising education and personalising teaching and learning (e.g., Duolingo). It is known that personalised learning technology is a method to enhance effectiveness and equality, recognising that every student possesses unique qualities and the potential to learn when provided with appropriate conditions and tools (Roberts-Mahoney et al., 2016). The teachers themselves admitted that they try to incorporate technology into the curriculum mainly to increase motivation, make teaching more attractive, and create a bond between them and the students. They know it is essential to transform educational institutions to use technology effectively and cultivate technological literacy, considering the ethical framework in using technologies to promote pupils' well-being, autonomy, and collaboration within schools and their wider communities.

6. Conclusions

Using thematic analysis as a qualitative research design, the study identified central themes significant for the Slovak cultural context, including educational aspects, entertainment, rewards, remote access, and security keys. The study's findings align with theoretical knowledge and highlight the prevalence of specific topics and variations that rely on a generational perspective. In this section, we will discuss and answer our research questions.

Regarding the needs and requirements for mobile apps targeting children, according to the teachers of generation Alpha (RQ1), interviews with teachers identified 23 themes that expressed needs regarding children's use of mobile apps. According to teachers of generation Alpha, the themes relate to six basic types of needs:

1. Physiological needs (themes no. 2, 3, 9, 10, 18, and 19);
2. Safety needs (themes no. 6 and 15);
3. Social needs (themes no. 8, 12, 17, 20, and 21);
4. Cognitive needs (themes no. 1 and 7);
5. Aesthetic needs (theme no. 5);
6. Self-actualisation needs (themes no. 4, 11, 13, 14, 16, 22 and 23).

The categorisation of needs can be done into two groups, namely deficiency needs and growth needs, which align with the findings of other researchers (Broekman et al., 2018; Falloon, 2017). Menon (2022) identified seven gratifications influencing the learner's intention to use educational apps: academic assistance, convenience, entertainment, social influence, novelty, engagement, and activity. Falloon (2017) stressed the significance of interactive design, convenience, and entertainment to motivate students to use learning apps. Similarly, Broekman et al. (2018) found that independent entertainment, the need for coeducation (adults have control), familiarity, tailored challenges, and passing the time fulfilled parents' needs for apps designed for children. According to Baran et al. (2017), the following motivators: stimulating learner interest, fun elements, interactivity, rewards, and engagement are suitable for successfully using mobile technologies at school. Unsurprisingly, the Slovak teachers were generationally on the same level as the Czech parents of generation Alpha, and their views on the needs of the young generation were similar (Šramová & Pavelka, 2023).

Regarding the purposes and goals of using mobile apps by generation Alpha and which mobile apps meet these purposes and goals for generation Alpha (RQ2), in the interviews, Slovak members of generation Alpha named the mobile applications they used most often and, at the same time, stated the primary purpose they used them for. In principle, it was possible to reveal four groups of practical use of mobile applications: entertainment, information, education, and games, which are covered with 12 applications.

The members of generation Alpha use different applications to shelter the given functional areas. In the Alpha generation, there is a surprising proportional filling of individual functional areas with mobile applications. Three applications always saturate each functional area. The entertainment area is covered by Disney+, Google Photos, and Instagram; the education area, by YouTube, Duolingo, and Netflix; the games area, by Pokémon Go, Roblox, and Minecraft; and the information area, by TikTok, Facebook, and Facebook Messenger.

Their limited communication competencies determine the choice of applications for children in preschool or the first year of primary school. Their competencies are mainly determined by a lack of knowledge of the written (native) language and by knowledge and skill limits tied to only one, the native language. The institutional factor is another factor determining the choice of mobile applications among Slovak and Czech children. Public elementary and secondary schools, the vast majority in the Slovak and Czech Republic, are financed and methodically centrally managed by the state. The state contains and regulates the area and forms of digitisation of communication, ensuring education and training. The next factor influencing the selection and use of mobile applications is the parents of generation Alpha. Meanwhile, the Covid-19 pandemic caused the use of social media (Twitter, Instagram, LinkedIn, YouTube, TikTok, Reddit) to significantly increase in 2021 worldwide (HubSpot, 2022; Needle, 2022). According to HubSpot (2022), the prediction is that it will grow annually by about 14%.

Regardint the extent to which teachers' ideas about using mobile applications correspond with the communication practice of generation Alpha pupils (RQ3), there are no significant differences between the ideas and needs to be supported through children's use of technology, according to teachers, and the mobile apps used by the younger Alpha generation. The advent of technology is unlocking fresh opportunities for individuals across the board, fostering creativity and facilitating efficient learning modes.

Mobile apps have a growing trend in media consumption for the Alpha generations (Rideout, 2016). The findings show that the digital communication activities of generation Alpha refer to the audience's intentionality, selectivity, and involvement with the media. It corresponds to previous findings (Šramová & Pavelka, 2017). The presented research opens other possible research topics, such as how new communication and mobile apps will influence the Alpha generation's behaviour, value orientation, and well-being. The findings are consistent with theory and point to the penetration of individual topics and differences that depend on a generational approach (Šramová & Pavelka, 2019).

The gratification theory emphasises that users are actively selective and motivated to use specific media (Katz et al., 1973; Kearney et al., 2020, pp. 129–151). The theory provides a user-centred angle for the various social and psychological satisfactions obtained from a given medium in the technology environment (Leung & Wei, 2000; Menon, 2022; Papacharissi & Rubin, 2000).

The presented research offers one possible approach to generations regarding the current topic: mobile applications. The limiting factor is the number of research participants. In the future, it would be desirable to examine generations using the criteria of gender, social status, and age cohorts. Based on these data and their evaluation, it would also be possible to create recommendations for developers and producers of mobile applications and to integrate these technologies into educational processes. When digital communication technologies are purposefully integrated, considering future outcomes and targeting specific objectives for growth, it enhances the capacity to support students' learning, advancement, and personal development.

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Conflict of Interests

The authors declare no conflict of interests.

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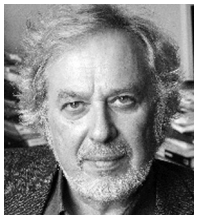

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Article

Tethered Disparities: Adolescent Smartphone Use in Rural and Urban China

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Abstract
The pervasive penetration of the smartphone has disproportionately affected adolescents and youth more than any other sociodemographic group. Inspired by the conceptual framework of the digital divide in internet use, this research aims to interrogate the multi-dimensional aspects of disparities in smartphone use among teens in China. Measurement was developed to assess the first-, second-, and third-level divide as manifested in smartphone access and engagement in a variety of activities, different skill sets, and myriad outcomes and consequences. Results from a cross-sectional survey of 1,511 at-school teens show various patterns of divide along the lines of age, gender, and rural/mid-sized-city/metropolitan location.

Keywords
China; digital divide; media disparities; smartphone use; territorial gap

Issue
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1. Introduction

Like elsewhere, China has witnessed exponential penetration of the smartphone into many aspects of professional, social, and private life in the past decades. In parallel with this comes a milieu of environmental and situational factors that exacerbate the digital disparities and multifaceted manifestations of digital inclusion/exclusion along rural–suburban–urban lines, which may lead to varied outcomes in different facets of adolescent social and personal well-being. Inspired by the conceptual lens of the three levels of the digital divide in internet use, this research aims to interrogate the multiple dimensions of the digital divide in smartphone use by middle school and high school-age teens in China.

Our perspectives and analysis are informed by a cross-sectional survey of a stratified national sample of 1,511 at-school teens. The first-level of the digital divide concerns access to smartphone technologies and engagement with various activities. The second-level divide is measured by four core smartphone skills categories, adapted from well-established traditions of internet skills assessment. The third-level divide is based on adolescents' self-assessment of an assortment of evaluations in the areas of positive, negative, and utilitarian outcomes in relation to smartphone use. Key variables moderating the digital divide of smartphone use are rural–suburban–urban location and gender. The findings are discussed in the broad context of the digital divide research and China's youth-led techno culture.

2. Digital Divide: First-, Second-, and Third-Level Dimensions

2.1. From Access to Skills

As digitization takes center stage in global society, the digital divide has been a prevailing topic of academic

interest in the past decades. Originally defined as the inequality (gap) between those who have access and do not have access to the internet in the 1990s (van Dijk, 2020), research in the early years had primarily conceptualized the digital divide along the binary distinction between access/non-access to and use/non-use of the internet among various segments of the population (Rogers, 2001). As an increasing proportion of the population gains access to the internet and related digital technologies, the barrier to connection no longer poses a problem to the vast majority of the general public. Research focuses have subsequently shifted to other dimensions of access and use that shape new formations of the digital divide (Min, 2010; van Deursen & van Dijk, 2014).

In response to these new developments, scholars contend that the digital divide can no longer be construed solely on the "have vs. have-not" distinction, and instead must be interpreted on differentiation along other important dimensions such as skills and knowledge (Scheerder et al., 2017), quality of connection and accessibility of relevant content (DiMaggio et al., 2004), attitudes and amount/varieties/patterns of usage (Blank & Groselj, 2014; van Deursen & van Dijk, 2014), as well as Web 2.0 literacy (Friemel & Signer, 2010). This line of research and conceptual contemplation is commonly referred to as the *second-level digital divide* (Hargittai, 2002), aiming to differentiate this marked shift from a primary focus on the access divide (i.e., the first-level digital divide) to the skills divide. Cross-national survey data by Büchi et al. (2016) confirm the existence of the second-level digital divide in high-penetration countries, supporting the argument that widespread internet access does not translate into usage equality. Similar gap patterns in technical skills and motivations have been observed in (low penetration) Sub-Saharan Africa (Ogbo et al., 2021), Cuba (van Deursen & Andrade, 2018), and adolescents in Central and Eastern Europe (Barbovschi & Balea, 2013).

2.2. Benefits and Outcomes

Research in recent years has expanded into investigating the miscellaneous consequences and outcomes of digital media use, collectively labeled the *third-level digital divide* to highlight the "gaps in individuals' capacity to translate their internet access and use into favorable offline outcomes" (van Deursen & Helsper, 2015, p. 30). Livingstone et al.'s (2023) sweeping overview of 34 empirical studies on the outcomes of children and young people's digital skills in multiple national settings reveals that different skill dimensions are linked to different outcomes, but not always beneficially. While greater technical skills are linked to more online opportunities and information benefits, they are also found to be associated with more online risks. Informational skills, on the other hand, are generally found to be linked to beneficiary outcomes (Livingstone et al., 2023; Scheerder et al., 2017). The fact that access does not automatically translate into skills, which in turn do not equate to positive outcomes lends support to the argument in favor of perceiving the digital divide "as a multidimensional phenomenon that includes a set of complex divides…caused by a variety of factors" (Bruno et al., 2011, p. 27). With specific regard to online health care, access to online services, skills to use them and the extent of use play crucial roles in perceived health, economic, and collaboration benefits (Heponiemi et al., 2020). Ragnedda et al. (2022) argue that stratified access to ICTs among different types of users may reinforce "the inequality loop" that leads to diverging outcomes in the internet experience. Inequalities in benefits and harms driven by algorithm sorting, data mining, and artificial intelligence are important issues to investigate as individual interactions with emerging technologies intensify (Lutz, 2019).

2.3. Measurement and Assessment of Digital Skills

One area that has received significant scholarly attention is the measurement of internet skills (i.e., the second-level divide). It has been duly noted that there is a wide range of methodological approaches to assessing internet skills, from surveys to interviews and experiments (Litt, 2013). In general, following van Deursen and van Dijk, (2010), measurement of internet skills has been operationalized in the framework of these dimensions: operational skills (a set of basic skills in using the computer or the internet); formal skills (skills related to the structure of the internet medium); information skills (searching, retrieving, and making judgment about information online); and strategic skills (setting a goal orientation and taking action accordingly). In a similar vein, van Dijk's (2020) resources and appropriation theory of the digital divide makes the distinction between two broad types of medium-related (operational and formal skills) and content-related (information, communication, strategic, and content-creation) skills. With regard to outcomes of internet use (i.e., the third-level digital divide), the most commonly adopted perspective is to operationalize outcomes in multiple life realms pertinent to a variety of economic, social, political, and educational consequences (van Deursen & Helsper, 2015; van Dijk, 2020).

2.4. Smartphone-Based Mobile Communications

The particular affordances of the smartphone, its highly personal nature, coupled with its ubiquity, crosscut the human/machine boundaries and cultivate incorporeal embodied experiences of *homo prostheticus*, that is, living one's life with and through the phone (Marchant & O'Donohoe, 2019). Smartphone-based communication is of particular importance to adolescents and young adults, configuring into a distinct "youth mobile culture" (Vanden Abeele, 2016). Traditionally, research investigating the digital divide has been dominated by internet use, and it is within recent years that growing attention

has been extended to the various dimensions of the smartphone usage gap and divide. For example, Tsetsi and Rains (2017) analyzed the divide in smartphone dependence along major socioeconomic and race factors. Vimalkumar et al. (2021) offer a cross-national comparison of the multi-level nature of the divide in smartphone adoption and usage. Despite the emerging body of research in this area, as Marler (2018) notes, many pressing issues such as how particular conditions of disadvantage and infrastructural affordances shape outcomes for diverse groups and marginalized communities await academic attention. One specific example is health app use, the gradations of which may contribute to new digital inequalities (Bol et al., 2018).

One fundamental difference between the internet and smartphone use is that the former has been generally portrayed in a positive light (as something to be desired and needed, e.g., DiMaggio et al., 2004; van Dijk, 2020). The smartphone has been quite a different story, however. Although the smartphone is associated with miscellaneous benefits and opportunities, it is also frequently associated with myriad risk factors and harm, such as addiction, cyberbullying, distress and anxiety, and physical and mental health, in particular relevance to children and youth (Fischer-Grote et al., 2021; Mascheroni & Ólafsson, 2014).

2.5. Research Questions

The purpose of our research is to dissect the multiple dimensions of the digital divide as manifested in smartphone use among school-age teens in China along lines of urban–rural residence. Specifically, we were interested in the full spectrum of the digital divide ranging from access to skills and consequences with the middle school and high school population. In conformity with the above literature review, we developed the following set of broad research questions to pursue:

RQ1: What are the gaps among teens regarding access to smartphone devices and their common features?

RQ2a: What gaps, if any, are there concerning patterns of smartphone usage and activities among metropolitan, mid-sized cities, and small-town/rural teens?

RQ2b: What is the variation in their diverse smartphone skills among metropolitan, mid-sized cities, and small-town/rural teens?

RQ3: How does the digital divide in smartphone use manifest in a tangible impact on the teens' social and academic lives?

RQ4: What are the intervening roles of gender and age in the smartphone digital divide?

3. Methodology

3.1. Participants

Our main focus was to examine the multi-level digital divide in smartphone use based on residential type variation. Geographic affiliation in China dictates economic, social, and informational resources in the local lifestyle and therefore creates natural conditions of inequality for residents in these areas. People living in the biggest metropolises typically have access to up-to-date technological infrastructure, while residents in remote rural areas significantly lag behind. We divided location types into three broad categories: metropolises, mid-sized cities, and small towns/rural areas. Metropolises include prefecture- and provincial-level cities, with a typical population of a few million and served by the best telecommunications infrastructure. Mid-sized cities are mostly county-level cities with a population of a few hundred thousand, while small towns/rural locations refer to township-level or below-residential areas with low population density.

We utilized a stratified sampling strategy in selecting participants in the study. Locations were first selected from different geographic regions spanning across 18 provincial areas, followed by the identification of schools in the chosen locations. Four types of schools were targeted in the sampling process: middle schools (grades 6–8), high schools (grades 9–12), junior secondary vocational schools (grades 6–8), and senior secondary vocational schools (9–12). Sixty schools were initially identified, and teachers were contacted in these schools for permission to recruit students. Thirty-nine schools eventually agreed to let their students participate in the online survey. One to two grades were selected from each school. Consent was obtained through both the parents and the teens with a recruiting letter explaining the overall purpose of the survey (smartphone use) and its strictly voluntary nature of participation.

The survey was posted on Wenjuanxing (www.wjx.cn), China's most popular online survey platform. Students who agreed to participate were asked to provide their answers either on a computer or smartphone, and the survey was conducted from 20 March to 15 April 2023. Out of 2,425 students contacted for the survey, a total of 1,511 valid responses were collected after four incomplete questionnaires were tossed out, representing a response rate of 62.3%. Detailed information about the participants is reported in Table 1. Participants range from 12 to 19 years old, with an M = 15.62 in age. Gender is rather evenly distributed, as is geographic location in its three categories.

3.2. Survey Tools

Our first-level divide measurements include the following: accessibility to smartphones, type of smartphone

Table 1. Sample characteristics.

Variables	*N* = 1,511 (100%)
Gender	
Male	763 (50.5%)
Female	748 (49.5%)
Age (*M* = 15.62; *SD* = 2.15)	
12	77 (5.1%)
13	232 (15.4%)
14	295 (19.5%)
15	136 (9.0%)
16	160 (10.6%)
17	235 (15.6%)
18	207 (13.7%)
19	169 (11.2%)
Grade	
Middle school year 1	315 (20.8%)
Middle school year 2	344 (22.8%)
Middle school year 3	71 (4.7%)
High school year 1	78 (5.2%)
High school year 2	278 (18.4%)
High school year 3	238 (15.8%)
Other	187 (12.4%)
Location type	
Metropolis	460 (30.4%; 247 males vs. 213 females)
Mid-sized city	497 (32.9%; 257 males vs. 240 females)
Small town/rural area	554 (36.7%; 259 males vs. 295 females)
Provincial regions	18
Average smartphone time (weekdays)	
Less than 1 hour	747 (49.4%)
1 to less than 2 hours	278 (18.4%)
2 to less than 3 hours	142 (9.4%)
3 to less than 4 hours	104 (6.9%)
4 hours or more	240 (15.9%)
Average smartphone time (weekend)	
Less than 1 hour	276 (18.3%)
1 to less than 2 hours	342 (22.6%)
2 to less than 3 hours	261 (17.3%)
3 to less than 4 hours	181 (12.0%)
4 hours or more	451 (29.8%)
Price range	
Below ¥1,000	265 (17.5%)
¥1,000–¥1,999	673 (44.5%)
¥2,000–¥2,999	309 (20.5%)
¥3,000 and above	264 (17.5%)

used, and how often one engages in a dozen of smartphone-based activities. Smartphone skills (the second-level divide) measurements were adopted from well-established frameworks in the digital divide research tradition (Litt, 2013; van Dijk, 2020), with customized adaptations to the peculiarities of smartphone use. We adopted the three categories of operational, informational, and strategic skills from van Deursen and van Dijk (2010) but revised the formal skills for internet use into a new category called *advanced skills* to measure one's ability to understand and take advantage of some advanced features on the smartphone. We initially developed a list of 25 items assessing individuals' proficiency/familiarity in accomplishing specific tasks on the smartphone and sent them out to a dozen middle school and high school teachers as well as parents for comments and feedback for both wording appropriacy and skills coverage. Revisions were made and then these

measurements were pilot-tested with 15 middle schoolers and 15 high schoolers. Based on comments and suggestions in the two rounds of evaluations, we adopted a list of 17 indicators in our online questionnaire.

Operational skills were measured by six items: set up wake-up services and timer functions; use the GIS as well as the GPS service; create a WeChat or a QQ group; use video, audio, or email service; share images or videos with others; find and install apps that one needs. Informational skills were measured by these five indicators: shop and complete smartphone-based purchases; find information that helps one's routine life; buy tickets (e.g., movies and public transportation); find out what is going on in one's community; find answers to everyday questions.

Strategic skills were assessed by one's ability to perform these tasks (towards education-related goals): find answers to questions related to school education; help with one's homework and academic tasks; use the smartphone to improve one's grade; use the smartphone to enhance one's knowledge level. Finally, the advanced skills instrument contained two items: understand smartphone technical specifications and make customized settings for particular needs; and personalize security settings to enhance privacy and safety. Each indicator asked participants their level of familiarity with performing the referenced tasks on a 5-point scale, with 1 = *most unfamiliar* and 5 = *most familiar*. A composite score was calculated for each of the four skill sets by summing up the scores of the respective items used in each category. For ease of comparison, we standardized all four measurements into a 1–5 scale (Table 3).

Regarding the third-level divide in reference to the varied outcomes and consequences of smartphone use, we developed a series of 11 items covering how the smartphone has impacted one's communication, academic pursuit, community life, and entertainment. Participants were asked to respond on a 6-point scale (1 = *strongly disagree* and 6 = *strongly agree*) to what extent each item fits their individual smartphone use outcomes. We classify these statements into three broad categories (positive, negative, and neutral). Positive outcomes refer to favorable impacts and benefits smartphone use has exerted on the individuals, including these 5 items: "The smartphone enhances my understanding of and communication with my family"; "the smartphone brings me joy"; "I learn a lot of extracurricular knowledge on the smartphone"; "the smartphone brings me a lot of convenience in my life"; "smartphone use deepens my understanding of the community and neighborhood I live in."

Negative outcomes, on the contrary, pertain to undesirable and detrimental consequences on teens' academic or social life, as demonstrated in these four items: "The smartphone interferes with my school work and drags down my GPA"; "the smartphone distances me from my friends"; "I feel ill at ease if I am separated from my phone"; "smartphone use brings me distress and frustration." Neutral outcomes contain two statements related to the utility aspects of the smartphone as a tool for entertainment and information-seeking: "The smartphone is an important source of information for me"; "the smartphone is the main platform of after-school entertainment for me." Cronbach's alpha (α), which measures scale reliability, is 0.898 for the positive outcomes scale, 0.902 for the negative outcomes scale, and 0.796 for the utility measure. Thus, a high level of internal consistency was achieved in the multi-dimensional indicators. Notably, the alpha value for the utility scale ranks much lower than that for negative and positive outcomes, most likely attributable to the small number (n = 2) of measurement items for utility. As Tavakol and Dennick (2011) explain, short test length (i.e., fewer test items on the scale) reduces the value of alpha.

3.3. Data Analysis

Data analysis was performed using IBM SPSS Statistics (Version 29). Aligned with our interest in examining differences across the demographic characteristics of gender and age within the various location types, multivariate analysis of variance (MANOVA) was the major statistical procedure using the various dimensions of smartphone as the dependent variable, with gender and location type as the independent variables and age as a covariate. When the MANOVA results indicated significant groupwise differences, follow-up post-hoc between-group tests were conducted to pinpoint patterns of pairwise differences per recommended MANOVA practices (Denis, 2021). Additionally, we started out with the MANOVA full model including interaction effects. In models that did not show significant interaction effects, we resorted to a model with only parameters of the main effects reported.

4. Findings

4.1. Access (First-Level Divide)

As an indication of the pervasive penetration of the smartphone in China, there was no report of individuals not having access to the device in our sampling process. However, there exists a gap along rural–urban lines in other measures of mobile access. Asked whether they had wi-fi access at home, 14.8% of rural teens responded with "yes," compared with 9.5% of suburban and 6.1% of urban teens (χ^2 = 21.19, p < 0.001). There is also a disparity in terms of the type of smartphone the adolescents gain access to. This is reflected in the price tag the survey asked for the phone they currently had: small-town/rural teens had the highest percentage (20.4%) in the lowest category (less than ¥1,000) while the lowest percentage (11.2%) in the highest cost category; metropolitan teens were exactly the opposite and mid-sized city teens were in between (χ^2 = 69.80, p < 0.001). In responding to how frequently they obtained a new phone set (every

year, every two–three years, or over three years), rural teens reported the largest percentage (66.4% vs. 48.1% urban) on taking over three years to get a replacement, while their metropolitan peers had the highest percentage (17.4% vs. 4.6% rural) on receiving an upgrade every year; teens from mid-sized cities fell in the middle in these categories (χ^2 = 73.72, p < 0.001).

Table 2 tabulates nine smartphone activities that teens engage in, ranked in the order of the overall means from most often to least often. Three activities in the survey that scored the lowest frequency (e-purchase, e-health, and making new friends) were excluded. There is a significant main effect of location on all activities except using Douyin (the domestic version of TikTok) and Kuaishou (a short-video sharing app); teens in big cities consistently display a higher propensity to engage than their counterparts in mid-sized cities and small town/rural areas on the eight other activities. Post-hoc tests revealed that the suburban-rural gap only reaches statistical significance with regard to virtual classes and online education for both male and female teens. Male teens in metropolitan regions tend to perform more activities in the areas of voice calls and SMS, utility apps, news-related information-seeking, and camera use than their rural peers. While the general tendency is for female adolescents to engage more in smartphone activities, the lone exception is mobile gaming, where male cohorts show a higher propensity to play games among all metropolitan, mid-sized cities, and small-town/rural locations. As a matter of fact, the gender main effect (F = 39.78) is second only to that (F = 43.03) in phone camera use, but the latter points to the opposite direction (i.e., females take more photos than males). The location effect is the largest in news-related information seeking (F = 39.20) and virtual class (F = 36.55).

A significant main effect of age was detected on all activities, suggesting a clear pattern of differentiation along this dimension. There is a persistent divergence

Table 2. MANOVA results and pairwise comparison of smartphone activities.

Activity type Overall *M* (*SD*)		Location group mean (*SD*) Small town/ rural area	 Mid-sized city	 Metropolis	MANOVA results (main effects)
Social networking apps (WeChat and QQ) and email (*M* = 3.40; *SD* = 0.81)	Male Female	3.21 (0.95) 3.41 (0.86)	3.28 (0.81) 3.43 (0.71)	3.49 (0.74) 3.59 (0.66)	Location: F = 16.30; p < 0.001 Gender: F = 19.75; p < 0.001 Age: F = 170.86; p < 0.001
Voice calls and SMS (*M* = 3.27; *SD* = 0.84)	Male Female	3.11 (0.89) 3.20 (0.89)	3.26 (0.82) 3.20 (0.84)	3.41 (0.81) 3.53 (0.70)	Location: F = 20.64; p < 0.001 Gender: F = 18.83; p < 0.145 Age: F = 79.49; p < 0.001
Virtual class and education-related tasks (*M* = 3.23; *SD* = 0.79)	Male Female	3.01 (0.84) 3.13 (0.78)	3.19 (0.82) 3.26 (0.69)	3.38 (0.80) 3.50 (0.66)	Location: F = 36.55; p < 0.001 Gender: F = 8.90; p = 0.003 Age: F = 89.23; p < 0.001
Calculator, calendar, dictionary, and clock (*M* = 3.23; *SD* = 0.85)	Male Female	2.98 (0.92) 3.22 (0.84)	3.15 (0.84) 3.27 (0.78)	3.33 (0.84) 3.47 (0.77)	Location: F = 21.96; p < 0.001 Gender: F = 2.13; p = 0.001 Age: F = 80.92; p < 0.001
Video, music, and e-reading (*M* = 3.19; *SD* = 0.86)	Male Female	3.01 (0.97) 3.18 (0.83)	3.02 (0.91) 3.26 (0.74)	3.27 (0.87) 3.46 (0.73)	Location: F = 19.26; p < 0.001 Gender: F = 18.87; p < 0.001 Age: F = 192.70; p < 0.001
Douyin, Kuaishou, and livestreaming (*M* = 3.14; *SD* = 0.92)	Male Female	3.13 (0.98) 3.16 (0.90)	3.06 (0.94) 3.15 (0.80)	3.18 (0.97) 3.19 (0.90)	Location: F = 1.31; p = 0.269 Gender: F = 2.00; p = 0.157 Age: F = 133.09; p < 0.001
News-related information (*M* = 2.89; *SD* = 0.93)	Male Female	2.63 (1.04) 2.80 (0.89)	2.85 (0.93) 2.80 (0.86)	3.16 (0.91) 3.16 (0.85)	Location: F = 39.20; p < 0.001 Gender: F = 2.19; p = 0.139 Age: F = 155.84; p < 0.001
Mobile games (*M* = 2.87; *SD* = 0.97)	Male Female	2.98 (0.94) 2.61 (0.97)	2.99 (0.95) 2.66 (0.93)	3.14 (0.91) 2.89 (1.04)	Location: F = 9.57; p < 0.001 Gender: F = 39.78; p < 0.001 Age: F = 88.66; p < 0.001
Photo-taking (including selfies) (*M* = 2.83; *SD* = 1.01)	Male Female	2.51 (1.05) 2.91 (0.95)	2.61 (1.00) 2.88 (0.96)	2.97 (1.03) 3.17 (0.96)	Location: F = 24.53; p < 0.001 Gender: F = 43.03; p < 0.001 Age: F = 180.80; p < 0.001

Note: Scale—1 = *seldom or never*, 2 = *occasionally*, 3 = *often*, and 4 = *almost always*.

among teens from metropolises, mid-sized cities, and small town/rural areas in the 12–15-year-old (middle schooler) range, and that gap tapers off among the 16–19-year-old cohort (high schoolers). Due to space constraints, we only presented figures demonstrating the age effects for the top-four smartphone activities in Figure 1. Of note is the persistent rural-urban gap with regard to virtual classes and online education across all age groups. An identical pattern of persistent location disparity was only noted for news-related information seeking among all the activities (not listed in Figure 1).

4.2. Smartphone Skills (Second-Level Divide)

As might be expected, respondents scored the highest level of proficiency in operational skills (*M* = 4.04) and the lowest level in advanced skills (*M* = 3.64). Along the lines of the rural–urban divide, informational skills have the biggest disparity as reflected by the *F* value (105.72), suggesting that the inequality among rural, mid-sized city, and metropolitan teens is the most intense therein. As far as gender is concerned, the size of the main effect is the biggest in strategic skills, indicating that female teens are much more strategic than their male peers in using smartphones to accomplish school and other goal-oriented tasks. As Table 3 shows, there is a continuous gap between all four types of smartphone skills separating rural, mid-sized city, and metropolitan teens. Female teens are significantly ahead of male teens in operational, information, and strategic skills, but they trail behind male teens in their advanced skills, albeit not at a level of statistical significance.

Because age displays an invariably large main effect on all four skill categories, we graphically represented the variations within the different age cohorts in relation to the four skill sets in Figure 2. It can be seen

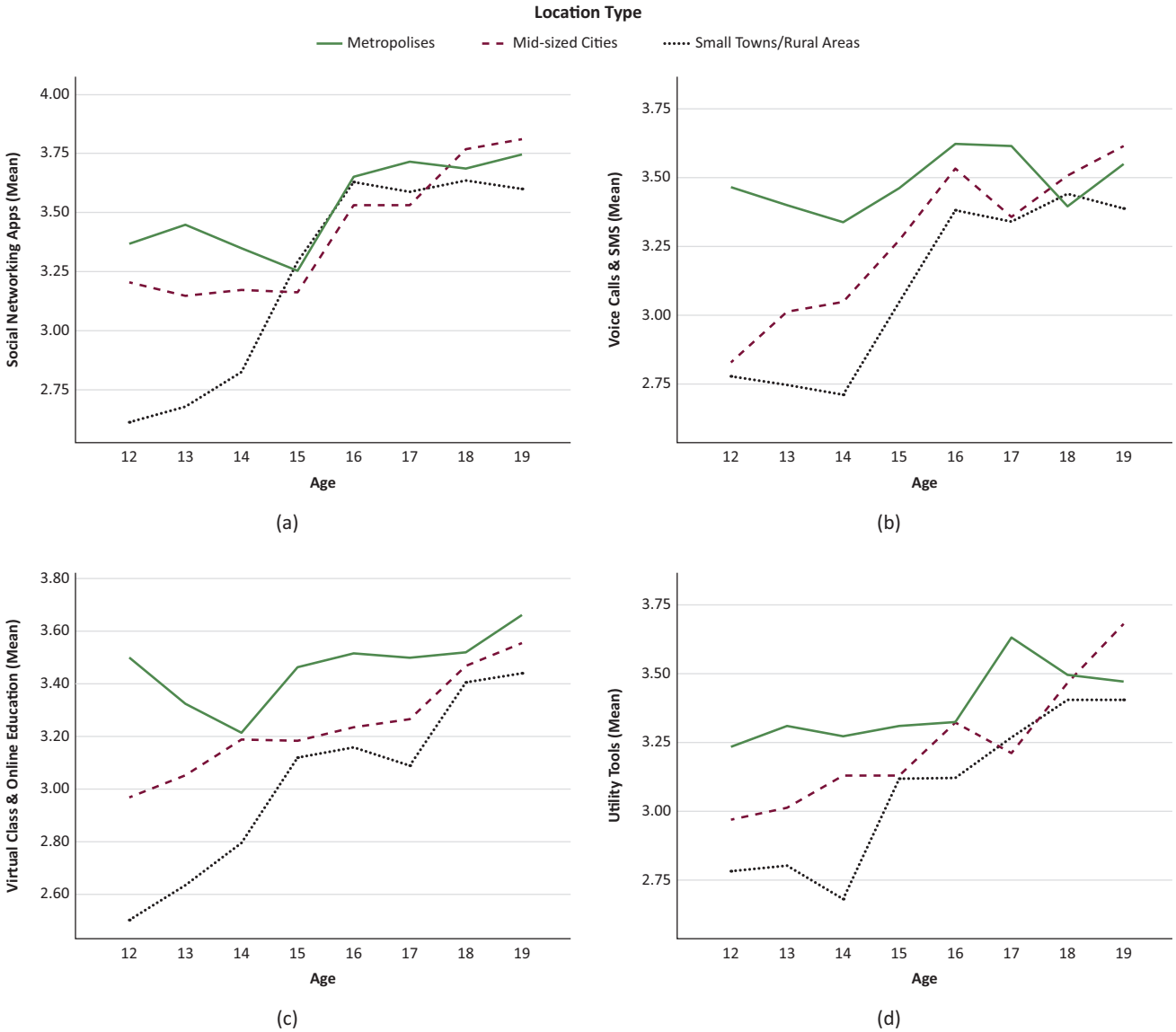

Figure 1. Variation of smartphone activities by age: (a) social networking apps; (b) voice calls and SMS; (c) virtual class and online learning; (d) utility tools. Note: Scale ranged from 1 = *never* to 4 = *very frequently*.

Table 3. Comparison of smartphone skills.

Smartphone skills Overall *M* (*SD*)		Location group mean (*SD*)			MANOVA results		
		Smal town/ rural area	Mid-sized city	Metropolis	Location effect *F* ratio (*df* = 2)	Gender effect *F* ratio (*df* = 1)	Age effect
Operational skills (*M* = 4.04; *SD* = 0.94)	Male	3.72 (1.10)	3.94 (0.90)	4.40 (0.85)	*F* = 83.63; *p* < 0.001	*F* = 5.01; *p* = 0.025	*F* = 192.66; *p* < 0.001
	Female	3.83 (0.96)	3.99 (0.80)	4.46 (0.72)			
Informational skills (*M* = 3.93; *SD* = 1.02)	Male	3.58 (1.22)	3.82 (0.82)	4.37 (0.86)	*F* = 105.72; *p* < 0.001	*F* = 4.66; *p* = 0.031	*F* = 325.35; *p* < 0.001
	Female	3.72 (1.06)	3.84 (0.86)	4.41 (0.82)			
Strategic skills (*M* = 3.97; *SD* = 0.98)	Male	3.66 (1.11)	3.88 (0.96)	4.29 (0.89)	*F* = 76.70; *p* < 0.001	*F* = 7.42; *p* = 0.007	*F* = 194.06; *p* < 0.001
	Female	3.78 (1.00)	3.91 (0.88)	4.44 (0.75)			
Advanced skills (*M* = 3.64; *SD* = 1.15)	Male	3.40 (1.28)	3.58 (1.08)	4.13 (1.07)	*F* = 71.05; *p* < 0.001	*F* = 1.04; *p* = 0.307	*F* = 215.31; *p* < 0.001
	Female	3.33 (1.09)	3.49 (1.03)	4.03 (1.04)			

Note: Standardized scale—1 = *most unfamiliar*, 2 = *familiar*, 3 = *slightly familiar*, 4 = *unfamiliar*, and 5 = *most familiar*.

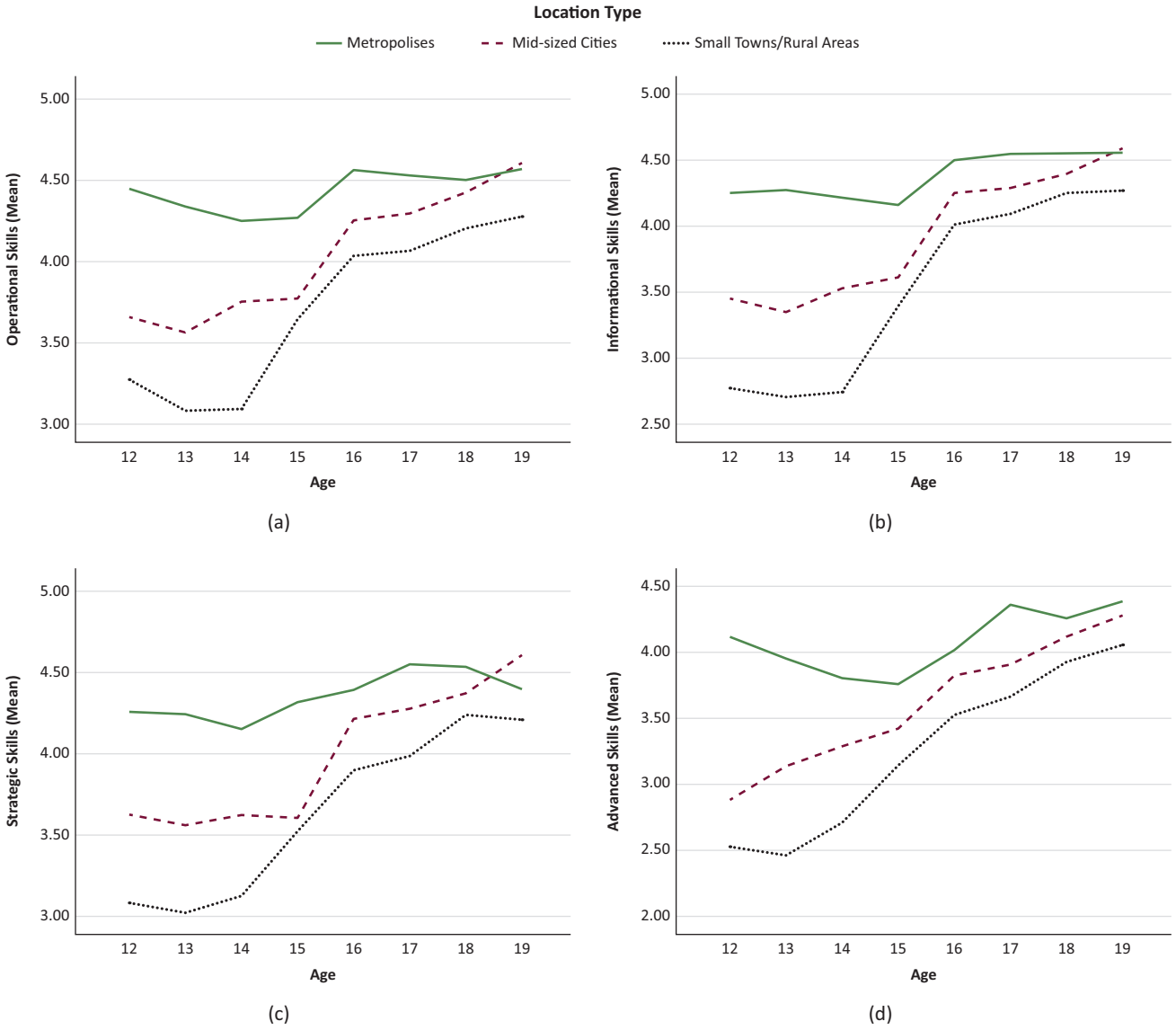

Figure 2. Age effects on smartphone skills: (a) operational skills; (b) informational skills; (c) strategic skills; (d) advanced skills.

that the small town/rural, mid-sized city, and metropolitan gap persists across all age groups. The disparity is the widest at age 12, and it gradually trends down and converges closer at age 19. This indicates that although small-town/rural and mid-sized city teens start off sizably behind their metropolitan counterparts, they can slowly catch up and narrow the gap as they move forward with their school. Across all four skill categories, metropolitan teens start at a much more proficient level, and their skills remain relatively stable as age goes up. This pattern is in distinct contrast to mid-sized city and small-town/rural adolescents, as proficiency level shows a clear pattern of improvement in parallel with the growth of age.

4.3. Outcomes and Consequences (Third-Level Divide)

Adolescents were overwhelmingly favorable about the positive outcomes of smartphone use (*M* = 4.35, see Table 4). On a scale from 1 (*strongly disagree*) to 6 (*strongly agree*), 80.8% answered in the positive territory (i.e., 4–6 on the scale). However, there is a sizable gap in perceived benefits of the smartphone between metropolitan teens on the high end and small-town/rural and mid-sized city teens on the lower end. It is a quite different story concerning the negative outcomes of smartphone use, as the average of responses (*M* = 3.31) falls right at the somewhat *disagree*/*agree* point of the scale, and 58.3% of the participants answered in the *disagree* range (1–3 on the scale) that the smartphone has produced a negative impact on their school and social life. The main effect of gender is the largest with the negative outcomes, showing males being affected more than females among all cohorts. Small-town/rural females perceived the least harm while metropolitan males felt the most. Location type has the biggest main effect on smartphone utility. The majority (60%) of the surveyed teens answered in the *disagree* category (i.e., 1–3 on the scale), with most of the responses coming from small-town/rural and metropolitan teens. Small-town/urban adolescents, on the other hand, perceived the most benefits in using the smartphone for task-oriented goals.

Because the main effects of age are quite massive in all the MANOVA results, we again plotted variations of the smartphone use outcomes along age groups. As revealed in Figure 3, metropolitan teens stay on top of all categories. Positive outcomes are exhibited early on across all groups with a threshold value of bigger than 3.5, whereas negative outcomes tend to emerge in the high school (16–19 years old) phase for metropolitan and mid-sized city teens and later high school for small-town/rural teens. Utility and positive outcomes show the most upward trend during high school years.

5. Discussion

A highly useful perspective for understanding disparities in smartphone use is the digital divide framework, which has attracted a robust body of scholarship in the wake of the rise of the internet since the 1990s. Nonetheless, digital divide research has been predominantly focused on internet use, and the smartphone has been sparingly examined in this context. To our knowledge, this current study represents the first effort to adopt the latest digital divide theoretical contemplations to systematically investigate multi-dimensional disparities in adolescent smartphone use along the geographic factor of rural-urban distribution.

As smartphones become ubiquitous in everyday life, how smartphone usage figures in the digital divide becomes a pivotal line of inquiry. It is therefore time that we scrutinized the diverse patterns of engagement with miscellaneous smartphone technologies and features as well as its subsequent consequences, in particular relevance to socially disadvantaged groups and demographics. The extant perspectives have been dominated by smartphone dependence as it relates to access to an

Table 4. Outcomes of smartphone use.

Outcome type Overall *M* (*SD*)		Location group mean (*SD*) Small town/ rural area	 Mid-sized city	 Metropolis	MANOVA results (main effects)
Positive outcomes (*M* = 4.35; *SD* = 1.42)	Male Female	4.16 (1.34) 4.27 (1.06)	4.20 (1.12) 4.18 (1.00)	4.73 (1.12) 4.66 (1.10)	Location: *F* = 33.40; *p* < 0.001 Gender: *F* = 0.544; *p* = 0.461 Age: *F* = 141.24; *p* < 0.001
Negative outcomes (*M* = 3.31; *SD* = 1.15)	Male Female	3.32 (1.43) 2.95 (1.21)	3.38 (1.36) 3.04 (1.15)	3.86 (1.61) 3.39 (1.56)	Location: *F* = 21.69; *p* < 0.001 Gender: *F* = 27.52; *p* < 0.001 Age: *F* = 124.15; *p* < 0.001
Utility (neutral) outcomes (*M* = 4.03; *SD* = 1.36)	Male Female	3.95 (1.50) 3.81 (1.28)	3.94 (1.33) 3.75 (1.21)	4.44 (1.30) 4.38 (1.35)	Location: *F* = 31.55; *p* < 0.001 Gender: *F* = 2.22; *p* = 0.136 Age: *F* = 225.78; *p* < 0.001

Note: Standardized scale from—1 = *strongly disagree*, 2 = *disagree*, 3 = *slightly agree*, 4 = *slightly disagree*, 5 = *disagree*, and 6 = *strongly agree*.

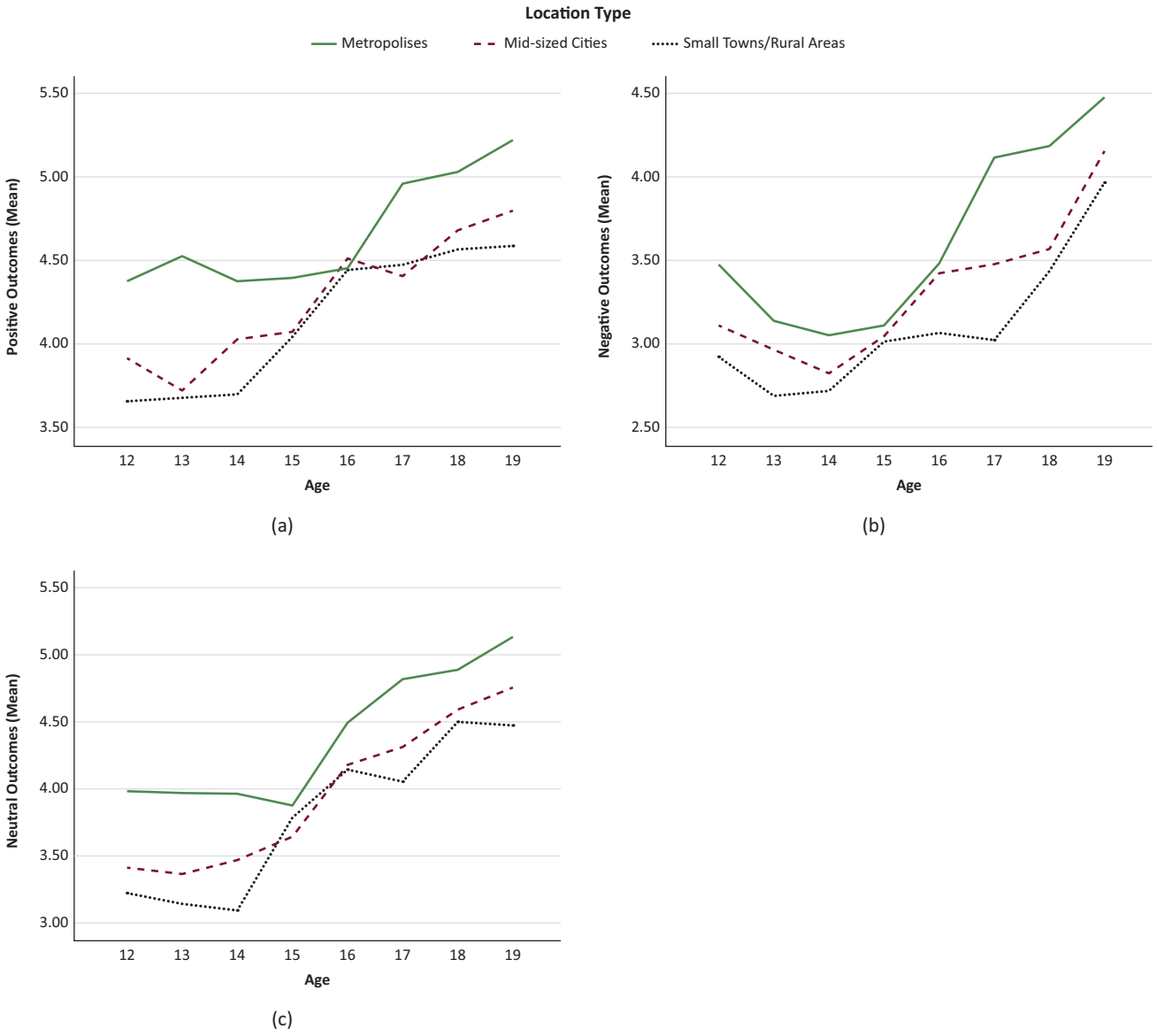

Figure 3. Age effects on outcomes: (a) positive outcomes; (b) negative outcomes; (c) neutral outcomes.

array of services and content types (i.e., the first-level digital divide; Park & Lee, 2015; Tsetsi & Rains, 2017). Our research demonstrates the critical importance of going beyond the first-level of access and extending to the second-level of skills and competence and the third-level of outcomes in gaining a fuller understanding of the digital divide in smartphone use.

Our research questions were inspired by the three levels of the digital divide encompassing access, skills, and outcomes. Built on measurement items tailored to the particularities of teens' smartphone engagement, findings in our cross-sectional survey of a national sample of 1,511 teens in China have several contributions to make to the broad field of smartphone digital divide research. First of all, the pervasive penetration of the smartphone means that accessibility of the device is not an issue for the vast majority of the teen population. This cannot be construed, however, as the diminishment of the digital divide in adolescent smartphone use. Besides inequality in the type and grade of devices, teens from small towns/rural areas, mid-sized cities, and metropolises also display distinct gap patterns in engaging with various activities on the smartphone. In particular, the location factor has the most impact on two activities—news-related information seeking, and virtual classes and online learning—which may suggest external, ecological circumstances such as lack of resources in small-town/rural and mid-sized city schools in utilizing the smartphone for educational purposes and comparative deficiency of news and other information directly relevant to the teens in these areas. Another interesting observation is the change in patterns of smartphone engagement from middle school to high school-age teens, which warrants further investigation.

At the skills (second-level divide) dimension, the gap endures (even though it shrinks as age levels up)

through the 12–19 age groups along lines of metropolitan, mid-sized city, and small-town/rural distribution in all four (operational, informational, strategic, and advanced) skills categories. The cause of this continual gap, and more importantly, potential measures to mitigate it, are valuable areas to pursue in future research. The gap shows signs of tapering off or disappearing at the end (19-year-old group), and whether this is due to measurement error or whether it points to a new trend at the end of high school is an intriguing question worth additional scrutiny. Urban adolescents start with a much higher skill level than metropolitan teens, who in turn have a head start over their small-town/rural peers. This is most likely due to prior smartphone experiences and indicates that the divide exists among pre-middle school children.

Smartphone use is a double-edged sword in that positive outcomes and negative outcomes often go side by side. Teens generally rate quite favorably the rewards and benefits of the smartphone in their school and social life, even though metropolitan teens stay ahead of their mid-sized city and small-town/rural counterparts in the perceived positive outcomes. On the other hand, urban adolescents also lead their suburban and rural peers in feeling the negative consequences of smartphone use. Because the smartphone has been portrayed extensively in a negative light in the extant literature with regard to adolescents, a highly recommended line of research is to examine the interaction between positive and negative outcomes of smartphone use through the digital divide lens along dimensions of important sociodemographic and regional variables.

Methodologically, it is our hope that this research offers insight into measurement tools and assessment scales in the three levels of the digital divide concerning smartphone use. Current literature has been dominated by internet use scales, and scant attention has been paid to smartphone engagement. As the smartphone assumes elevated prominence in society, the importance of validated reliable measurements in empirically dissecting the digital divide and its various consequences cannot be overestimated.

Finally, the findings of this research should be evaluated against the backdrop of its limitations. Our classification of location into three broad types may hide some significant inter-regional differences in each of the categories. For example, county-level cities vary quite a bit in China, and collapsing multiple cities into a single category may hinder the discovery of other important intervening variables influencing key dynamics of the smartphone divide. Our stratified region/school/class sampling scheme may have introduced confounding variables tied to particular schools tilting the results in unanticipated ways, and schools that opted in or opted out might introduce potential biases in either direction. Future research adopting both survey and other approaches (e.g., in-depth interviews and ethnographic research) should be invaluable in testing current patterns of findings, and more importantly, may identify other pivotal underlying factors shaping disparities in smartphone use.

6. Conclusion

As the smartphone consolidates its pervasive presence in most facets of everyday life, its role with and impact on diverse segments of society is an increasingly important question to address for researchers and practitioners alike. This is no exception for school-age adolescents. While individual circumstances and personal traits matter, environmental factors also notably shape smartphone engagement among this demographic. Geographic location (as manifested in metropolitan, mid-sized city, and small town/rural settings) is a significant contributor to disparities in adolescent smartphone use in China, and the multiplex nature of these gaps can be best dissected into the three levels as conceptualized in the digital divide framework: access (to different types of device, service, and content), skills and competence, and the associated negative and positive outcomes.

The research findings have practical implications for policy considerations with regard to reducing the smartphone-related digital divide among grade schools. Regionally structured gaps may be mitigated by tailored smartphone literacy educational programs proactively addressing skills and competency needs for students in certain regions, and educational resources can be mobilized and learning modules be created in catering to the specific needs of schools and students at different age groups in different geographic locations.

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Conflict of Interests

The authors declare no conflict of interests.

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