

Mapping the Social Media Behaviour of Serbian Adolescents: Usage Patterns, Affective Experiences, and Communication Preferences¹

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This study examines the dynamics of social media usage among adolescents in Serbia, focusing on their usage habits, affective experiences and communication preferences. The data were obtained by an online survey of 391 adolescents (63.9% girls; $M_{age} = 16.09$, $SD = 1.36$) at the beginning of 2023. Through questionnaire data analysis and qualitative content analysis, we explore the adolescents' engagement with various social media platforms, highlighting Instagram as their predominant choice. Through the investigation of the nuanced perspectives on online versus face-to-face communication, the study reveals that, while online communication offers practicality and efficiency, face-to-face interaction is valued for its emotional depth and transparency. The results on the frequency of use and the activities on Social Network Sites (SNSs), as well as on the accompanying affective experiences, indicate that, among the adolescents in our sample, we can distinguish among three groups of SNSs users: "SNS Balancers", "SNS Enthusiasts" and "SNS Ambivalents". Each cluster exhibits unique patterns of SNSs usage and affective experiences, highlighting the diverse ways in which adolescents interact with online platforms. The research thus underscores the need for nuanced longitudinal investigations into adolescent online behaviour, suggesting potential avenues for future exploration.

Keywords: Adolescents, Social Network Sites (SNS), Online Communication, Face-to-face Communication, Affective Experiences on Social Network Sites

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Social media, or social network sites (SNSs), are ubiquitous elements of modern digital culture. Different global data platforms (e.g. Datareportal, 2023; Statista, 2023) indicate that around five billion people worldwide use social media. According to the Statistical Office of the Republic of Serbia (2023), more than 82% of the Internet population has at least one SNS account. Social Network Sites are online platforms that offer various features that enable individuals to generate and distribute content within the networks comprising of “friends” or “followers”, either publicly or semi-publicly. These features contribute to making social networks an extensively used tool for communication, thus effectively becoming an essential aspect of many peoples’ daily routines (Horst, 2012; Kuzmanović et al., 2019; Reich et al., 2012). Integrating SNSs into individuals’ daily lives can be considered a paradigm shift in managing social interactions, knowledge sharing, and personal identities (Décieux et al., 2019; Hongladarom, 2011; Wood et al., 2015). Understanding the intricacies of these platforms is crucial in comprehending their broader social implications, especially in the context of adolescent development and behaviour.

Digital Technologies and Adolescents

Today’s adolescents, often referred to as ‘digital natives’ or ‘native speakers’ of digital language (Prensky, 2001; 2011; Teo, 2013), are a generation born into the digital world and deeply intertwined with digital technologies. This concept, backed by the data from the Paw Research Centre (2023) which show that over 90% of teenagers use the Internet daily and nearly 50% use it ‘almost constantly’, underscores the central role of technology, particularly the Internet and digital devices, in their lives. This inherent familiarity with technology, a hallmark of digital natives, has been shaped by their upbringing with the Internet, social media, computers, smartphones, and other digital innovations as integral parts of their daily experience. This early exposure is believed to significantly influence their cognitive and emotional development, learning styles, and communication patterns (Prensky, 2001; Turkle, 2011, 2015; Wood et al., 2015).

For digital natives, technology often serves as a primary tool for socialization and communication. However, this digital-centric lifestyle raises important questions about the quality of these interactions and their impact on social skills and mental health (Brailovskaia et al., 2019; Meier & Reinecke, 2020; Turkle, 2015, 2017; Twenge & Campbell, 2019; Twenge et al., 2018, 2020). The instantaneous, brief, and often multimedia nature of these platforms has led young people to prefer fast-paced, concise communication. If adolescence is a period characterized by complex social dynamics, such as relationship experimentation and a strong focus on friendships and peer company (Blakemore & Mills, 2014; Krstić, 2017), does the specificity of

communication through digital technologies make this period even more challenging? While constant connectivity and instantaneous communication can enhance personal relationships and lead to stronger connections, they also create unrealistic expectations for immediate responses and constant availability (Kaye, 2019; Turkle, 2011, 2015).

Previous research has consistently shown that social interaction and connection (Reich et al., 2012; Young et al., 2017) are the primary motivations for using social network sites. Applying the uses and gratification approach (Katz et al., 1974; Sundar & Limperos, 2013) – a theoretical framework utilized to understand why and how individuals actively choose and use media to fulfil their needs and desires – researchers have linked online communication via SNSs with the satisfaction of specific needs. This type of communication fulfils the need for social belonging and community, self-presentation, self-promotion, and self-expression (Nadkarni & Hofmann, 2012; Tifferet & Vilnai-Yavetz, 2018; Young et al., 2017). On the other hand, the interactive nature of SNS also enables adolescents to engage actively with the content, contributing to a more dynamic and engaging learning experience. Besides social interactions, teenagers dominantly use SNSs for entertainment, information seeking, relaxation, boredom, and escapism from negative emotions (Brailovskaia et al., 2020; Wang et al., 2015; Whiting & Williams, 2013; Young et al., 2017). Several studies have identified the correlations between social interaction, information seeking, entertainment, and escapism as the motives for online engagement and the development of addictive behaviours on SNSs (Andreassen et al., 2017; Brailovskaia et al., 2020; Kim & Davis, 2009; Marino et al., 2018; Ryan et al., 2016). Therefore, it is reasonable to infer that certain adolescents may exhibit higher susceptibility to addictive usage patterns, based on their reasons for engaging in extensive online activities.

The relationship between the Internet and social media and the variables concerning the mental health and well-being of youth is not fully understood. A systematic narrative review conducted by Best et al. (2014) found that most studies either reported mixed results or found no significant effects of SNSs on adolescent well-being. Empirical studies oriented towards the emotions linked to SNS usage, which are often considered a mediating factor in the studies exploring adolescents' well-being, make it evident that online social networks can have both beneficial and detrimental effects (Best et al., 2014; Dickson et al., 2018; Vuorre & Przybylski, 2023). The study employing an experience sampling method demonstrated that adolescents experienced optimal well-being, with heightened positive affects, decreased negative affects, and reduced the feelings of loneliness during face-to-face interactions compared to online interactions. However, they reported lower levels of positive affects when alone compared to when interacting online (Archterhof et al., 2022).

The Current Study

This study is focused on gaining a better insight into SNS usage and the characteristics of adolescents' online communication compared to traditional, offline communication. Based on the presented theoretical and empirical background, the current study has the following aims.

First, we want to investigate adolescents' preferences in using SNSs, at the time of conducting the research. The EU Kids Online Survey conducted on the sample of adolescents in Serbia (Kuzmanović et al., 2019) reported that more than 90% of adolescents aged 13–17 had at least one active profile on SNSs. Recent research indicates dynamic changes in the usage of social media. According to the Social Serbia 2023 and 2024 research (Pioniri Agency and Smart Plus Research, 2023; 2024), there has been a significant increase in TikTok usage among Serbian users. However, the content because of which young people use this platform has also evolved. In the same study from 2021, dance choreographies and the use of filters and effects were among the top choices. Yet, by 2023, the focus shifted towards inspiration, advice, and tips.

Previous research examining the characteristics of online communication shows that adolescents in Serbia frequently use online messaging for connecting with friends and emotional support (EU Kids Online, Kuzmanović et al., 2019). However, other studies also suggest that online self-disclosure tends to be less fulfilling and beneficial for the relationship quality than face-to-face disclosure (Towner et al., 2022). On the other hand, the same systematic review indicates that certain groups, such as highly anxious adolescents aged 12–13, appear to benefit more when they initially self-disclose online before transitioning to offline interactions (Towner et al., 2022). Having in mind the complexity of interpersonal relationships – their creation, development, and sustainability through integrated online and offline interaction (Mesch, 2019) – we aim to gain insight into the way in which our participants understand the difference between online and face-to-face interactions. Therefore, another goal of our research is to explore the advantages that adolescents attribute to both types of communication.

Finally, the third aim of the research is to gain better understanding of the adolescents' usage activities on SNSs and affective experiences, as well as to examine the relationship between these two variables. Our objective is to employ cluster analysis to identify distinct groups of participants characterized by the specific patterns of SNSs usage and the associated affective responses.

Considering the previously listed research aims, we have formulated three research questions:

1. What are the current usage trends/preferences among adolescents? (Research Question 1)
2. What do adolescents perceive as the main advantages of online communication compared to face-to-face communication, and vice versa? (Research Question 2)
3. Can we distinguish between adolescents based on different patterns of relationships of their SNS usage characteristics and accompanying affects? Are there differences between these groups, considering the perceived advantages of online and face-to-face communication? (Research Question 3)

Method

Participants and Procedure

Secondary-school students from Serbia participated in the research by filling out an online questionnaire. The sample of students was collected through the snowball method, mostly through social network sites (Facebook, Instagram, Twitter). A total of 391 students participated in the research (63.9% girls; $M_{age} = 16.09$ ($SD = 1.36$), range: 12–19). All participants were fully informed about the study and provided an informed consent to participate. The research was approved by the Institutional Review Board of the Faculty of Philosophy, University of Belgrade (Protocol #2021–081).

Measures

SNS Preferences. Participants gave answers to a set of open-ended questions about using SNSs, including which SNSs they had a profile on, which SNSs they used most, how old they were when they started using SNSs, and with whom they communicated most via SNSs.

Online vs. Face-to-Face Communication. In order to enhance understanding of communication on SNSs, we focused on the differences between online and face-to-face communication. Students were asked to list the advantages of online communication over face-to-face communication and vice versa, to state what were the advantages of face-to-face communication compared to communicating online.

SNSs Usage. To measure the frequency of using SNSs and the specific activities and habits of the users, our participants, we used *the SNSs Featured Usage Scale* (SNSsFUS; Shi et al., 2014). This instrument was chosen because it covers a wide range of aspects related to the social media use, has satisfactory psychometric properties and, in spite of having been developed

a decade ago, it has remained relevant and is still used in recent research. The instrument was modified and translated into the Serbian language. It consists of 14 items, measured on a 7-point scale (for the frequency of using: 1 = never, 7 = multiple times a day; or for the duration of surfing: 1 = less than 15 minutes, 7 = more than four hours; etc.), $\alpha = 0.69$ (see Appendix A). The original instrument has a three-factor structure, with moderate to high inter-factor correlations, but such a factor structure was not replicated (see Appendix B). Due to the inability to interpret the obtained factor structure adequately, as well as based on the positive correlations of the extracted factors, we decided to use summary scores for further analysis, so that the higher scores indicated that the respondents engaged more frequently in the activities on SNSs. Before answering the questions, participants were instructed to base their answers on the SNS they used most often. This instruction corresponded with the suggestions made by the authors of the instrument, because they had formulated the items in such a way that they could be widely applicable and include features of the standard SNSs (Shi et al., 2014).

Affective Experiences on SNSs. Finally, we wanted to include the emotional aspect of using SNSs in our research, and, for that purpose, we used the *SNSs Affective Experiences Scale* (SNSsAES; Shi et al., 2014). Using this 8-item instrument, participants rated the frequency with which they experienced pleasant affects (contentment, cheer, happiness, joy) and unpleasant affects (anger, anxiety, depression, unhappiness) while using SNSs. The adapted version of the instrument in Serbian is available in Appendix C. Answers were given on a 7-point Likert scale (1 = never, 7 = always). The summary scores were calculated separately for both subscales – positive ($\alpha = 0.87$) and negative ($\alpha = 0.72$) affects.

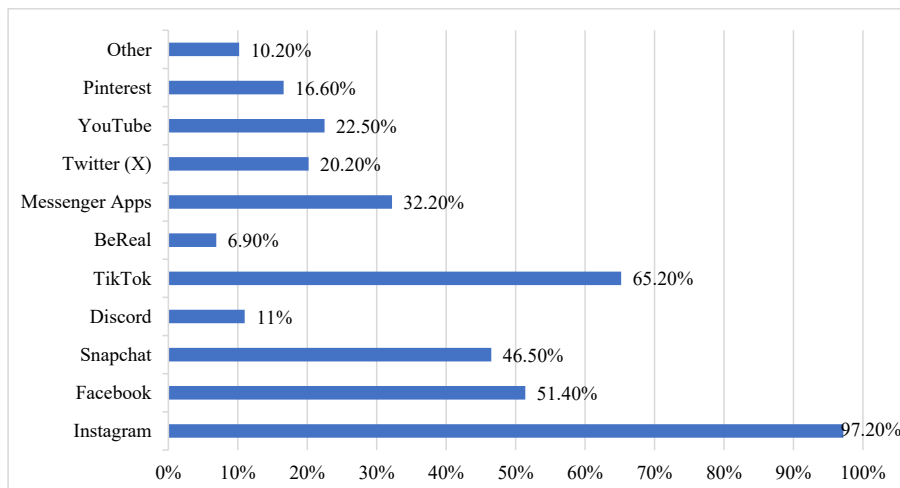
Results

Activity on SNSs

The participants reported opening their first social media profiles at around 11 years old ($M = 10.82$; $SD = 2.019$), with two of them (.05%) reporting that they had had active profiles since the age of five. On the average, the participants had four active profiles ($M = 4.21$; $SD = 2.12$). Instagram was the most prevalent, with 97.2% of participants having an account/profile, followed by TikTok (65.2%), Facebook (51.4%), and Snapchat (46.5%). The complete list of social media platforms on which participants had active profiles is shown in Figure 1.

Figure 1

Active Profile Presence on SNSs among Adolescents



The majority of our participants engaged in SNS communication primarily with friends (91.6%), while the remainder mentioned romantic partners (4.2%), family (2.4%), specific individuals (e.g., prospective future college classmates they wished to connect with; 1.3%), and “online friends”, referring to the individuals they exclusively knew through social media and had no intention of meeting in person (0.5%).

By analysing the individual items of the SNSsFUQ instrument, it can be noticed that 97% of respondents were active on their favourite social network for over 3 hours daily (93.6% boys and as many as 98.8% girls), and 88% reported using SNSs daily for messaging (86.5% boys and 88.8% girls). An interesting finding is that almost half of the participants (45.5%; 48.9% boys and 43.6% girls) never used social networks to post the content related to their current mood, while girls typically posted photos and videos once a month (46%), and boys less frequently (34% reported posting once a year).

Online vs. Face-to-Face Communication

The central results regarding online communication through SNSs were obtained through inductive content analysis (Mayring, 2014), which extracted the main advantages of online and face-to-face communication. Firstly, we formed subcategories; for example, if one respondent said that the advantages of online communication were that it was “faster than offline” and “easier to stop the dialogue”, we created two subcategories from that answer, and, if another respondent repeated some answers, we added +1 in that subcategory. In the next step, we analysed the list of subcategories and

combined the similar ones to form the main categories. Overall, we identified seven main categories for the advantages of online communication and six for face-to-face communication. The main categories were named based on a common theme encompassing the subcategories of responses, illustrated by the representative responses shown in Table 1.

Table 1

The main advantages of online and face-to-face communication

Advantages of online communication		
Main category	Example answer(s)	f (%)
Practicality (time and place, always available)	<i>I can hold a conversation from more than 4 meters away.</i>	180 (46%)
Efficiency, quick responses	The fact that we can quickly inform a person of something, ask them something etc., in just a few seconds.	69 (17.6%)
Less anxiety and more openness	<i>Because we can be more honest and relaxed, there's no tension or worry about what needs to be said.</i>	45 (11.5%)
Possibility of a delayed response and ending communication easily	<i>I can think about the response before sending it. If you come across an uncomfortable situation – it's easy to avoid and interrupt it.</i>	31 (7.9%)
Sharing content via SNSs	I can send other types of content besides words.	6 (1.5%)
Meeting new people	We can meet people who don't live in our surroundings, whom we would never have met otherwise.	3 (.8%)
No advantages	–	57 (14.6%)
Advantages of face-to-face communication		
The main category	Example answer(s)	f (%)
Nonverbal communication and possibility of physical contact	<i>Communication is much richer (body language, etc.), physical contact.</i>	103 (26.3%)
Better recognition and expression of emotions	<i>We can see a person's reaction; it's difficult for them to hide their feelings, whereas it's easy to do so via messages. I am able to express my emotions more effectively.</i>	103 (26.3%)
More intimate and more pleasant	Establishing a closer contact with the person and forming stronger connections.	85 (21.7%)
Better understanding	It's much more enjoyable. We can more easily understand in what context someone uses a specific sentence.	68 (17.4%)
More sincere and transparent	Fewer misunderstandings. <i>In person, you can perceive what that person is really like, while online they can often hide behind a mask.</i>	47 (12%)
No advantages	–	9 (2.3%)

SNSs usage and affective experiences

Before isolating the specific factors (subscales) of the positive and negative affective experiences, we examined which emotions predominantly emerged among our respondents when using social networks. As presented in Table 2, all positive emotions were uniformly and moderately expressed. A similar pattern was observed for negative affects, with the difference that the frequency of negative affects was lower and below average. The two most dominant affective experiences from both spectrums were the two most general affects – Happiness and Unhappiness.

Table 2
Descriptives for individual affects

Affect	<i>M</i>	<i>SD</i>
Contentment	4.55	1.445
Cheer	4.63	1.411
Happiness	4.84	1.154
Joy	4.61	1.380
Anger	2.74	1.452
Anxiety	2.56	1.749
Depression	2.47	1.631
Unhappiness	2.91	1.416

Note: Theoretical Mean for every affect is 3.5

Table 3
Two-step Cluster Analysis performed on SNSs Usage, Positive and Negative Affective Experiences

Cluster	<i>n</i> (% of the total number of male/female participants)		SNSs Usage (SNSsFUQ)		Positive affective experiences using SNSs (pSNSsAES)		Negative affective experiences using SNSs (nSNSsAES)	
	Male	Female	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Cluster 1: <i>SNS Balancers</i>	80 (56.74%)	84 (33.6%)	46.72	6.062	17.81	4.6	7.41	2.196
Cluster 2: <i>SNS Enthusiasts</i>	34 (24.11%)	81 (32.4%)	60.47	6.536	22.26	2.478	9.83	2.947
Cluster 3: <i>SNS Ambivalents</i>	27 (19.15%)	85 (34%)	54.40	9.562	16.12	3.970	16.29	3.411

The results of the two-step cluster analysis, where input variables were the scores on the SNSsFUQ, pSNSsAES, and nSNSsAES, reveal the presence of three distinct clusters (Table 3). The first and the largest cluster encompasses 164 participants (41.9%), the second cluster 115 (29.4%), and the third 112 participants, equivalent to 28.6% of the total number of participants. With a size ratio of 1.46, the distribution is deemed satisfactory. Additionally, the

average Silhouette Measure of Cohesion and Separation, registering at 0.4, signifies fair clustering. Notably, the most influential predictor within the model is the score on negative affects (Predictor Importance = 1), succeeded by the SNSs usage (.47), and, finally, positive affective experiences (.33).

The first cluster was named “SNS Balancers”. It consists of participants with below-average scores on SNSs usage, moderate to slightly below-average scores on experiencing positive affects, and low scores on negative affective experiences. The number of boys and girls within this cluster is roughly balanced; however, it should be noted that more than 50% of boys were included in this cluster.

The participants in the second cluster (“SNS Enthusiasts”) largely use SNSs (compared to the other two clusters), but also most frequently experience positive affects while experiencing the negative affective experiences moderately. This cluster predominantly comprised girls (70.43%).

Finally, the participants in the third cluster are also predominantly girls (75.89%), those who demonstrate moderate engagement in SNSs, but experience both the positive and negative affects similarly, with the above-average tendencies. Because of the mixed-emotions experiences on SNSs, this cluster was named “SNS Ambivalents”.

The Relationship between the Clusters of SNS Users and the Obtained Advantages of Online/Face-to face Communication

We performed Chi-square tests of independence to evaluate the relationship between the clusters of SNS users (Balancers, Enthusiasts and Ambivalents) and thus obtained the categories of online communication's advantages. A significant relationship was obtained for two (out of seven) advantages – *the possibility of delayed response and ending communication easily* ($\chi^2(2, N = 391) = 9.359, p = .009$) and *less anxiety* ($\chi^2(2, N = 391) = 8.641, p = .013$). The crosstab for these variables is presented in Table 4.1.

Table 4.1

Crosstab of the SNS clusters (Balancers, Enthusiasts and Ambivalents) and Advantages of online communication where the Chi-Square test statistic was statistically significant

Cluster (SNSsFUQ, pSNSsAES, nSNSsAES)	Crosstab Parameters	Advantage of online communication	
		Possibility of a delayed response and ending communication easily	Less anxious
SNS Balancers	Count	7	10
	Expected Count	13	18.9
	Adjusted Residual	-2.3	-2.8
	p value	.021	.005

Cluster (SNSsFUQ, pSNSsAES, nSNSsAES)	Crosstab Parameters	Advantage of online communication	
		Possibility of a delayed response and ending communication easily	Less anxious
SNS Enthusiasts	Count	8	16
	Expected Count	9.1	13.2
	Adjuster Residual	-.5	1
	<i>p</i> value	.617	.317
SNS Ambivalents	Count	16	19
	Expected Count	8.9	12.9
	Adjuster Residual	2.9	2.1
	<i>p</i> value	.004	.036

Note. Adjusted *p* value = .008

When it comes to face-to-face communication, the same analyses were performed to evaluate the link between the obtained advantages and clusters of SNS users. Again, only two (out of the possible six) relationships were statistically significant: *better recognition and expression of emotions* ($\chi^2(2, N = 391) = 12.685, p = .002$) and *more sincere and transparent communication* ($\chi^2(2, N = 391) = 13.997, p = .001$); see Table 4.2.

Table 4.2

Crosstab of SNS clusters (Balancers, Enthusiasts and Ambivalents) and Advantages of face-to-face communication where the Chi-Square test statistic was statistically significant

Cluster	Crosstab Parameters	Advantage of face-to-face communication	
		Better recognition and expression of emotions	More sincere and transparent
SNS Balancers	Count	30	16
	Expected Count	43.2	19.7
	Adjuster Residual	-3.1	-1.2
	<i>p</i> value	.002	0.230
SNS Enthusiasts	Count	31	7
	Expected Count	30.3	13.8
	Adjuster Residual	0.2	-2.3
	<i>p</i> value	.841	.021
SNS Ambivalents	Count	42	24
	Expected Count	29.5	13.5
	Adjuster Residual	3.2	3.6
	<i>p</i> value	.001	.000

Note. Adjusted *p* value = .008

Discussion

In broad terms, our study sought to gain insights into how adolescents in Serbia used social media. The importance of heightening our understanding of this topic was also highlighted by the data reports from both the domestic statistical agencies and institutes (e.g. Serbian Statistical Office, 2023; Smart Plus Research, 2023) and academic research (Kuzmanović et al., 2019). These studies indicated that the coverage of youth on SNSs exceeded 90% and that approximately the same percent of girls and boys aged 13–17 “almost daily or more often” visited SNSs. It was also shown that social media were used for a multitude of different reasons – from maintaining contact and communication with close friends to seeking information or simply pastimes (e.g. Brailovskaia et al., 2020; Marino et al., 2018). However, this research field is highly dynamic as SNSs are rapidly evolving with the development of digital technologies, providing more and more options (“features”) with the potential to intersect and take over various “offline” activities, especially in the realm of communication. The findings from our study shed light on several important aspects of the adolescents’ engagement with SNSs, their communication preferences and understanding of the online-offline division regarding social interactions, affective experiences, and reasons for usage.

Our results indicate that adolescents are highly active on various SNSs; participants created their first social media profiles at around 11 years old. This early engagement can be problematic, considering that most SNSs do not allow children under the age of 13 to create a profile. However, this is not surprising considering the EU Kids Online results (Kuzmanović et al., 2019), which showed that 41% of children aged 9–10 and 72% of children aged 11–12 years actively used SNSs.

The most popular SNS among adolescents is Instagram, where almost all participants (97.2%) reported having an active profile. Alongside TikTok, which ranked second in our study in terms of the number of adolescents using it, Instagram is the most popular among adolescents in most other countries as well (see, for example, the survey results for the USA: Pew Research Centre, 2024). In comparison, Facebook shows lower popularity, although around half of the participants reported having a Facebook profile.

The central findings regarding the first research question reveal the nuanced perspectives of adolescents on the advantages of online versus face-to-face communication. Through inductive content analysis, we identified distinct categories of advantages for each mode of communication. Online communication was perceived mainly as practical and efficient, offering quick responses and less anxiety than face-to-face interaction. Additionally, the possibility of delayed responses and easy termination of communication were highlighted as unique benefits of online interaction. On the other hand, face-to-face communication was valued for its richness in nonverbal cues, better recognition and expression of emotions, intimacy, and transparency.

These results are particularly interesting considering the hypotheses about the dominance of digital networks and the need to “revive conversation”, which is fundamentally lacking in the online sphere (Turkle, 2017). The advantages obtained from both forms of communication can be interpreted as a reflection of the coexistence of social media and the utilization of the benefits they offer, while simultaneously recognizing the enduring value of in-person interaction and all the cues inherent in the close contact with people, essential for emotional development. Moreover, the results from the questionnaire on SNS usage showed that adolescents from our study knew all or almost all of their friends/followers from social media in their “real” life (see the section SNS Usage within the Results). Hence, we can perceive these two types of communication as complementary. Although the provided interpretation aligns closely with the “techno-optimistic” perspectives (e.g. Kardefelt-Winther, 2017; Subrahmanyam & Greenfield, 2008; Wang & Edwards, 2016), the obtained results are undoubtedly insufficient to draw significant conclusions about all the advantages and potential disadvantages of online communication. Further research is needed to provide additional insights into this research question.

Due to the lack of descriptive research that could provide better understanding of the diversity of social media users among the often homogeneously perceived group of “digital natives”, we deemed it worthwhile to conduct a cluster analysis on the data obtained from the SNSsFUQ and SNSsAES questionnaires (see Table 3). The obtained clusters of respondents were linked to the perceived advantages of online and offline communication, thereby addressing the third research question. The obtained sets of respondents were named SNS Balancers, SNS Enthusiasts, and SNS Ambivalents, primarily highlighting the relationship between the positive and negative affective experiences within each group (cluster). Interestingly, girls were almost evenly distributed across all three clusters, and, at the same time, more than half of boys belonged to the Balancers cluster – moderate SNS users who predominantly experienced positive affects.

When discussing the differences between online and offline communication, the results indicate that SNS Ambivalents highly value the possibility of a delayed response and ending online communication easily. At the same time, Balancers significantly less often mention the advantage of experiencing less anxiety in online communication compared to face-to-face communication. One possible interpretation of both findings could lie in the experiences of negative affects. The Ambivalents recognize the described flexibility in communication as a handy tool when they are overwhelmed by negative affects, as this happens to them most frequently compared to the other two clusters. In contrast, the Balancers, a group experiencing negative effects to the least extent, do not recognize the lack of anxiety as a characteristic of online communication. Therefore, it is not perceived as a considerable advantage compared to face-to-face communication.

Regarding the advantages of face-to-face communication, the association with clusters was confirmed only for the advantages related to the better recognition and expression of emotions, as well as more transparent and honest communication. The Ambivalents emphasize both advantages to a significantly greater extent than what would be statistically expected. This could also be attributed to the fact that this group comprises individuals who commonly experience negative emotions and exhibit a similar proportion of positive and negative affective experiences while using SNSs. Consequently, they may find themselves encountering confusing (ambivalent) scenarios in online communication more frequently, prompting a need for additional validation regarding the authenticity of the interlocutor and the emotions they convey. Unlike them, the Balancers do not attach importance to recognizing and expressing emotions in face-to-face communication compared to online communication, which also supports the thesis that if there are no frequent negative affective experiences during SNS usage, there is no need for additional “emotional” information.

Limitations and future directions

The study described in the paper is predominantly an exploratory investigation aimed at gaining broader understanding of adolescents' online lives in Serbia. As such, it has certain limitations related to the typical methodology of exploratory research and specific theoretical limitations that call for additional empirical verification.

One limitation concerns the use of open-ended questions for the central variables in the study – the perception of online and face-to-face communication. This data collection method is a helpful “first step” in researching the mentioned phenomenon. However, from one aspect, it is insufficiently structured for more complex quantitative analyses. On the other hand, it does not provide enough space for comprehending the phenomenon, where additional questions through qualitative research would be helpful. The future steps in research can go in both directions – using “close-ended” questions in the questionnaire, which require choosing from the already proposed categories, or using semi-structured interviews or focus groups that would yield a more comprehensive material and better understanding of adolescents' digital lives.

Another significant limitation is the choice of the questionnaires for measuring the social media usage and affective experiences during their use. Although both instruments have proven to be reliable measures of the measured constructs, more empirical evidence is needed to confirm the validity of these scales. With the first instrument (SNSsFUS; Shi et al., 2014), there is a problem with structural validity because the original three-factor

structure was not replicated. We did not see this as an obstacle for further data analysis because high correlations between factors and content validity supported the use of a summary score. However, it calls for additional verification and cross-validation of the instrument.

When it comes to the instrument that measures affective experiences on SNSs, although it has satisfactory metric characteristics, it would be necessary to verify whether respondents understand the meaning of all the listed affects (for example, anxiety). Further, it would be helpful to introduce more items to acquire more nuanced understanding of emotional experiences during the social media usage. The scale of negative affects could include the items that indicate loneliness, one of the theoretically significant variables associated with coping with the digital world (Pittman & Reich, 2016). It would be interesting to expand or correlate the scale of positive affects with the scales examining the so-called “social media flow” – intense enjoyment and total involvement in SNS interactions (Brailovskaia et al., 2020).

Ultimately, the greatest limitation related to the generalizability of the findings lies in the sampling method – the snowball technique. The sample was convenient, which prevents forming reliable conclusions at the level of the entire adolescent population in Serbia. However, given that the sample was collected through social networks and the questionnaire was distributed across various groups and pages that gathered adolescents from all over Serbia, it can be assumed that the sample is relevant to the target population. The obtained clusters of respondents – SNS Balancers, Enthusiasts, and Ambivalents – require verification through further studies that would introduce additional variables to describe these groups of SNS users better. The best solution would be a longitudinal study design, which would allow us to track changes in the SNS usage patterns – the adaptation to changes occurring on the SNS platforms themselves, and the role of SNSs in coping with the developmental challenges arising in adolescence as a developmental period.

To summarize and conclude, the adolescents that participated in our research keep up with the global trends in using Instagram and TikTok as currently the most popular platforms, spending usually four or more hours daily on networks and intensively using them to communicate with friends. They perceive online communication as practical and efficient, with convenient benefits that can create a less anxious and relaxed atmosphere. However, face-to-face communication is recognized as necessary due to non-verbal cues that help in perceiving and expressing emotions, which makes this form of communication more transparent and sincere. Social networks are used for various reasons, mainly due to the need for social interaction and access to the content that interests them. Based on the characteristics of SNS usage and the relationship between positive and negative affective experiences regarding SNSs, adolescents can be divided into three groups –

SNS Balancers, Enthusiasts, and Ambivalents. This categorization aligns with the distinct stances towards both online and offline interaction, as well as the reasons for using SNSs.

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Mapiranje ponašanja adolescenata u Srbiji na društvenim mrežama: Obrasci korišćenja, afektivni doživljaji i komunikacione preferencije

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Ovom studijom ispitujemo dinamiku korišćenja društvenih mreža (DM) među adolescentima u Srbiji, fokusirajući se na njihove navike u korišćenju DM, afektivne doživljaje i komunikacione preferencije. Podaci su prikupljeni putem onlajn-anquete sprovedene početkom 2023. godine na uzorku od 391 adolescenta (63.9% devojčica; $M_{uzrast} = 16.09$ godina, $SD = 1.36$). Kroz analizu podataka iz upitnika i kvalitativnu analizu sadržaja, istraživanje proučava angažovanost adolescenata na različitim društvenim mrežama, među kojima se izdvaja Instagram kao najčešće korišćena platforma. Fokusom na složene perspektive i doživljaje onlajn i uživo komunikacije, studija pokazuje da, iako onlajn-komunikacija pruža praktičnost i efikasnost, interakcija uživo se vrednuje zbog emocionalne dubine i transparentnosti. Rezultati upitnika o učestalosti i vrstama aktivnosti na društvenim mrežama, kao i pratećim afektivnim iskustvima, ukazuju na postojanje tri grupe korisnika društvenih mreža među adolescentima iz našeg uzorka: „DM balanseri“, „DM entuzijasti“ i „DM ambivalenti“. Svaka od ovih grupa pokazuje specifične obrasce korišćenja društvenih mreža i afektivnih doživljaja, naglašavajući raznovrsne načine na koje adolescenti komuniciraju u onlajn-okruženju. Istraživanje ističe potrebu za detaljnim longitudinalnim studijama adolescentnog onlajn-ponašanja, ukazujući na potencijalne pravce budućih istraživanja.

Keywords: Adolescenti, društvene mreže, onlajn-komunikacija, komunikacija uživo, afektivna iskustva tokom korišćenja društvenih mreža



Appendix A

The Serbian Language Version of the SNSs Featured Usage Scale (SNSsUQ)

Koliko često koristiš društvene mreže?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko, u proseku, provedeš vremena svaki put kada posetiš društvene mreže?						
1	2	3	4	5	6	7
15 minuta ili manje	15-30 minuta	30-60 minuta	1-2 sata	2-3 sata	3-4 sata	Više od 4 sata
Koliko prijatelja/pratilaca imaš na svojoj omiljenoj društvenoj mreži? (ako imaš više profila odgovaraj za onaj koji najčešće koristiš)						
1	2	3	4	5	6	7
1-50	50-100	100-200	200-300	300-400	400-500	Više od 500
Da li poznaješ svoje prijatelje/pratioce sa omiljene društvene mreže? U kojoj meri?						
1	2	3	4	5	6	7
Upoznao/la sam sve	Upoznao/la sam skoro sve	Upoznao/la sam većinu	Upoznao/la sam oko polovinu	Većinu ne poznajem	Ne poznajem skoro nikoga	Ne poznajem nikoga
Koliko često šalješ direktne (privatne) poruke preko društvenih mreža?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često postavljaš pisani sadržaj koji se tiče tvog trenutnog raspoloženja? (npr. Facebook status, tweet, tekstualni komentar na Instagram Story-u/Snapchat-u i sl.)						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često pišeš duže tekstualne sadržaje? (npr. blog, "twitter thread" tj. duži niz tvitova i sl.)						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često menjaš profilnu sliku na tvojoj omiljenoj društvenoj mreži?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često objavljuješ fotografije i video sadržaje na društvenim mrežama?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često "deliš" objave (sadržaje) sa drugih profila na svom profilu?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana

Koliko često posećuješ profile svojih prijatelja/osoba koje pratiš?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često komentarišeš objave (sadržaje) na tuđim profilima?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često proveravaš komentare na svojim objavama?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana
Koliko često proveravaš poruke na društvenim mrežama?						
1	2	3	4	5	6	7
Nikada	Jednom godišnje	Jednom mesečno	Jednom nedeljno	Više puta u toku nedelje	Jednom dnevno	Više puta u toku dana

Appendix B

Table B.1

Factor Loadings and Communalities for Promax Rotated Five-Factor Solution for SNSsFUQ – the Serbian Language Version (N = 391)

	Factor loading					Communality
	1	2	3	4	5	
1. Koliko često postavljáš sadržaje koji se tiču tvog trenutnog raspoloženja? (npr. Facebook status, tweet, tekstualni komentar na Instagram Story-u/ Snapchat-u i sl.) <i>[the original item: How frequently do you update your status?]</i>	.766			.181		.591
2. Koliko često pišeš tekstualne sadržaje? (npr. blog, "twitter thread" tj. duži niz tvitova i sl.) <i>[How frequently do you write notes/blogs?]</i>	.879	-.152	-.223		-.264	.641
3. Koliko često objavljuješ fotografije i video sadržaje? <i>[How frequently do you post photos?]</i>	.463		.415			.598
4. Koliko često menjaš profilnu sliku? <i>[How frequently do you update your profile image?]</i>	.397	.152	.321	-.342	.226	.563
5. Koliko često "deliš" objave (sadržaje) sa drugih profila na svom profilu? <i>[How frequently do you share or re-send others' profiles?]</i>	.481			.109	.122	.349
6. Koliko često koristiš omiljenu društvenu mrežu? <i>[How frequently do you use SNSs?]</i>		.759				.599
7. Koliko često šalješ poruke preko omiljene društvene mreže? <i>[How frequently do you send private message to others?]</i>	.169	.809	-.123	-.223		.671
8. Koliko često proveravaš poruke? <i>[How frequently do you check messages?]</i>	-.177	.562	.131	.424	-.183	.553
9. Koliko prijatelja/pratilaca imaš na svojoj omiljenoj društvenoj mreži? <i>[In your favourite SNS, how many friends so you have?]</i>	-.133	.149	.811		-.178	.556
10. Koliko tvojih prijatelja/pratilaca sa društvenih mreža poznaješ u stvarnom životu? <i>[In your favourite SNS, the composition of your friends...]</i>		-.324	.793	-.135	-.253	.586
11. Koliko često proveravaš komentare na svojim objavama? <i>[How frequently do you check others' comments on your profile?]</i>		-.165	.346	.322	.321	.527

	Factor loading					Communality
	1	2	3	4	5	
12. Koliko često posećuješ profile svojih prijatelja/ osoba koje pratiš? <i>[How frequently do you visit your friends' homepage?]</i>	.170		-.128	.840		.681
13. Koliko često komentarišeš objave (sadržaje) na tuđim profilima? <i>[How frequently do you comment on others' notes or photos?]</i>	.271			.410	.241	.508
14. Koliko se dugo, u proseku, zadržiš na omiljenoj društvenoj mreži svaki put kada je posetiš? <i>[On average, each time you visit SNS, how long would you spend on it?]</i>	-.132		-.296		1.002	.758

Table B.2

Eigenvalues, Percentages of Variance and Cumulative Percentages for Factors for SNSsFUQ – the Serbian Language Version

Factor	Eigenvalue	% of variance	Cumulative %
1	3.101	22.150	22.150
2	1.712	12.227	34.377
3	1.244	8.884	43.261
4	1.106	7.903	51.164
5	1.018	7.2751	58.439

Table B.3

Correlations among the Extracted Factors after Promax Rotation

Factor	1	2	3	4	5
Factor 1	-				
Factor 2	.125	-			
Factor 3	.371	.119	-		
Factor 4	.157	.158	.272	-	
Factor 5	.374	.236	.423	.238	-

Appendix C
The Serbian Language Version of the SNSs Affective Experience Scale (SNSsAES)

Na skali od 1 (nikada) do 7 (uvek) proceni koliko često osećaš sledeće emocije prilikom korišćenja društvenih mreža? [On a scale from 1 (never) to 7 (always), rate how often you feel the following emotions when using social networks?]

	Nikada						Uvek
Nezadovoljstvo	1	2	3	4	5	6	7
Sreću	1	2	3	4	5	6	7
Depresivnost	1	2	3	4	5	6	7
Radost	1	2	3	4	5	6	7
Zadovoljstvo	1	2	3	4	5	6	7
Ljutnju	1	2	3	4	5	6	7
Anksioznost	1	2	3	4	5	6	7
Veselost	1	2	3	4	5	6	7

Appendix D

Answers to the question: "Which SNS do you use the most?"

SNS	Frequency	Percent	Cumulative Percent
Instagram	263	67.8	67.8
Facebook	1	.3	68
Snapchat	2	.5	68.6
Twitter (X)	1	.3	68.8
TikTok	87	22.4	91.2
Messenger Apps	4	1	92.3
Discord	5	1.3	93.6
YouTube	20	5.2	98.7
None or non-specific	5	1.3	100