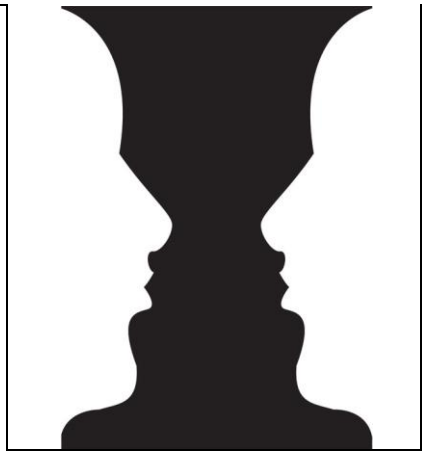
JOURNAL OF COMPARATIVE RESEARCH IN ANTHROPOLOGY AND SOCIOLOGY

Volume 7, Number 2, Winter 2016
ISSN 2068 – 0317
http://compaso.eu



The role of smartphones in increasing digital and social inequalities among Romanian children

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Abstract

The emergence of new mobile devices such as Smartphones and tablets in children's everyday life has facilitated the rise of Internet private use among them, making it possible for them to go online at anytime and anywhere. As studies show, ownership and private use of a Smartphone shape the quality of children's online experience in a meaningful way (Mascheroni & Cuman, 2014). Accordingly, a broader range of access locations and devices relates to more unsupervised access and thus more independent use of the Internet, which are likely to be related to higher skill levels. This paper aims to investigate, using linear and multilinear regressions, whether owning or having access to Smartphones leads to increasing digital inequalities among children. Results show that demographic variables are significant predictors for the level of Smartphone related skills. However, when variables related with children's Smartphone and Internet use are introduced in the model, the influence of demographic variables is reduced, showing evidence for second-level of digital divide among children. The present study reports on the Net Children Go Mobile dataset. The project collected data in 2013 from random stratified survey samples of around 500 children aged 9-16, who are Internet users, in seven European country, including Romania. For the purpose of this paper, only responses from Romanian children were taken into account (N=522).

Keywords

Digital skills, internet skills, digital inequalities, access and use of new devices, second-level of digital divide

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Introduction

While studying digital divide, enthusiastic scholars raised the idea that inequalities generated by access or lack of access to new technologies lie in the ordinary problem of getting physical access. Many believed that once people skip the problem of physical access, the new technology will alter existing social inequality (Norris, 2001). However, several findings (DiMaggio et al., 2004) suggest that simply having access, independent of the quality of use and quality of speed and connection, it is not a solution since there are important differences among Internet users, besides physical access. Some Internet users are more experienced and equipped with essential skills which help them find relevant content online, while others are not able to complete the same functions or use the technology at to the same capacity (Servon, 2002). Therefore, while inequalities in Internet access remain relevant especially in developing countries, we argue that digital divide scholars should also focus on to the disparities between people who already have Internet access, disparities that lead to digital inequality (Katz & Rice, 2002; DiMaggio, 2001; DiMaggio et al., 2004; Hargittai, 2008). In the present paper we stress the need to contextualize the problem of digital inequality as a source of social inequality, as several studies show that socioeconomic status influence the ways in which children and adults have access and use the Internet and other technologies (DiMaggio et al., 2004; van Dijk, 2005; Hargittai, 2008; Fizesan, 2012). Accordingly, in addition to factors such as age, gender, race, ethnicity, disability status, education, and wealth, one's social surroundings are also relevant when search for ICT experiences (Hargittai, 2008, p. 938).

Literature review

An increasing body of scholars left behind the basic approach of digital divide and proposed a new framework for studying the relation between access and use of new technologies and social inequalities (Hargittai & Zillien, 2009; DiMaggio et al., 2004; Hargittai & Hinnant, 2008; van Dijk 2005). They argue that universal Internet penetration will not eliminate inequality but rather will fuel new types of disparities among people. Therefore, we have to consider other factors, besides demographic ones, in order to understand how and why both children and adults exhibit different levels of online opportunities (DiMaggio et al. 2004; Hargittai 2010; Livingstone et al. 2011; Barbovschi & Fizesan 2013). Accordingly, variations in the quality of equipment, in autonomy of use or digital skills could offer a more in depth understanding on how digital inequalities are mapped across children and adults (DiMaggio et al., 2004; Hargittai, 2010; van Deursen, 2011). According to van Deursen (2011), each of these types of inequalities is expected to shape in a significant way the experience that both children and adults have online and the benefits gained from it. In addition, van Dijk (1999; 2005) stresses that these differences should not be considered less significant than the differences in physical access, especially in developed countries.

Bearing in mind these aspects, van Dijk (2005) proposes a "conceptual division" of the general term *access* into four successive stages of "access" to digital technology,

conceptualization that is important in the study of digital inequality. The first one is motivational access (motivation to use digital technology), followed by the material or physical access (possession of computers, devices and Internet connections). Skills access (possession of digital skills: operational, informational and strategic) is the third stage while usage access (number and diversity of applications, usage time) is the last one. Accordingly, between the first two stages of access to the last two there is a gradual shift. When leaving behind the problems of motivation and material access, the problems of unequal skills and usage opportunities come to the fore (van Dijk, 2005, p. 21). This sequence of stages is a distinctive feature brought into question by van Dijk (2005) and it has the potential to explain in a complex manner whether Internet and new devices are actually reducing social inequalities or they are rather reproducing inequalities. Using this model, van Dijk (2005) shows how personal and positional categorical inequalities in society produce an unequal distribution of resources, which in turn lead to unequal access to digital technologies and eventually to unequal participation in society. Further, as one gap closes another one opens pointing towards a rather dystopian view of societal inequalities. This perspective is especially present since the technology is changing in a rapid way: devices and information are more and more sophisticated, there is less and less time to get familiar with them, therefore the chances for disadvantaged individuals/groups/categories to catch up are increasingly low.

This model proposed by van Dijk is just as valid for explaining the variations among children in terms of access and use of new technology as it is for adults, especially for the purpose of this paper. This model can give us valuable insights regarding the way children access and use new devices like Smartphones which can shape their online experience in a meaningful way. If until recently the Internet was accessible only via a computer desktop, nowadays, due to the emergence of mobile and personalized devices, children go online from different devices and locations. This characteristic has several implications, since an important body of studies (Livingstone & Helsper, 2007; 2009; Mascheroni & Cuman, 2014) suggest that a broader range of access locations and devices relates to more unsupervised access and thus more independent use of the Internet. Thus, a larger number of access locations and devices are likely to be related to higher skill levels. This relation could be explained by the fact that, first of all, each location implies particular social conventions of freedom, privacy, sociality, and surveillance, most private and autonomous use being achieved from the own bedroom (especially when coupled with a high-speed Internet connection) or through the own mobile phone (Hargittai & Hinnant, 2008). Secondly, each device involves owning particular skills which are expected to stimulate children to engage in advanced and creative activities (Mascheroni & Cuman, 2014; Balea 2016).

Furthermore, studying the relation between the way children access and use the Internet and the level of opportunities taken up, Hasebrink et al. (2011) highlight that education, age, and gender have a significant impact on all indicators of access, namely: number of locations, number of platforms/devices, privacy home access and sophistication of mobile access. Studies show that these differences in the quality of access among children and teenagers in lines of demographic factors reproduce and lead

at deepening digital and social inequalities across the young generation (Barbovschi & Fizesan 2013).

Unfortunately, despite the importance of the quality of access (e.g. number of location and/or devices) on children's online experience, there are few studies concerned with the emergence of these new devices (e.g. Smartphones, tablets) among children and young adults. Fewer studies are interested on how these new devices shape children's online experience. Research on this topic is almost absent in Romania, too. One of the most important studies that addressed this issue at European level is Net Children Go Mobile (Mascheroni & Cuman, 2014). According to their report, there are significant differences in terms of access and use of Smartphones and tablets across countries and several demographic variables. Although most children and young adults still access the Internet via a shared personal computer, followed closely by their own PC, the number of those who use these new devices is increasing. Accordingly, Smartphones are the devices that children are more likely to own or have for private use, while tablets are usually used by the whole family (Mascheroni & Cuman, 2014). In average, 41% of children make use of their Smartphone on daily basis, 24% use tablets, while 46% use laptops daily. Out of all seven countries investigated, Romanian children report the lowest rates of daily Smartphone and tablets use, with two in ten children using a Smartphone on a daily basis and less than one in ten using a tablet. Daily access to the Internet via Smartphones, tablets and laptops is also differentiated by age and socioeconomic status. Accordingly, younger children are more likely to use a laptop everyday, while teenagers use Smartphones as much as laptops. Furthermore, children from lower SES homes are less likely to go online from a Smartphone everyday. These results are consistent with previous ones (Livingstone & Helsper, 2007; 2009; Van Deursen, 2011; Helsper & Enyon, 2009) and illustrate that children and young people who have been online for longer, and who use the Internet from more devices have greater online skills and self-efficacy, which in turn encourage children and young people to take up more opportunities. On the opposite, those who gained access more recently and who do not use the Internet in a private manner and from several devices lack confidence in their online skills, use the Internet more conservatively and take up fewer opportunities (Mascheroni & Cuman, 2014).

Aim of the study

Summarising, these new devices (e.g. Smartphones, tablets) have facilitated the emergence of Internet private use among children, making it possible for them to go online at anytime and anywhere. Ownership and private use of a Smartphone shape the quality of online experiences since evidence shows that Smartphone and tablet users report almost twice more Internet skills as compared to children who do not use mobile devices to go online. Therefore, using NCGM's dataset we investigate whether owning or having access to Smartphones leads to increasing digital inequalities among children. More precisely, drawing on van Dijk (2005)'s model, we are interested in what happens when children pass the problems of material access (owning or having access to a

Smartphone). In case we find evidence of differences in level of Smartphone related skills then we can argue that these particular skills are a possible determinant of increasing social inequalities (Livingstone & Helsper, 2007; 2009; Van Deursen, 2011; Helsper & Enyon, 2009).

There are several ways in which skills can affect the quality of use, which in turn can determine how children benefit from the Internet (Hasebrink et al., 2011; Barbovschi & Fizesan, 2013; Mascheroni & Cuman, 2014). A noteworthy body of studies showed a significant relation between the level of digital skills that a child possesses and the range of taken-up opportunities for spending time on the Internet (Livingstone & Helsper, 2009; Witte & Mannon, 2009; Hargittai, 2010). Moreover, it appears that child's Internet skills result from the range and depth of children's online activities (Barbovschi & Fizesan 2013; Balea, 2016). There is an entire debate about how children acquire digital skills. When started to go online, it was believed that children and young people, because they have grown up with ICT, are born with sophisticated technology skills and a whole new set of cognitive capacities and all they need is to get access to Internet and new devices (Kennedy et al., 2010; Balea 2016). However, studies show that children report different levels of digital skills even when social demographic variables (e.g. Age, gender, SES) are taken into account (Livingstone & Helsper, 2007; 2009; Van Deursen, 2011; Helsper & Enyon, 2009; Balea, 2012; 2016).

So, how do children get digitally literate? Eurobarometer (EC, 2007) as cited by McQuillan and d'Haenens (2009) suggested that self-learning (e.g. Observation, games, chat, instant messaging) is the most common process whereby children gain Internet skills, closely followed by learning at school which mainly covers basic, functional applications, rather than creative or interactive Internet use. Therefore, acquiring digital skills is a process which involves peers, parents, teachers, the amount of use and, nevertheless, the location where a child gets Internet access. Nevertheless, Livingstone and Helsper (2009) findings show that, although some online skills are Internet-specific, other aspects of these skills are likely to draw on social and technical knowledge acquired in other contexts (p. 324). Other studies which investigated children and young people's Internet skills identified a range of socio-demographic barriers to Internet literacy. Their results show how Internet literacy mediates the benefits (and risks) of Internet use (Livingstone et al. 2005). Likewise, other studies found children whose parents have high socioeconomic status (SES) were more effective in obtaining the benefits they sought online while others took indirect or multiple routes to achieve the same end (Livingstone & Helsper, 2007).

Studying the relationship of young people's Internet use with social inequality, several scholars proposed a more nuanced approach of this issue (Witte & Mannon, 2009; Hargittai, 2010; Helsper & Enyon, 2009). Drawing on social inequality theories, more precisely on the bourdieaun perspective, Hargittai (2010) showed that the particular societal positions that children and young people inhabit are reflected in their Internet use. Accordingly, the differences in Internet use and online opportunities taken up are not randomly distributed, since those who are already more privileged, in terms of gender (male), ethnicity, and SES, tend to have more Internet use, autonomy and

resources, more online experiences, higher levels of digital skills, and report engaging in more diverse online activities than the less privileged. These findings, argues Hargittai (2010), raise concern about possibly increased rather than decreased inequality resulting from the spread of Internet use across the population.

Witte and Mannon (2009) addressed these differences from the conflictualist perspective and found strong statistical relationship between parents` education and children`s Internet use at several levels. First, parents who graduated high school are twice as likely to have helped a child do something online, while among those with less than a high school degree less than a quarter helped their children use the Internet (Witte & Mannon, 2009, p. 74). Thus, social demographic differences among adults have the potential to perpetuate rather than challenge class advantages which parents pass on to their children. Second, family's SES background works as a predictor for children's online competencies. Accordingly, children who come from privileged backgrounds are more likely to use the Internet than their counterparts from less privileged backgrounds. Further, the evidence suggests that class advantage passes to the next generation in terms of digital skills too. Children from high status families are more skilled that those coming from low status families. This, in turn, works as a bidirectional transfer since findings suggest that these children help their parents to acquire online knowledge which helps them maintain their privileged position.

Unfortunately, there is almost no consent on which skills should be considered necessary in order for a child to be considered more or less digital literate. Van Deursen (2010), inspired by the work of van Dijk (2005), suggests a delimitation of necessary skills for using the Internet from the general term digital skills, defining them Internet skills. He argues that this concept consists of two dimensions, medium-related skills (e.g. Operational and formal skills) and content-related skills (e.g. Information and strategic Internet skills). In order to investigate how different skills are distributed among various segments of the population (Van Deursen, 2010) and which factors cause these disparities, it is necessary to operate such a division. Inspired by the media literacy research, Helsper (2008) also proposes a similar classification and considers four broad categories of digital skills, namely: technical, social, critical, and creative skills. The authenticity of her approach brought into discussion the "transferable skills". These are general life skills "that people have learned in one context but which they are able to apply in a variety of other contexts and are thus not tied to specific tasks", which allow individuals to participate more fully in online worlds (Helsper, 2008, p. 25). Bearing in mind Helsper's approach, we can see Smartphone related skills as "transferable skills" since, as NCGM project shows, Smartphone and tablet users are more likely to report high levels of Internet skills than children who do not use a mobile device to go online. This evidence shows that Smartphone users increase the quality of their online experience only by mastering their devices.

Offering a framework for digital skills is not the only debate around this topic. There is ongoing research for developing measures for specific skills involved, which could lead to a better understanding of the differentiation between Internet users. Observed online behaviour, if possible in their natural context, is considered the ideal way

to measure the actual level of one's digital skills. Although self-reports are not as valid as performance tests regarding the measurement of digital skills (Van Deursen & Van Dijk, 2010), they are an obvious measure when investigating a great sample. In order to measure digital skills with a survey, one has to rely on self-reports of Internet use, ability and knowledge. This may raise an interesting challenge since children have to give an estimate of their own digital skills and experience (Sonck, Kuiper and de Haan, 2012). This was the case of two major European projects that measured, among other variables, children's level of digital skills. EU Kids Online (EUKO) study surveyed more than 30 thousands children from more than 30 countries, while Net Children Go Mobile (NCGM) surveyed almost 3 500 children. In such studies it is obvious that no direct observation of online activities is possible. Instead, EUKO, followed by NCGM, proposed three ways of measuring digital skills: self-reported skills (NCGM measured both Internet skills and Smartphone related skills), diversity of Internet use and self-confidence with the Internet.

Self-reported skills measured in these projects are similar with the concept Internet skills proposed by Van Deursen (2010) and will be used in the present study as a proxy for the level of children's Internet and Smartphone related skills. With the aim of measuring this indicator, in NCGM project children were asked to assess their own skills, and more specifically whether they are able to do any of a list of 12 different Internet skills and 11 Smartphone related skills, including instrumental, safety-related and communication skills (see Annex 1). According to Sonck, Kuiper and de Haan (2012) children's self-reports about their skills might give an indication of their actual digital skills, though this measure may be prone to over- and underestimation.

NCGM results (Mascheroni & Cuman 2014) on Internet and Smartphone related skills show some intriguing changes compared to EUKO findings (Hasebrink et al., 2011). Children report higher levels of social media skills and more critical skills such as comparing different websites to assess the reliability of information. However, some competences measured in both surveys show little or no increase (Mascheroni & Cuman 2014). Children aged 9-16 claim half of twelve Internet skills measured – including instrumental skills, safety skills, critical skills and communicative skills. Moreover, those who make use of Smartphones and tablets report almost twice as many skills as children who don't use mobile devices to go online. Same study highlights that, on average, children claim more Smartphone and tablet specific skills. Children are also more self-confident regarding their Smartphone-specific skills: 38% of children agree with the statement "I know more about the Internet than my parents" while 58% say they know more than their parents about using Smartphones. These findings are consistent with previous studies (Hargitai; Fizesan 2012; Barbovschi & Fizesan 2013) discussed above that show significant correlations between the number of devices used to connect to the Internet and the level of digital skills. When it comes to Romanian children, using a Smartphone is not very common. There are huge disparities between those who have and those who don't have access to Smartphone. The gap is even deeper when Internet mobile use is considered (Velicu et al., 2014). On these lines, accessing and using a Smartphone could be considered a kind of asset (Van Dijk, 2005; Van Deursen, 2010; Witte

& Mannon, 2009) used by the dominant class in order to preserve their privileges, and, consequently, their power.

Sample and method

The present study reports on the Net Children Go Mobile dataset. The project collected data in 2013 from random stratified survey samples of around 500 children aged 9-16, who are Internet users, per country. Seven European countries were involved in this project, including Romania. For the purpose of this paper, only responses from Romanian children were taken into account (N=522). The sample sums up 49% girls and 51% boys with an average age of 12 years (SD=2,1).

In order to investigate if having access and using a Smartphone is working as an accelerator of digital inequalities among children, several relations between selected variables were tested with different statistical analysis, such as linear and multilinear regressions or chi-square independence test. Firstly, we examined if there is evidence for the first level of digital divide among Romanian children using variables that measure child's access and use of a Smartphone. Further, we have searched for second-level of digital divide implications using Smartphone related skills as a dependent variable. One independent variable related to children's parents was considered: parent's education level used as a proxy for family's socioeconomic background in order to test the direct effect of SES on the level of Smartphone related skills. Further, variables that measure child's access and use were introduced in the model to test for the persistence of digital inequalities between children even when demographic variables such as child's age and gender are hold for constant (see Table 1).

Based on different theoretical frameworks discussed in the first section of this study, a set of hypothesis were formulated in order to structure the following analysis. The first assumption was inspired by studies which show a significant relation between access and use of new devices with the increasing of digital gaps. Further, we have considered findings which show that socio demographic factors could predict the variations of digital skills among children. And last, we relied on a conflictualist perspective, which views new technologies as assets used by the privileged class to maintain their position.

H1: Children coming from privileged backgrounds are more likely to own or to have access to a Smartphone. Furthermore, they are also more likely to go online from their own devices.

H2: Demographic variables such as age and gender are significant predictors for Smartphone related skills which show evidence for increasing digital inequalities among children.

H3: Parent's highest education is a significant predictor for the level of Smartphone related skills showing that class advantage passes to the next generation. Children coming from high SES homes are more likely to use a Smartphone in a private manner, more often than not will have mobile Internet and, therefore, will exhibit higher level of digital skills

H4: When variables related with children's Smartphone and Internet use are introduced in the model, the influence of demographic variables on Smartphone related skills is reduced, showing evidence for second-level of digital divide among children and questioning the digital natives' narratives.

Table 1. Measurses used for statistical analysis. NCGM dataset for Romania

	Mean	Std. Deviation	Description
Education level	4.57	.98	Highest education completed by the Head of Household, ISCED classification, eight categories – with second stage of tertiary as highest level measured
Age	12	2.14	Scale variable, 9-16 years old
Gender			Dummy, Female=0
Own or have for private use: A Smartphone	.21	.411	Dummy, "Yes"=1
Internet mobile use	.29	.456	Dummy, "Daily use"=1
Years mobile phone use	3.93	2.25	Scale variable, the number out of 12 (highest)
Smartphone skills	6.54	3.5	Scale variable, the number out of 11 in total
Internet skills	5.55	4.06	Scale variable, the number out of 12 in total

Results

In Romania, unlike other countries analysed in the project, is not usual for children to own or to have access to a Smartphone. According to NCGM data, there are huge disparities between those who have and those who do not have access to a Smartphone. Only two out of ten Romanian children use a Smartphone from the privacy of their own bedroom, while less than 13 per cent of them use their own Smartphone, tablet or PC to go online (Velicu et al., 2014). This evidence can be explained since the cost of the device is one of the most important factors taken in consideration by Romanian parents when discussing about the possibility to acquire a device for their children. Further, the gap is even deeper when Internet mobile use is considered (Velicu et al., 2014). Even when children in Romania own a Smartphone, most of them do not use it for accessing the Internet because the cost of the Internet is considered to be high. Compared with their counterparts from other countries involved in the project, Romanian children indicate the lowest rates when it comes to going online from their Smartphones. Even when provided with mobile Internet plans, children in Romania feel several constraints on use and seek Wi-Fi connections or try to use 3G as little as possible, and limit their time online if Wi-Fi is not available (Mascheroni & Cuman, 2014).

Children who own a Smartphone are more likely to come from a high status family, thus being more likely to increase their level of digital skills by mastering their devices.

Among those who have access to a Smartphone (N=111), 11 percent come from low SES backgrounds, while more than 50 percent come from families with high socioeconomic status (parents with at least post-secondary education). Further, a chi-square test of independence was performed to examine the link between Internet mobile use and child's SES. The relation between these variables was significant, $X2(2, N=111) = 5.50$, $p< .05$, and the intensity of the association was medium Cramer's $V= .223$, $p<.05$. Children from low SES (primary education or no education at all) were less likely to access the Internet from their Smartphones on a daily basis. Moreover, we can see that there are 0 odds for a child who has access and use a Smartphone and comes from low SES families to access the Internet daily from his device.

Table 2. Crosstabulation: Parent's education and Internet mobile use

Parent's education		Primary or none	Secondary	Tertiary	Total
Internet mobile use	**None daily use from mobile devices**	2	9	20	31
	Daily use from mobile devices	0	29	51	80
	Total	2	38	71	111

We can formulate several implications based on this evidence. Firstly, digital gap among Romanian children is increasing with each new device, making Smartphones a tool that might have the power to perpetuate social inequalities, especially because these devices become more and more sophisticated and very expensive. Considering these characteristics, children from low SES families will always be one step behind those from high SES families. Likewise, mobile Internet use is a very exclusivist asset for Romanian children coming from high SES families and, more often than not, it is most probably used to maintain class advantages, showing support for previous studies that highlight how unequal diffusion of the Internet and new technologies reinforces already existing social inequalities (Van Deursen, 2010; Grusky et al., 2008). Also, these results acknowledge the first hypothesis and correspond with previous results that highlight a significant relation between the number of devices used to go online and children`s level of digital skills: more devices, more skills (Hasebrink et al., 2011; Fizesan, 2012; Barbovschi & Fizesan, 2013). On the opposite, those who have gained access more recently and who do not use the Internet in a private manner and from several devices lack confidence in their online skills, use the Internet more conservatively and take up fewer opportunities.

When self-reported skills are investigated, Romanian children claim, in average, 5.5 out of 12 Internet skills and 6.54 out of 11 Smartphone related skills (see Annex1). However, Smartphone users claim, in average, 8 out of 12 Internet skills that shows support for the perspective more devices, more Internet use, more opportunities taken up online. Further, a two-step multiple linear regression was calculated to predict

Smartphone related skills in order to understand what happens beyond the problem of access. Are they equally skilled or there are variations which could be explained by different predictors? In the first model we introduced demographic variables like child's age, gender and social background (parent's highest education). A significant equation was found (F (3,109) = 11.629, P< .000), with an R^2 of .242. Children's predicted Smartphone related skills is equal to -4.802 + .643 (Age) + 1.54 (Gender) + .536 (Education), where age is measured as a scale variable, gender is coded as a dummy variable, *female=0,* parent's education level is a 8 scale variable, secondary tertiary highest. All the independent variables introduced in the model were significant predictors of Smartphone related skills. In the second step, child's Internet and Smartphone use related variables were introduced in the model. A significant equation was found (F (6,106) = 11.348, p< .000), with an R^2 of .391. Children's predicted Smartphone related skills is equal to -3.21 + .293 (Age) + 1.24 (Gender) + .235 (Education) + 1.73 (Own Smartphone) + 1.73 (Internet mobile use) + .36 (Years of mobile phone use), where own or have for access a Smartphone and Internet mobile use were measured as dummy variables, and years of mobile use as scale variable. All the independent variables were significant predictors of Smartphone related skills, except parent's education level.

Table 3. Descriptive Statistics for Multilinear regression analysis

	Mean	Std. Deviation	N
Number of skills related to Smartphones, TOTAL (11)	6.75	3.63	111
Age	13.15	2.32	111
Gender	0.48	0.55	111
Parent's education	4.38	1.43	111
Own or have for private use: A Smartphone	0.9	0.33	111
Internet mobile use	0.70	0.50	111
Years of mobile phone use	4.65	2.34	111
a Weighted Least Squares Regression - Weighted by Combined design and nonresponse (use this weight)			

Table 4. Regression Coefficients for Smartphone related skills as dependent variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.80	2.24		-2.13	.035
	Age	0.64	0.13	0.41	4.74	.000
	Gender	1.54	0.56	0.23	2.72	.007
	Parent's education	0.53	0.22	0.21	2.38	.019
2	(Constant)	-3.21	2.27		-1.41	.160
	Age	0.29	0.15	0.18	1.92	.057
	Gender	1.24	0.52	0.18	2.34	.021
	Parent's education	0.23	0.21	0.09	1.09	.277
	Own or have for private use: A Smartphone	1.73	0.89	0.15	1.93	.055
	Internet mobile use	1.73	0.61	0.23	2.82	.006
	Year of mobile phone use	0.36	0.14	0.23	2.49	.014

a Dependent Variable: Number of skills related to Smartphones, TOTAL (11)

b Weighted Least Squares Regression - Weighted by Combined design and nonresponse (use this weight)

The first model which takes into account demographic variables indicates that child's age is the most powerful predictor for the level of Smartphone related skills. Each additional year brings to a child, in average, 0.6 skills when all other variables are hold for constant, making older children more skilled when using their Smartphones. When age and SES are hold for constant, gender is a significant predictor for the level of digital skills. In average, boys claim with 1.5 more Smartphone related skills, making girls less competent when it comes to Smartphone use. Finally, parent's highest education is a significant determinant of the variations in the level of child's Smartphone related skills. This evidence is even more important since these children are already in a privileged position since they already have access or own a Smartphone. Therefore, even when the problem of access is resolved, children coming from high SES homes exhibit higher levels of skills showing support for the second and third hypothesis. In the context of these results it is worth mentioning an interesting study of Helsper nd Galacz (2009) that shows similar findings when it comes to Internet access and use among adults. Accordingly, people coming from low SES are up to seven times more likely to lack material and educational resources in order to engage with new technologies. Moreover, even supposing that these disadvantaged social categories get access to the Internet, they are unlikely to engage with technologies in the same meaningful way as the privileged one (Helsper & Galacz, 2009).

When variables that measure child's Internet and Smartphone usage are introduced in the model, all demographic variables lose their impact on the dependent variable. When these variables are constant, age and gender remain significant predictors, while SES doesn't hold for significant effect on Smartphone related skills. This means that even when variables like having private access to a Smartphone, Internet mobile use and same years of using mobile phone are considered, children are still differentiated in terms of Smartphone related skills by age and gender. Older boys are in the most gainful situation, being most competent when it comes to using their mobile devices.

If we take in consideration Beta coefficients and compare their values, most important predictors of Smartphone related skills are daily Internet use via Smartphone and years of mobile phone use. Romanian children that go online from their devices on daily basis report, in average, with 1.7 more skills when all other variables introduced in the model are hold for constant. Furthermore, each year of mobile phone use increase the number of Smartphone related skills with 0.36. Owning or having access to a Smartphone from the privacy of their bedroom makes children to report with 1.73 more skills than those who don't use devices in a private manner. Therefore, even if SES doesn't hold for significant direct effects in this model, we can argue that social background influences children's experience with their devices. Most often than not, children coming from high SES homes are more likely to have access to a Smartphone in a private manner and to connect to Internet from their devices on a daily basis. Parents who can afford these "privileges" help their children to become more competent and confident in their own Smartphone and Internet use. In sum, the present multilinear regression model offers support for the last two hypotheses, showing that digital inequalities are present among Romanian children even when the problems of physical access are overachieved.

There is a significant correlation ($r=.758$, $p< .000$) between the number of Smartphone skills and the number of Internet skills claimed by Romanian children. When the number of Internet skills were predicted by the number of Smartphone skills, a significant equation was found ($F(1,127) =171.664$, $p<.000$) with an $R^2=.575$. Children's predicted Internet skill is equal to 1.08 + 0.81 (Smartphone related skills). At each Smartphone related skills claimed a child increases his level of Internet skills with 0.8.

Table 5. Regression Coefficients for Internet skills as dependent variable

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,081	0,469		2,304	0,02
Number of skills related to Smartphones, TOTAL (11)	0,817	0,062	0,758	13,102	0,00

a Dependent Variable: Number of digital skills, TOTAL (12)

b Weighted Least Squares Regression - Weighted by Combined design and nonresponse (use this weight)

Considering Helsper's approach (2008), we can see Smartphone related skills as "transferable skills" since, as linear regression shows, Smartphone and tablet users are more likely to report high levels of Internet skills than children who do not use a mobile device to go online. Same findings are reported by Mascheroni & Cuman (2014) and suggest that Smartphone users increase the quality of their online experience only by making use of their devices. Accordingly, children who own or have access to a Smartphone are getting familiar with new digital skills, skills that increase their level of competencies when it comes to Internet use. Bearing in mind several studies that show that high levels of digital skills increase the chances for a child to take up more online opportunities (Livingstone et al., 2011; Barbovsci & Fizesan, 2013; Fizesan, 2012), making use of these "transferable skills" (e.g. Smartphone related skills) it could be an important gain for children that own or have access to new devices such as Smartphones. However, this relation is evident bidirectional. Children that are very competent Internet users have more odds to become experienced Smartphone users.

Discussion and concluding remarks

In sum, the present findings highlight significant disparities among Romanian children in terms of access and use of new devices (in this case Smartphones) showing evidence for first and second level of digital divide. Apparently, each new device increases the digital gap between children, since older children, boys, or those coming from high SES homes claim more digital competencies. Moreover, when variables like having private access to a Smartphone, Internet mobile use and years of using mobile phone are considered, children still report different levels of smartphone related skills along the lines of age and gender, making older boys most competent in using mobile devices. Finally, the multilinear regression shows how parents, by offering different settings, can influence the level of their children' online competencies. Children that claim having private access to a Smartphone, mobile internet connection and more years of mobile use are the most experienced users. These findings show that van Dijk (2005) model can offer a valuable framework for studying children's relationship with the new devices and highlight the

importance of studying their experiences once the material access to Internet and new devices is overachieved.

These results can also be approached from a conflictualist perspective (Grusky et al., 2008; Witte & Mannon, 2009). The link between children' mobile use, skills, and SES implicates the new technologies in the reproduction of class privilege by increasing opportunities available to the already fortunate (Hargittai, 2008, p. 936). Assuming that SES (as measured in the present analyses) is an indicator of class position, children coming from underprivileged families are less likely to have access or own a Smartphone, mobile internet connection or early access to a mobile phone, characteristics that influence the level of digital skills. Therefore, if skills could be seen as a kind of asset (Van Dijk, 2005; Van Deursen, 2010; Witte & Mannon, 2009), the access and usage of the new devices can also be seen as assets, which the dominant class (parents from high SES) use in order to preserve its privileges and power. These new technologies may even exacerbate these inequalities over time since children coming from high SES homes will always have access first to the most expensive devices (e.g. Smartphones, tablets) and mobile telecommunications technology (e.g. mobile web access, gaming services, high-definition mobile TV) leaving their counterparts behind. Furthermore, as the present results show, even when children coming from low SES environments get access to these new devices they are unlikely to report same levels of digital competencies or to engage with technologies in the same meaningful way as the privileged ones. However, these differences would weaken by increasing the quality of access (more private use, more devices, and internet mobile plans) for these children (Hargittai, 2008; Fizesan, 2012; Barbovschi & Balea, 2013). These findings are even more important since there are studies that argue that growing up in a household that has the latest technologies and digital media resources can determine the way children make use of the internet and new devices (Livingstone et al., 2011; Hargittai, 2008; Barbovschi & Balea, 2013). Furthermore, living in an environment where there is an interest and resources for discovering latest ICT options will allow young people to enhance more opportunities to develop knowledge in the domain of digital media than in a situation which one is isolated without access to relevant technologies (Hargittai, 2008).

In brief, the present paper stress the importance of understanding inequality in Internet access as a form of social inequality and furthermore as a source of social stratification, since, as studies show (Witte & Mannon, 2009; Van Dijk, 2005), the online situation reflects offline society and as long as social inequality continues to exists offline there will be no equality online and vice versa. As long as socially excluded children will remain less likely to have access to material and educational resources to engage with the Internet or other technologies in a meaningful way the digital and social inequalities among them will not diminish but will increase (Barbovschi & Fizesan, 2013; Witte & Mannon, 2009).

Limitations

First of all, the limitations of the present study count on the measures of Internet skills and Smartphone related skills. Both of them were measured through self-reports that might offer an idea of children's actual digital skills, though this measure may be susceptible to over- and underestimation. Recent studies indicate that observed online behaviour, if possible in their natural context, is the ideal way to measure the actual level of one's digital skills (Sonck, Kuiper and de Haan, 2012). Another limitation is given by some measures used in the regression analysis such as social economic background. Parent's highest education level was used as a proxy for children's SES since there was no other variable to measure children's social background. However, this variable was measured on an ordinal scale (8 categories in total) and was treated, in our analysis, as a numerical variable since the distances between categories can be reasonably considered equal and meaningful. Finally, the statistical method used (multilinear regression) involve a priori decisions based on theoretical assumptions, and, therefore, possible relevant factors, which can also explain the dependent variable may be excluded from the model. In spite of this, the present study offers valuable information about the implications of Smartphone use on digital inequalities among Romanian children.

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Annex 1. Self-reported Digital skills and Smartphone related skills in NCGM. Descriptive statistics for Romanian dataset.

Digital skills	N=518, Dummy variables, *Yes=1*	Total Mean	Male N=265	Female N=253
Critical Internet skills	Know how to do: Compare different websites to decide if information is true	0.49		
	Know how to do: Change filter preferences	0.32		
	Know how to do: Bookmark a website	0.57	1.36	1.36
Safety Internet skills	Know how to do: Block unwanted adverts or junk mail spam	0.41		
	Know how to do: Delete the record of which sites you have visited	0.49		
	Know how to do: Change privacy settings on a social networking profile	0.53		
	Know how to do: Block messages from someone you dont want to hear from	0.51		
	Know how to do: Block pop ups	0.40		
	Know how to do: Find information on how to use the Internet safely	0.50	2.85	2.74
Internet communication skills	Know how to do: Publish a comment on a blog, website or forum	0.58		
	Know how to do: Upload images, videos or music onto social media	0.64		
	Know how to do: Create a blog	0.25	1.45	1.51
	Number of Internet skills, TOTAL (12)	5.55	5.6	5.49

Smartphone skills	N= 129, Dummy variables, *Yes=1*	Mean	Male N=67	Female N=62
Critical Smartphone skills	Know how to do: Download apps	0.83		
	Know how to do: Compare different apps with similar functions in order to choose the one that is most reliable	0.56		
	Know how to do: Connect to a wifi network from your Smartphone. tablet	0.76		
	Know how to do: Have the same documents, contacts, and apps on all devices that you use	0.51	2.69	2.4
Safety Smartphone skills	Know how to do: Deactivate the function showing your geographical position	0.50		
	Know how to do: Block push notifications from different apps	0.40		
	Know how to do: Find information on how to use Smartphones safely	0.70		
	Know how to do: Block pop ups which promote apps, games or services you have to pay for	0.38		
	Know how to do: Protect a Smartphone with a PIN, with a screen pattern	0.73	2.88	2.26
Communication Smartphone skills	Know how to do: Update your status on the social networking site used the most	0.73		
	Know how to do: Take a picture or a short video with your Smartphone and upload it onto social media	0.80	1.39	1.44
	Number of skills related to Smartphones, TOTAL (11)	6.54	6.96	6.1

Annex 2. Model Summary for two-step multilinear regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627a	0.394	0.37	2.741
2	.702b	0.493	0.456	2.546

a Predictors: (Constant), Parent's education, Age, Gender
b Predictors: (Constant), Parent's education, Age, Gender, Own or have for private use: A Smartphone , Internet mobile use, Years of Internet mobile use

ANOVAa,b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	492.504	4	123.126	16.387	.000c
	Residual	758.887	101	7.514		
	Total	1251.391	105			
2	Regression	616.348	7	88.05	13.588	.000d
	Residual	635.044	98	6.48		
	Total	1251.391	105			

a Dependent Variable: Number of skills related to Smartphones, TOTAL (11)

b Weighted Least Squares Regression - Weighted by Combined design and nonresponse (use this weight)
c Predictors: (Constant), Active mediation of Internet use by parents 2 out of 5, Head of Household Education ISCED classification, Age selected child, Gender selected child