

Article

Social networking in adolescents: time, type and motives of using, social desirability and communication choices

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Abstract: The evolution of digital media in adolescents has changed the patterns and motives of use and the impact on their communication choices in their social and family networks. The objectives of this study are to understand how peers communicate adopting a social network (SN) or by voice and their social desirability.

After the informant consent signature, the adolescents completed a series of self-report questionnaires on the use of SN, on communication preferences, and on social desirability through online. Most of the adolescents belonged to the 17-19 age group (83.6%) and were female (68.9%).

Adolescents spent more than 3 hours/day on Whatsapp and more than 2 hours/day on Instagram, while the use of Facebook was on average only 35 minutes/day. Females used digital media for longer than males. Adolescents aged 17-19 years choose more Facebook and voice modes compared to adolescents aged 14 and 16 years. The alternative modes of Whatsapp and voice were chosen more than the social networks in their communication strategies, especially for negative topics. Motives for use were, in addition to boredom, related to maintaining one's social sphere with peers.

Some educative considerations were made based on these results.

Keywords: Social networking; adolescents; communication, motives of use; social desirability; gender differences; age differences.

1. Introduction

During the past decade, the use of interactive digital and social networks has grown significantly and current research studies have evidenced both benefits and risks for health in teenagers. Health benefits may include enhancing access to valuable support networks and promoting health behaviors and social inclusion [1, 2]. Negative effects could be the increasing dependence behaviors, both substance abuse, sexting, or Internet addiction risks [3, 4].

The evolution of digital media has changed also the patterns of use, the motives of using, and the impact on their communication choices in their social and family networks.

But how are digital media used among teens today and which modes of use are the most popular?

According to an annual report on teenagers belonging to two age groups, 15-17 and 18-19 years, young people who use the Internet and who, above all, use it every day are constantly increasing year after year.

The Internet use grows with increasing age and is estimated that the peak of use is between 15 and 17 years with 93.5% and 94.2%, respectively, of females and males that are connected [5]. However, the percentages are increasing.

There is an increase in the percentage of people who use Internet on a daily basis (15-17 years 83.7% vs. 86.8%; 18-19 years 87% vs. 88.2%; 20-24 years 86% vs. 87.2%) [6].

The most recent data provided by the July 2021 report from We Are Social and Hootsuite show that there are 4.48 billion users of Social Networks active in all the world, or about 57% of the world population, with an increase of 13% compared to the previous year. The data of 18 July 2021 show how Facebook is the platform with the largest number of users, followed by YouTube, WhatsApp, and Instagram. TikTok is seventh. Today there is also a growth in the use of H.V.S.M. (Instagram) compared to Facebook, without particular gender differences [7].

Given that there seems to be a normative difference in the expression of positive and negative emotions through new digital media [8], we wondered which were the preferred communication modalities by adolescents in different situations, if these trends changed in the case where one talked about positive or negative questions and if gender and age somehow influence such communication choices. In this regard, a general preference of social networks is envisaged for positive topics, in particular Instagram [8] and that gender differences in the use of social media are narrowing [7].

Another study that focused on the motivations for the use of social network sites (SNS) identified group belonging, collective self-esteem, and gender effects as the main reasons among older adolescents. Females were more likely to report high collective positive self-esteem, greater overall use, and SNS use to communicate with peers. Females also posted higher means for grouping, passing time, and entertainment. Males were more likely than females to report negative collective self-esteem and the use of SNS for social compensation and social identity gratifications [9].

The continuous advancement of digitalization exposes the social identity of young people to an ever increasing digital mediation. Studies on body image and internalization processes [10] indicate a greater social comparison mediated by the new means of communication, as they allow us to follow up with idealized models from all over the world. In this sense, adolescents could show high levels of social desirability due to the great connection they have with the world through continuous social comparisons mediated by social networks and other digital media.

They find themselves more than ever before in a social showcase that exposes them to the judgment and comparison to others [11].

With the development of different social media sources, interpersonal communication is really changed and new communication skills are involved [12]. Mobile phone, instant messenger as Whatsapp together with the social network use (i.e. Facebook and Instagram) allow to communicate with distant people, to give a built self-image coherent or not coherent with the true self, and use also the pictures and photos to narrate their everyday life. People interact by mixing these two different communication types in everyday life: 'oldest' face-to-face (FtF) communication and 'newest' thorough interpersonal media that have expanded the territories of mediated interactions.

Social interactions include both communications, a direct and a mediated one. However, each type of communication has different characteristics. Mediated communication is maintained using the functions of interpersonal media mode, while FtF communication is performed in a natural setting without any technological support. The results of a study proposed a model [12] on the key role of mediated interpersonal communication in the development of communication competence in relationships. This study revealed that communication competence was positively associated with mediated interpersonal communication competence. The indirect effects of communication competence through media efficacy and social presence were empirically supported. Maintenance of relationships was found to mediate the effect of communication competence on mediated interpersonal communication competence.

1.1 Research Questions

The main objective of this study is to understand whether everyday life is somewhat maintained in its old communication rules and setting when adolescents have to communicate their daily routines to others.

1. The first objective is to understand how peers communicate with each other today. Specifically, we aimed to know:
 - 1a. How much time did they spend in SNS activities? There were gender or age differences in SNS activities?
 - 1b. Which means of communication are preferred by today's teenagers to talk about certain topics?
 - 1c. Is there a significant difference in frequency of use comparing social or nonsocial communication choices? Is the choice to use social networks (Facebook and Instagram) or using other direct sources (Whatsapp and voice conversation) mediated by some sociodemographic variables as gender or age?
 - 1d. What about the motives of the use of every communication device?

The second objective is to have information on how much adolescents try to be socially desirable and what consequences this construct could have on their use of SNS. Specifically, our objective was to answer these questions:

- 2a. What about the screening of adolescents with a social desirability level (low, medium, high)?

2b. Is social desirability influenced by the age or sex of adolescents?

2. Materials and Methods

2.1 Procedure

After completing the digital version of the questionnaire, built with the use of GoogleForms, it is passed to the recruitment phase of the participants, i.e. adolescents between the ages of 14 and 19. The procedure used for the recruitment of the research participants was that of a snowball. This method makes it possible to use digital means as a word-to-word communication between people and reach as many contacts as possible.

For each communication and message, after making sure that the teens contacted were interested in the research, the procedure consisted of explaining the terms and purposes of the research as the administration modalities. For teens under 18 years of age, we obtained the signed parental consent form, while for teens over 18 years of age they directly signed the online consent form. The next step was to contact the various associations and local authorities that, by virtue of their activities, could facilitate sample research: schools, association groups, peer networks in Emilia Romagna region, Italy.

The search for the sample and the administration lasted a total of two and a half months, in which the final number was reached (n = 347). Of the 400 total children contacted, 347 completed the questionnaire and participated in the research. The response frequency was therefore 86.75%.

2.2 Participants

Table 1 shows the participants' characteristics. Most of the adolescents belong to the age group 17-19.

The main sociodemographic data collected on the characteristics of the participants were: sex, age, number of siblings, marital status of the parents and the school year attended (see Table 1).

The age has been divided into two age groups, 14-16 years (attending the first three years of high school) and 17-19 years (attending the other last two years of high school). The number of siblings has been categorized by no one to more than 2. The marital status of the parents has been divided into married, cohabiting, separated / divorced, and one parent. Since the sample consisted of only 2 middle school boys, it was decided to exclude this category from the sample and report only the participants attending the high school.

Most of the sample comes from two high schools in the province of Modena, Emilia Romagna region. Furthermore, the sample has a higher concentration of female gender than male gender and a higher frequency of adolescents in the age group 17-19.

Table 1. *Sociodemographic characteristics of the participants*

		Frequency	Percentage (%)	Mean	SD
Gender	Male	105	30.3	1.69	.461
	Female	239	68.9		
Age groups	14-16 yrs old	54	15.6	1.84	.36
	17-19 yrs old	290	83.6		
Number of siblings	0	56	16.1	1.28	.89
	1	180	51.9		
	2	63	18.2		
	>2	45	13.0		
Parental Relationship status	Married	247	71.2	1.57	.95
	Cohabitants	11	3.2		
	Separated/divorced	73	21.0		
	Only one parent	13	3.7		
Level of education in secondary school	1°	32	9.2	3.54	1.25
	2°	39	11.2		
	3°	76	21.9		
	4°	104	30.0		
	5°	91	26.2		

2.3 Instruments

2.3.1 SNS time using

To understand how long the teens thought to use the social network and the instant messaging system proposed, we were inspired by the work of Pempek & McDaniel (2016). We then calculated the frequency of use with a 9-point scale proposed for the estimate of frequency of use for Instagram, Facebook, and Whatsapp: i.e., how much time do you spend on Instagram?

- 1) Never
- 2) 10-30 minutes a day
- 3) 31 minutes - 1 hour a day
- 4) From 1 hour and a half to 2 hours a day
- 5) From 2 hours to 3 hours a day
- 6) From 3 hours and a half to 4 hours a day
- 7) From 4 to 6 hours a day
- 8) More than 7 hours a day

With this questionnaire, we can have information on the frequency of use of different social networks or instant messaging. These time bands will then also be reduced to average quantities in minutes of use, to make it a point variable of an independent type with the other variables of interest in the study.

2.3.2 Motivations for using Facebook [13, 14]

To get an idea of the reasons why teens use Facebook and other social networks, a simplified and adapted version of the Motives for using Facebook [13] was used.

The original scale was made up of 20 items, each representing a possible motivation for the use of Facebook, evaluated with a 5-point Likert scale.

In this study, it was decided to adapt the questionnaire to a more generic study context and not just to Facebook and to resize it. The final product was a checklist of 20 items. To not weigh down the commitment burden of adolescents with too many answers, it was decided to set the number of answers to the three main reasons they used social networks, without information on the frequency of choice of the reason of use. However, teens were left with the freedom to indicate more than 3 answers, so the selection was anchored in the 3-element checklist, and the too selectable answers were limited.

It was also preferred to add an item, another, that allowed the sample to personally write a reason to use social networks in case it was not included in the list provided by the questionnaire.

2.3.3 *The Marlowe–Crowne Social Desirability Scale (MC–SDS)* [15]

The MC-SDS is a questionnaire composed of 33 items with a dichotomous answer (true or false), concerning behaviors that adolescents could implement in everyday life. 18 of these items refer to socially accepted but unlikely behaviours that indicate a compiler's need to give a positive self-image and were counted with 1 point for each item. The remaining 15 instead focused on more common but not shared social behaviors. The choice of the fake on these items indicates a propensity of the compiler to want to hide normal behaviours in order not to appear as socially undesirable obtaining 1 point for each answer. In this way, higher scores will correspond to a greater need to hide their socially unwelcome behaviour and the desire to show socially accepted behaviors instead to appear more desirable. The items must then be divided according to where the user should answer TRUE or where the user should instead reply FALSE. Cronbach's Alpha answers TRUE ($\alpha = 0.57$), FALSE responses ($\alpha = 0.63$).

2.3.4 *Tell me how you communicate and I will tell you who you are", List of communication preferences* [14]

This tool has been created ad hoc to understand the communicative preferences of children in various fields and contexts proposed. The very short questionnaire aims to evaluate the methods preferred by young people to communicate with others on certain topics.

Each question (item) corresponded to a sphere of interest (i.e. family, friends, etc.), positive or negative, and a checklist of answers that included 4 different modes of communication and an additional answer in which the participant could write other possibilities.

The items included in each of these selected spheres of interest are the following:

- 1) Family. 3 items including 2 negative and one positive.
- 2) Friends. 2 items, one positive and one negative.
- 3) School. 2 items, one positive and one negative.
- 4) Special person. 2 items, one positive and one negative.

5) Other. 3 negative items, one dedicated to teasing, one concerning loneliness, and the last concerning the mood, feeling down.

For each proposed situation, the sample was asked to select which modes of communication they preferred and then which ones they considered most appropriate between:

A) Instagram. Representative of the social-network category of H.V.S.M. ($\alpha = 0.75$).

B) Facebook. Representative of the classic social network category ($\alpha = 0.68$).

C) Whatsapp. Representative of the verbal instant messaging category ($\alpha = 0.87$).

D) A voice. Generic representative of classical oral speech ($\alpha = 0.85$).

And more. An option that allowed children to write or directly integrate solutions that they preferred but that were not present in previous answers.

With these questions, we wanted to know between the different areas (1, 2, 3, 4, 5), divided by type of content (positive or negative), which communication channels were preferred by adolescents (A, B, C, D, E).

2.4 Statistical analysis plan

The plan of statistical analyses carried out will now be shown, point by point.

A) Statistical analysis concerning the daily time spent on Facebook, Instagram, and Whatsapp. To facilitate the analysis, it was decided to transform the measurements of time spent on digital media (see Frequency of use, previous page) into a specific variable, transforming each band into its equivalent in minutes.

A1 - Descriptive statistics of time in bands and its translation in minutes, with average values and standard deviations. The results of the t tests will be shown using the variable of time spent on different digital media, time in minutes with gender and age (14-16 years, 17-19 years) as independent variables.

A2 - Descriptive statistics regarding communication preferences. The results obtained are indicated by topic (family, friends, school, special person, themselves) and by response (Facebook, Instagram, Whatsapp, by voice, other). The results of five different tests will be reported. The first test will compare the answers grouped by type of answer for each topic (e.g., the average number of respondents Instagram in the family topic) with the two different age groups examined. The second test-t consider the communicative channel grouped by positive arguments (e.g., those who have chosen Instagram for positive topics) and those who have selected the same type of communication choice but in negative situations (e.g., average number of Instagram selections for negative topics). The third test-t will see the dependent variable as the average number of total responses assigned to Instagram and as a gender dependent variable. In the fourth test-t you will investigate the same average of responses for Instagram but using the age groups as a dependent variable. The fifth test t will compare the average responses obtained from the grouping according to the selected and positive / negative communicative modality (e.g., response average for Instagram in positive subjects) and age groups (independent variable).

A3 - By grouping the social communication preferences (Facebook and Instagram choices) and nonsocial (voice and Whatsapp) choices, a series of correlations with Pearson coefficient will be made.

A4 - Descriptive statistics for the checklist on the reasons for using social networks will be indicated.

B) Analysis of social desirability.

B1 - The results obtained from the social desirability test were also grouped into 3 bands, low middle and high, to carry out further correlations and analyses.

B2 - The results of two test t will be presented with social desirability as a dependent variable. In the first test, you will see the results of the gender and in the second those of the age groups.

3. Results

3.1 Statistical analysis on the daily time spent on Facebook, Instagram, and Whatsapp (A)

A1- Social time use and differences between age and sex

The time measurement was initially performed based on the time bands defined by the questionnaire and then transformed the results obtained into daily minutes, a punctual variable type considered more useful in subsequent measurements (Table 2).

Table 2. *Mean and standard deviation of several social networks time use by time bands or overall minutes (min)*

		Mean	SD
Time bands	Facebook	1.13	1.46
	Instagram	3.48	2.10
	Whatsapp	4.0	1.94
Time in minutes	Whatsapp (min)	181.17	131.58
	Facebook (min)	35.49	69.2
	Instagram (min)	153.18	126.23

An independent sample T-test was performed by entering as a dependent variable the time spent on alternately Whatsapp, Instagram, and Facebook in minutes and entering gender as the independent one. The difference between the averages considering gender is revealed significant for both the time of use of Whatsapp and that of Instagram, while for Facebook the result was not significant (Tables 3 and 4)

Table 3. *Independent samples t-test: gender and time spent in each social*

	t	df	p
Time in minutes on Whatsapp	-7.6	342	0.0001
Time in minutes on Instagram	-6.86	342	0.0001

Table 4. *Group descriptive statistics*

	gender	N	Mean	SD
Time in minutes, Whatsapp	male	105	105.71	85.59
	female	239	214.33	134.66
Time in minutes, Facebook	male	105	32.28	62.87
	female	239	36.9	71.97
Time in minutes, Instagram	male	105	87.00	86.82
	female	239	182.25	129.95

To understand any differences between the time spent on digital media according to the age of the adolescent, a further t-test was carried out between the time measured in minutes along the two age groups investigated (14-16 and 17-19). The results reported a significant difference between the averages only in terms of time spent on Facebook ($t_{342} = -3.8$; $p = 0.0001$) with boys in the 17-19 age group using this platform more (mean = 47.76; SD = 76.85) than those in the 14-16 age group. (Mean = 19.42; SD = 54.01).

A2 - Communication preferences: descriptive statistics, possible differences along age and gender, and prevalence of a social or a non-social communication style

The results of the communication preferences questionnaire are reported for each topic and the answer in Table 5. For reference, each item will now be listed with the corresponding code used during the analyses:

- SC1 = school positive, When I get a good grade at school, I feel like talking about it
- SC2 = family negative, When my family makes me angry...
- SC3 = positive for friends, When my friends make me have fun...
- SC4 = school negative, When I get a bad grade at school...
- SC5 = special person negative, When the person I like makes me sad...
- SC6 = family positive, When my family makes me happy...
- SC7 = negative self, When some people make fun of me...
- SC8 = special person positive, When the person I like makes me happy...
- SC9 = family negative, When I argue or argue with my parents...
- SC10 = friends-negative, When my friends make me angry...
- SC11 = negative self, When I feel alone...
- SC12 = negative self, When I feel down...

Table 5. *Frequencies of communicative choices*

		Frequencies	Percentage (%)
SC1	Instagram	78	22.5
	Facebook	0	0
	Whatsapp	141	40.6
	Voice	252	72.6
SC2	Instagram	6	1.7
	Facebook	2	0.6
	Whatsapp	146	42.1
	Voice	214	61.7
SC3	Instagram	142	40.9
	Facebook	10	2.9
	Whatsapp	118	34
	Voice	206	59.4
SC4	Instagram	21	6.1
	Facebook	0	0
	Whatsapp	116	33.4
	Voice	236	68
SC5	Instagram	39	11.2
	Facebook	5	1.4
	Whatsapp	156	45
	Voice	229	66
SC6	Instagram	56	16.1
	Facebook	4	1.2
	Whatsapp	115	33.1
	Voice	254	73.2
SC7	Instagram	17	4.9
	Facebook	3	0.9
	Whatsapp	115	33.1
	Voice	226	65.1
SC8	Instagram	101	29.1
	Facebook	7	2
	Whatsapp	174	50.1
	Voice	251	72.3
SC9	Instagram	1	0.3
	Facebook	2	0.6
	Whatsapp	125	36
	Voice	256	73.8
SC10	Instagram	18	5.2
	Facebook	2	0.6
	Whatsapp	146	42.1
	Voice	271	78.1
SC11	Instagram	45	13
	Facebook	6	1.7

SC12	Whatsapp	173	49.9
	Voice	174	50.1
	Instagram	28	8.1
	Facebook	4	1.2
	Whatsapp	160	46.1
	Voice	224	64.6

The results obtained were then grouped by topic (family, friends, etc.) and by communication choice. In this way there was a frequency of how many had selected each communicative choice for each topic, and age band was inserted as an independent variable to understand if it had any kind of effect.

Table 6. *Communication choice for several topics along age bands*

	Age bands	t	df	p	Mean	SD
Voice	14-16	3.3	342	0.001	1.44	0.84
	17-19				1.73	0.76
Family	14-16	2.37	342	0.02	0.94	0.6
	17-19				1.09	0.6
Special person	14-16	2.23	342	0.02	0.74	0.67
	17-19				0.9	0.63
Voice	14-16	2.23	342	0.02	0.74	0.67
	17-19				0.9	0.63
Themselves	14-16	2.23	342	0.02	0.74	0.67
	17-19				0.9	0.63

A paired-sample t-test was performed in which the communication methods divided among themselves for positive or negative arguments were compared. In this way, it was possible to understand if each communicative choice was selected on average more for positive or negative arguments. The results are shown in Table 7.

Table 7. *Communicative choice for positive versus negative topics adopting the paired sample t-test*

	Topics	t	df	p	Mean	SD
Facebook	Positive	0.85	346	0.39	0.04	0.23
	Negative				0.05	0.31
Whatsapp	Positive	16.52	346	0.0001	1.2	1.14
	Negative				2.8	2.41
Voice	Positive	24.9	346	0.0001	2.2	1.1
	Negative				4.7	2.2
Instagram	Positive	14.17	346	0.0001	0.27	0.31
	Negative				0.06	0.13

We then wanted to investigate whether the age range of adolescents (14-16, 17-19) could influence the choice of communication for both positive and negative arguments. From the results of the t-test for independent samples, only the use of the voice mode for negative arguments was significant ($t(342) = -3.07$, $p < 0.05$). From the compared averages, it was understood that adolescents aged 17-19 years chose significantly more the communication modality by voice ($M = 5.06$, $SD = 2.03$) compared to those aged 14-16 ($M = 4.34$, $DS = 2.3$).

Then it was investigated whether the choice of Instagram was related to gender. A t-test was then performed using gender as an independent variable and Instagram's average of choices as a dependent variable, without differentiation by topic. The t-test in the means reported a significant difference ($t(342) = -3.85$, $p < 0.05$). From the averages, it was found that female participants ($M = 1.87$, $DS = 2.1$) choose Instagram more times than male ones ($M = 0.99$, $DS = 1.58$).

A3 - Analysis on the choice to communicate on various topics using a social network (Facebook or Instagram) or other nonsocial methods (Whatsapp and by voice)

A series of t-tests for the paired samples was performed to verify the significance between the means of the pairs examined. Pairs 1, 2, and 3 turned out to be significant. NoSocial = choices characterized by Whatsapp or voice. Topic = school, family, friends, special person, themselves. Tables 8 and 9 show the results.

Table 8. T-test for paired samples between social and no-social means

		t	df	p
Couple 1	Social sum utilization – No social sum utilization	39.32	346	0.0001
Couple 2	Social School – No Social School	28.27	346	0.0001
Couple 3	Social Family- No Social Family	34.84	346	0.0001
Couple 4	Social Friends- No Social Friends	25.04	346	0.0001
Couple 5	Social Special Person – No Social Special Person	26.76	346	0.0001
Couple 6	Social Themselves – No Social Themselves	25.15	346	0.0001

Table 9. *Descriptive statistics of social and non-social sums*

		Media	N	DS
Couple 1	Sum social utilization	1.72	347	2.13
	No social utilization	12.9	347	5.3
Couple 2	Social school	0.25	347	0.46
	No Social school	1,63	347	0.84
Couple 3	Social Family	0.19	347	0.45
	No Social Family	0.46	347	1.18
Couple 4	Social Friends	0.51	347	0.6
	No Social Friends	2.31	347	1.15
Couple 5	Social Special Person	0.28	347	0.51
	No Social Special Person	1.72	347	0.9
Couple 6	Social themselves	0.19	347	0.44
	No Social Themselves	1.55	347	0.91

A4 - Reasons why adolescents use social networks

Descriptive statistics carried out on the checklist regarding the reasons why social networks are used showed the main following ones in order of frequency: to spend time when I am bored (50.10%); to communicate with my friends (48.10%); to send a message to one of my friends (41.50%); to maintain the contacts with my friends (39.50%) and to look at the photos / stories of others (36.90%) and being able to communicate with people who are difficult to reach (29.7%).

B1 – Frequencies on social desirability

The adolescents obtained social desirability scores that were grouped into 3 bands: low (6.9%), middle (74.6%) and high (17.6%).

B2 – Gender and age differences in social desirability scores

To understand whether age or gender were related to these results, two t-tests were performed which scored desirability as a dependent variable, gender and age groups as independent variables. Sex was not significant ($t(342) = 0.1$ and $p > 0.05$). On the other hand, the age turned out to be significant ($t(342) = 1.97$, $p = 0.49$). Specifically, adolescents aged 14-16 years ($M = 15.96$) had a significantly higher average social desirability score than those aged 17-19 years ($M = 14.62$).

4. Discussion

The first objective that motivated this study was to know and understand more, year after year, about the generations of adolescents who follow the social networks in Italian schools. Following an educational point of view, it is necessary to understand the needs and preferences of social interactions on the Web and implement any psychoeducational interventions. However, an extremely current problem is the intrinsic mutability of today's adolescents, in particular in the communicative and

social field. The new technologies available are changing the world as we know it [16] in all its aspects. Change and globalization are reaching everyone, just as the technology they bring, without time or boundaries.

While today's adults can watch and observe changes by paying attention to how things were before they happened, today's teenagers find themselves to grow and absorb the laws of a world that makes immediate technological-communicative evolution a founding characteristic in a context of continuous change.

The first research question of this work moves precisely in this sense, asking how communicate today's adolescents, with what tools, and for how long. The obtained data will serve to build a snapshot of a generation in constant change, and it is necessary to understand and study from moment to moment.

The data in this sense lead us to a continuous growth, both in the amount of time used day after day on the internet [6], both in the use of social networks and digital media, especially by those who access from mobile devices [7]. Teenagers in our study seem to partially confirm this trend, especially by differentiating the type of digital medium. In this sense, they claim to spend more than 3 hours while on average a day on Whatsapp and more than 2 hours a day on Instagram, while the use of Facebook stands at an average of only 35 minutes per day. Data related to the time spent daily on Whatsapp and Instagram of children participating in our study tended to be higher than the national average of Italy, which is around 2 hours per day spent using social networks as a whole [7].

From the results obtained, it can also be stated that the women in the sample use all three digital media for a longer time each day than the men.

Instagram and Whatsapp are used nearly two hours a day more by women than by men. However, age does not seem to affect Instagram and Whatsapp, as the only difference is found for Facebook, which is more used by increasing age. This trend is confirmed by some studies [7, 10], where Whatsapp is the first medium used, Instagram follows and stands as a rapidly growing social network [7], while Facebook seems not to be used much until late adolescence.

The present study aims to understand in which circumstances or situations, social networks and instant messaging are used and chosen as relevant media. Regarding age, adolescents aged 17-19 years seem to choose and to use on average more Facebook and voice modes compared to adolescents aged 14 and 16 years. The voice mode, in particular, is also significant for talking about yourself and the special person with increasing age. All this can be circumscribed within the normal evolutionary framework of the adolescent who, growing up and approaching adulthood, will have a greater share opportunity to talk and discuss private topics such as family, loved ones, and problems related to themselves. On the other hand, they will be able to make better use of their cognitive abilities to speak verbally about topics that, as they grow up, they will tackle more confidently.

While Instagram and voice mode are preferably chosen for positive arguments, Whatsapp seems to be preferred more than anything else for negative arguments. The trend indicated by Waterloo et al. [8] is therefore maintained, concerning

the expression of emotions in the various social networks, where Instagram is confirmed as more suitable for positive emotions and Whatsapp also for the expression of negative emotions. This also confirms the inherent difference between these two means of communication, since Instagram is known as H.V.S.M. [10], becomes a social laboratory in which to show yourself and show what we prefer. Whatsapp, being instant messaging, instead guarantees greater confidentiality and anonymity to conversation, which will probably also concern negative things that maybe you don't want to discuss publicly.

The oral communication method was also confirmed once again that on average it was used more, this time for negative arguments, in the 17-19 age sample than younger teenagers. This result aligns with what has been said about the importance of age with respect to voice communication, since by increasing age one is probably more able or confident to speak out about negative arguments than when you are younger.

Then it was assumed, based on European data [7], that there is no significant gender differences in the use of Instagram. However, the hypothesis was disconfirmed: females seem to choose Instagram as the mode more communicative than males. This means that the females of the sample use Instagram more often a day, but they also choose it significantly more times as a way of communicating than the males. In general, the time spent on Instagram was also positively associated with the choice of the same as a communicative mode in all participating adolescents.

Other information needed to be understood and studied on today's teenagers is about choice proper use of social networks as a whole as a means of communication compared to the different other modes, analog as well as digital. This is to understand the proportion of the phenomenon in the adolescents participating in the study, then to deepen the further analysis and to see if these choices affect growth. In general, the choice of social networks (Instagram and Facebook) was on average lower than the choice of the other modes (Whatsapp and by voice). Such a preference for communication methods alternatives to social networks is also reflected in the averages of the individual topics: for any topic investigated in the study (e.g. family, friends, oneself, special person and school) Whatsapp and voice alternative modes are chosen more than social media network.

For all the topics covered, we wanted to investigate if there was a situation in which Instagram was chosen over Whatsapp and by voice. The results reported statistically averages superior to Whatsapp and verbally to Instagram for each proposed topic. For all arguments, in fact, women are the ones who use on average more both Instagram and Whatsapp than men, further confirming what has been said earlier in this discussion. Also, with regard to the use of Instagram for positive or negative issues and Whatsapp for negative issues, females maintain a higher average use than their male counterparts.

Such a result leads us to ask ourselves why this happens and, more generally, what the reasons are that guide or orient the use of social networks. In this regard, 50% of the sample reported using social networks to pass the time when bored, 48.1% to communicate with their friends, and 41.5% to send a message to a friend.

Furthermore, 39.5% said they use social media to keep in touch with their friends and 36.9% to look at the photos / stories of others. Aside from boredom, three of the most chosen reasons relate to maintaining one's social sphere with peers. For teenagers, this feature, accompanied by an investment of energy and interest in the peer group, is fundamental for growth and evolution towards adulthood [5, 17-18]. However, the comparison with peers is now also taking place through the use of digital media, but often to maintain and to rework existing relationships even in real life.

The group of study participants attested for the most part (74.6%) in the middle range of social desirability, while 6.9% is in the low range and 17.6% in the high range. It therefore appears that, excluding those who are positioned in the middle range, the adolescents of the sample present more levels highs of social desirability that low; in a certain sense, they want to be more deemed desirable. These data confirm what has been hypothesized for two main reasons.

First of all, social desirability is a construct that lends itself particularly well to age adolescent developmental. In fact, adolescents want to be appreciated and recognized by peers in order to acquire the necessary self-confidence that will facilitate the resolution of development tasks. What is worrying, however, is that this normal need is excessively accentuated, placing the adolescent in front of a need to appear desirable, especially in front of it to a social showcase such as social networks [11].

Such exposure and need for desirability could also be linked to image management issues body as well as internalization processes [19] or dependence on the Internet and social networks [2]. From the sample examined in the present study, there appear to be no particular differences in social desirability related to the sex or marital status of the parents, but related to age with an average significantly higher social desirability for younger adolescents, aged 14-16, compared to the older ones, 17-19 aged. This can therefore be interpreted as a confirmation of the fact that social desirability is a phenomenon that particularly affects adolescents at the beginning of adolescence, but that with the growth these values go to normalize as we go approaching complete maturity.

Strengths and Limits

Undoubtedly, the strength and weakness of this work is the research sample. Although the overall participants are a notable number, the sample is not very balanced, with a majority in the older age group (17-19) compared to those who place in the youngest one (14-16). Moreover, females are more numerous than males. Another limit of this work concern the values of social desirability. Being all the questionnaires proposed by self-report type, social desirability will influence the results, as we have seen especially in general models. As stated several times during the discussion, the social desirability is however a necessary and important measurement, especially for, as regards adolescence, this makes it a construct that can disturb the results as much as enrich them. We have to note also that the scales

of the social desirability scores obtained a moderate level of reliability and the results related to this construct should be taken with cautious.

A further limitation is the lack of balance between the items of the communication choices; in this sense it would be desirable to increase the total number of items and match arguments as oneself that possess only negative items and lack positive items. Despite these limitations, the work boasts a multidimensional approach, which made it possible to enrich information concerning, on the one hand, the state of adolescent well-being and self-efficacy, on the other, to obtain important information regarding their communication preferences, the reasons behind them lead to the use of social networks, and the different norms and influences these constructs have measured.

A desirable future prospect is to expand this type of research and focus more on the opportunities that teens can and should take advantage of the world around them. The ambiguity of the results in the field of the use of social networks shows one direction of investigation in which it is necessary to provide further clarity and, above all, to continuously update the results in line with the sudden socio-technological changes of the current one historical period. It is therefore good to deepen the knowledge both of the context and of the practices and norms that are established when part of the social sphere of an adolescent is digitize, grasp critical issues, developments, and opportunities. Another study could concern the role of parents and friends in the use of social networks, since the studies on the subject [20] underlined its importance.

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