

Digital Immigrants – Strangers

György Molnár, Zoltán Szűts, Katalin Nagy

Budapest University of Technology and Economics

molnargy@eik.bme.hu, szutszoltan@gmail.com, nagy.k@eik.bme.hu

Abstract. In social context, a stranger can be identified as one who is excluded from a group. This group can sometimes have only a few members, while in other cases it can consist of a whole nation or of an entire society. From a digital perspective, there are two kinds of citizens: first, those who are members of the digital information society. They are able to take part in social and public communication on several levels. Their habits often make life easier, and the pace they live their lives at is faster than of those before them. They are the digital natives. Second, there are those who designed the digital world, but ironically they are the ones who do not really understand how it works in practice. They are the digital immigrants, the strangers. In our study, our key point is that digital immigrants, who have been in this world longer than the so-called digital natives, are perceived as strangers as they are in many ways excluded from today's digital information society. The rituals of their daily interaction, routine, and media consumption as well as information gathering differ from those who are “full members” of the information society.

Keywords: digital immigrants, strangers

1. Introduction

Ubiquitous computing and the blending of online, digital media platforms into everyday life bring up the question of who moves safely around the world. There is a digital revolution. Our culture is shifting towards digital representation, online communication, and interconnections. When, in the beginning of the 1990s, personal computers, Internet, and broadband become available for a large population, ubiquitous computing was born (Molnár & Szűts, 2016). Using Shuetz's theory, the authors find a correlation between the terms strangers and immigrants. Shuetz states the following:

The present paper intends to study in terms of a general theory of interpretation the typical situation in which a stranger finds himself in

his attempt to interpret the cultural pattern of a social group which he approaches and to orient himself within it. For our present purposes the term “stranger” shall mean an adult individual of our times and civilization who tries to be permanently accepted or at least tolerated by the group which he approaches. The outstanding example for the social situation under scrutiny is that of the immigrant. (1944: 499)

It is the authors’ statement that those born before the age of ubiquitous computing,¹ often called digital immigrants, are slowly becoming strangers. Their digital technology using habits give them away. In spite of the fact that in the USA the members of Generation Z – in the strict sense, the digital natives – still count only for ¼ of the entire population, marketers, ICT companies, and the modern educational system are already paying the most attention to them. They are the digital natives.² All the others are slowly becoming strangers.

Digital natives live in symbiosis with their computers and speak online language as their mother tongue. All despite the fact that most of the knowledge they have of the new technology comes from their experience, and it is intuitive. This knowledge is not systematic and it is mostly not gained through an educational process. But, ironically, the strangers are those who designed this digital world. The skills of the natives are developed in an autodidactic way. Those who do not belong to the group of natives, those who were born to an analogue world – may their digital knowledge be however up-to-date – can only be immigrants, and as immigrants, strangers. They are not familiar with the digital world; as the authors will present in their survey, strangers try to apply the old traditions and routines, have difficulties in communicating, and often feel lost.

Digital natives live at a faster pace. They prefer to dine in fast(-food) restaurants and consume instant knowledge. An alteration of knowledge acquisition habits is present in their lives, the need and the demand of acquiring information/knowledge as fast as possible, and the pragmatic point of view of the majority of digital natives use online literature instead of a printed one and rely on the World Wide Web, mostly Wikipedia, instead of libraries. They have never waited in line in a store to buy a record or even a CD. They mostly do not even have their own digital collection. (The strangers are still used to stocking up music, even if they

- 1 Mark Weiser in 1991, when the average computer screen resolution was just 800 x 600 pixels, wrote: “The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it. [...] The technology required for ubiquitous computing comes in three parts: cheap, low-power computers that include equally convenient displays, a network that ties them all together, and software systems implementing ubiquitous applications” (Weiser, 1991).
- 2 Some scholars state there is an issue with terminology. “The use of the term ‘digital natives’ has led to a great deal of controversy. Most academics dislike it, for good and sufficient reasons. Among other problems, the term implies that digital skills are innate rather than taught and learned” (Palfrey & Gasser, 2011).

do it by downloading files to their computers and archiving them on DVD-s.) On the other hand, the natives stream the music they need, and they get what they want instantly. Their motto is: what is not online it does not exist. What cannot be accessed immediately is of no interest to them. Still, one of their virtues is the ability of using the digital culture in a value-creating way. But this value is different than the traditional ones. It is mostly temporary.

Most of the strangers move “clumsily” in this world. They are not confident. Their speed of acquiring information is slow. They possess and process less information. This is at their disadvantage. According to Prensky (2001: 1):

[Digital natives] have spent their entire lives surrounded by and using computers, videogames, digital music players [...] and all the other toys and tools of the digital age. Today’s average college grads have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games [...]. Video games, emails, the Internet, cell phones and instant messaging are integral parts of their lives. The most useful designation I have found for them is Digital Natives. Our students today are all “native speakers” of the digital language of computers, video games and the Internet.

It is the authors’ intention to investigate whether or not digital immigrants feel as strangers by keeping up habits brought from the Gutenberg-galaxy to the digital world. When reviewing the body of literature regarding the digital natives’/digital immigrants’ division, it appeared that studies mostly focus on teaching-learning issues.

2. Ubiquitous Computing and Information Society

Looking at the matter in a simplified form, according to Webster (2011), new technologies are the most visible indicators of new times. These technologies are computers, online information services, while future technologies include Internet of Things, virtual reality, etc. Merging of ICTs ushers us into a new sort of society: information society. According to several works by Negroponte or Gates, the advent of this society can be dated to the early 1990s, the time when the first generation of digital natives was born.

3. On the Edge of Singularity

We are on the edge of a singularity. The ubiquitous computing, the implementation of digital technologies and content in everyday life are changing the (information)

society and our culture to an extent from where there is no turning back. The ways of obtaining information have changed. The ways of producing content have gone through a radical evolution. Using social media is nowadays an integral part of our information society, especially in case of those who belong to the group of digital natives that feel free to express their opinions or to become a prosumer (producer + consumer). It is typical for this generation to be always online and share a huge amount of information immediately. Digital immigrants are wired differently. After the singularity, the immigrants will not understand the new world, and they will become strangers forever (Szűts, 2014).

4. Digital Natives and Strangers

Most of the young people are using digital media in ways that are changing how they learn and how they relate to one another, to information, and to institutions. Digital natives are not only used to acquiring information really fast, but they also prefer to parallel process and multitask. They prefer also random access (such as hypertexts).³ They function best when networked (Prensky, 2001). They are over-connected, and they are under the influence of media convergence. They multitask across several screens: smart TVs, smartphones, tablets, and personal computers. Members of this new generation (digital natives) have an 8-second attention span, down from 12 seconds in 2000 (Bershidsky, 2014). They prefer to communicate in a fast manner, using mostly a mixture of text and emojis in chat. The real issue is that the two worldviews – those of natives and of immigrants – are so different.

Digital natives view the world horizontally, in equalitarian terms. They do not recognize hierarchies, rather see everyone as existing on an equal level. A professor and a student are on the same level when editing a Wikipedia article. In a traditional educational institution, they are not. Digital natives incorporate the benefits of sharing things and ideas with each other and, by doing so, they cross boundaries between social classes (DeGraff, 2014). Before the digital (and mobile) age, many members of upper class in Britain refused to install a phone line as they did not want to be called by members of the middle or working class.

Digital natives use technology to express their identity. They flood social media networking sites – mostly Facebook – with selfies and pictures taken in any situation. They basically document their lives online. On the other hand,

3 “Hypertext contains links. [...] It diverges from linear writing, contains detours on account of hyper-referentiality and offers the reader the opportunity to go elsewhere. [...] If hypertext is non-linear, non-sequential writing, then it is not pre-determined how its constituent sections follow one another in the course of reading. The text’s authors provided the sequential order, but the reader may decide between divergent readership paths” (Szűts & Yoo, 2014: 22).

many of the digital immigrants remember that a film roll had 24 or 36 frames, and every exposition had to be accounted for. Due to the nature of our society, natives and strangers interact on several levels. Natives can teach strangers how to collaborate across boundaries with a variety of people and to build solutions that are horizontal, non-hierarchical.

In our case, strangers try to adopt the native culture, they speak the digital language to a certain level, but they “always retain, to some degree, their accent, that is, their foot in the past. The digital immigrant accent can be seen in such things as reading the manual for a program rather than assuming that the program itself will teach us to use it” (Prensky, 2012).

There are hundreds of examples of the digital immigrant accent. They include printing out your email (or having your secretary print it out for you – an even “thicker” accent); needing to print out a document written on the computer in order to edit it (rather than just editing on the screen); and bringing people physically into your office to see an interesting website (rather than just sending them the URL). I’m sure you can think of one or two examples of your own without much effort. My own favorite example is the “Did you get my email?” phone call. (Prensky, 2012: 69)

5. Findings of the Survey

The survey examines whether or not the digital natives and immigrants have different attitudes towards the use of digital materials. The research presented in this paper was conducted by an electronic survey in February 2017 and was based on simple random sampling; the target group involved full-time and part-time students from Hungary – groups of students studying at two universities were surveyed during a simple sampling. The first was Budapest University of Technology and Economics, while the second was King Sigismund University. The research focused on students’ attitudes towards “traditional” and digital content in order to determine how strangers perceive the world. We got $N = 97$ analysable answers within the deadline. The survey consisted of 11 closed questions. The main results are as follows, which were received by simple descriptive statistical methods. The data were first evaluated with the methods of quantitative research, without examining the difference between the various age-groups.

Three major groups were represented in the survey: the majority of the respondents were between the ages of 23 and 29 (38%), followed by those who were 40 to 52 years old (31%) and the younger generation, but not typical students, aged 30–39 (16%). It can be stated that 62% of the participants were born and socialized before the digital age (see *Figure 1*).

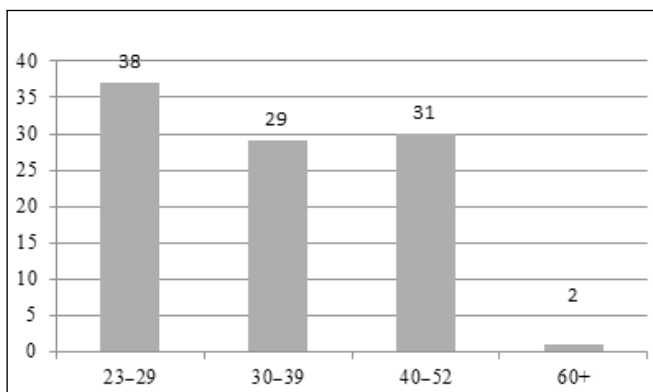


Figure 1. Age of participants in the survey

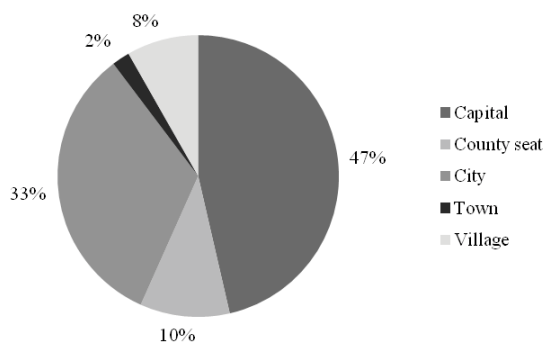


Figure 2. Ratio of the residences

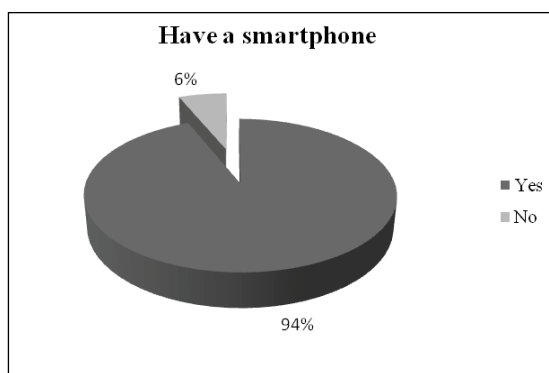


Figure 3. Ratio of smartphone owners

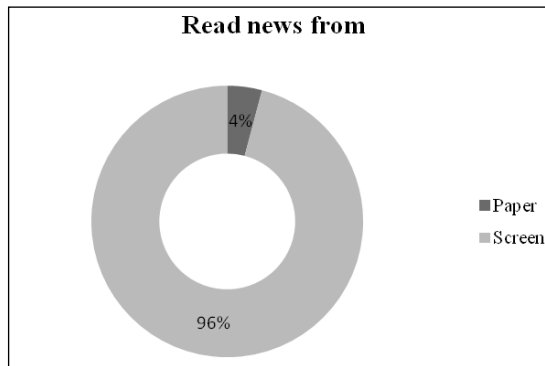


Figure 4. Ratio of news-reading sources

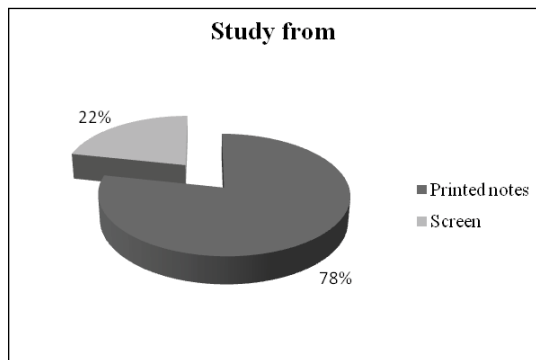


Figure 5. Ratio of study sources

The majority of the respondents are from a bigger city. 47% of them live in Budapest, the capital of Hungary.

One of the basic interests was if the responders were connected with personal devices to the network. Most of the surveyed had a smartphone, only 6% did not own one (see *Figure 3*).

Respondents were asked to point out the platform that they mostly read news from. No multiple answers were allowed. When asked, they replied that the screen (computer, tablet, smartphone) is generally the preferred choice (see *Figure 4*).

Students were also asked to point out if they rather study using the computer screen, or they print the same notes out. Even if the majority reads news from the screen, they do not study the same way. Participants download digital curriculum and then 78% (!) print it out (see *Figure 5*).

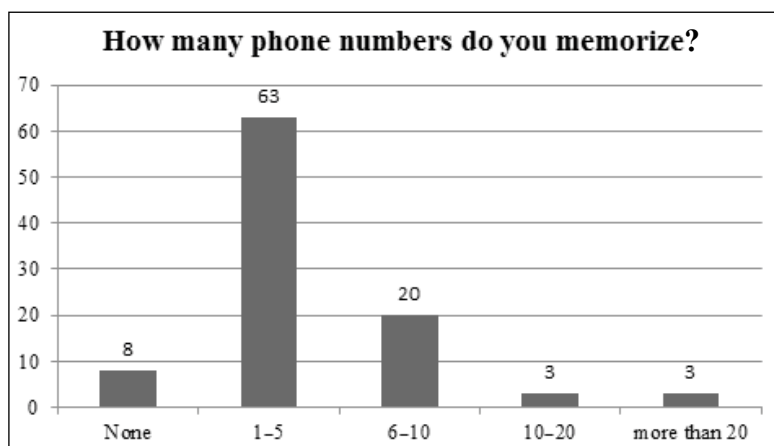


Figure 6. Number of memorized phone numbers

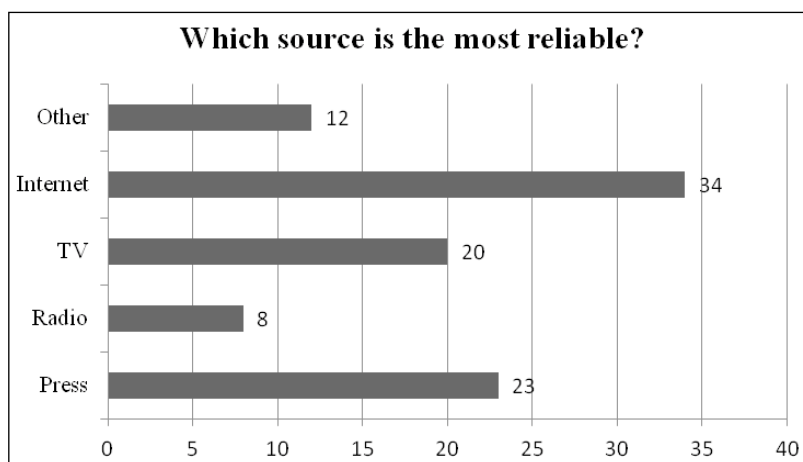


Figure 7. Opinion on reliable sources

On the issue of outsourcing the memory, participants responded the way the authors expected. 65% did not remember more than 5 phone numbers, and, surprisingly, there were 8% who did not memorize any phone number (see *Figure 6*).

Internet was usually not mentioned as the most reliable source, but most of the surveyed chose it as the platform they believed the most in (see *Figure 7*).

There was a question related to attitudes. The interest was if ICT is the most dominant form of communication among friends. The answers showed that

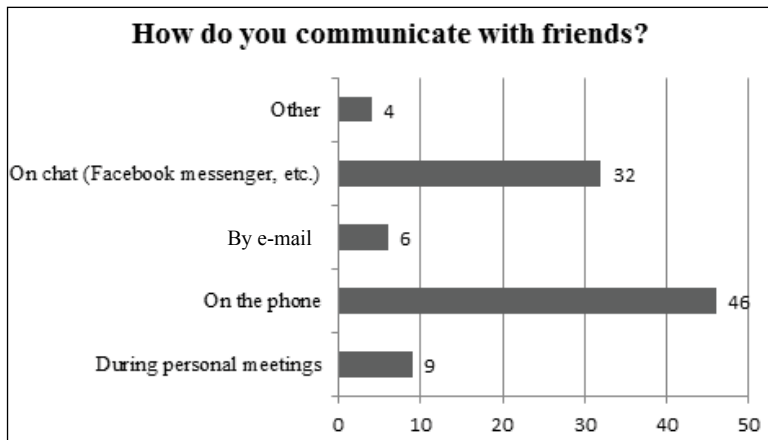


Figure 8. Opinion on communication channels

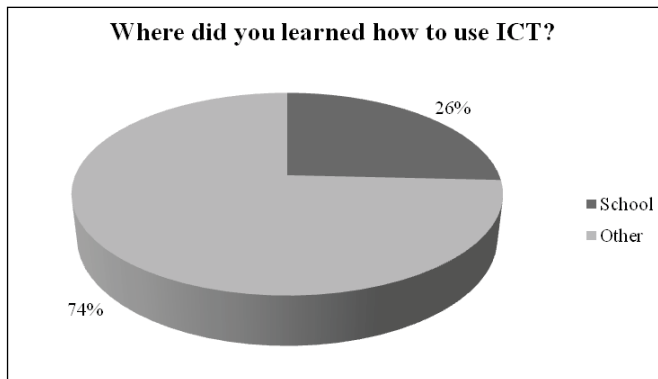


Figure 9. Ratio of ICT learning locations

talking on the phone is still the primary channel (46%), but chat and messenger apps add up to 38% (see *Figure 8*).

Most of the respondents own a smartphone and read news from the screen, but only 26% of them have learned how to use ICT during a formal educational process (see *Figure 9*).

4 out of 5 respondents do their taxes, banking through e-services, that is around 80% of the respondents prefer to use these regardless of the age-group (see *Figure 10*).

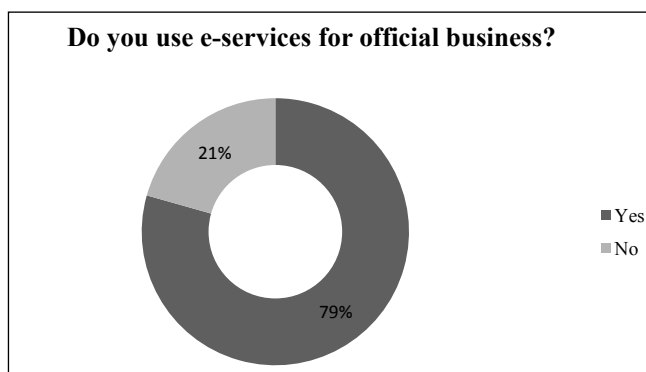


Figure 10. Ratio of e-service usage for business

			Do you learn from the book, note, or note on the display?		Total
			Display	Printed notes	
Please, enter your age!	23–29	Count	5	32	37
		Expected Count	8.1	28.9	37.0
	30–39	Count	4	24	28
		Expected Count	6.1	21.9	28.0
	40–52	Count	12	18	30
		Expected Count	6.6	23.4	30.0
	over 60	Count	0	1	1
		Expected Count	.2	.8	1.0
Total	Count		21	75	96
	Expected Count		21.0	75.0	96.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.504 ^a	3	.037
Likelihood Ratio	8.208	3	.042
N of Valid Cases	96		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .22.

Figure 11. Cross-table analysis of learning displays

			If you have a question to a friend, how do you communicate with him?		Total
			Personal meeting	Phone	
Please, enter your age!	23–29	Count	6	7	37
		Expected Count	3.5	17.3	37.0
	30–39	Count	2	18	28
		Expected Count	2.6	13.1	28.0
	40–52	Count	1	19	30
		Expected Count	2.8	14.1	30.0
	over 60	Count	0	1	1
		Expected Count	.1	.5	1.0

			If you have a question to a friend, how do you communicate with him?		
			usually by phone or in person	chat, just in official case email	chat, Facebook, and other messengers
Please, enter your age!	23–29	Count	0	1	22
		Expected Count	.4	.4	12.3
	30–39	Count	0	0	7
		Expected Count	.3	.3	9.3
	40–52	Count	1	0	3
		Expected Count	.3	.3	10.0
	over 60	Count	0	0	0
		Expected Count	.0	.0	.3

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.698 ^a	21	.011
Likelihood Ratio	41.403	21	.005
N of Valid Cases	96		

a. 26 cells (81.3%) have expected count less than 5. The minimum expected count is .01.

Figure 12. Cross-table analysis of communication channels

			Do you like to arrange your official business on the Internet?		Total
			Yes	No	
Please, enter your age!	23–29	Count	23	14	37
		Expected Count	29.3	7.7	37.0
	30–39	Count	26	2	28
		Expected Count	22.2	5.8	28.0
	40–52	Count	26	4	30
		Expected Count	23.8	6.3	30.0
	over 60	Count	1	0	1
		Expected Count	.8	.2	1.0
Total	Count		76	20	96
	Expected Count		76.0	20.0	96.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.955 ^a	3	.012
Likelihood Ratio	11.202	3	.011
N of Valid Cases	96		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .21.

Figure 13. Cross-table analysis of business arrangements on the Internet

In addition to the simple descriptive statistical methods, the results were examined with multivariate analytical methods. Using SPSS (statistics software package) data analysis, the followings can be determined. The calculation is based on partial correlation in order to prevent distortions that occur due to the lack of representativeness. There were no detectable differences between the various ages in the case of other questions. Based on these main findings, there are some discrepancies in our hypothesis that digital immigrants are always strangers:

There are some unexpected correlations: those older than 40 rather study from the screen, and the younger ones study from a book! Thus, there is a significant difference in this question regarding the different generations. Those over the age of 40 are overrepresented by students that learn from the screen, and the younger people are overrepresented in the majority of learning from books, as shown in the chart below in *Figure 11*, where the results of the Pearson chi-square test are visible in the form of cross-table analysis.

There was also a significant difference between the forms of chosen communication regarding the generations. Younger people, digital natives prefer chat and personal meetings, and older, the middle-aged prefer communicating over the phone, and

digital immigrants like to make phone calls and send e-mails. This is supported by the results of *Figure 12*.

The last interesting relationship or significant difference between the generations was that those older than 29 did not like to use e-services so much, while older people were keen to do so. This can be seen in *Figure 13* showing the cross-table analysis.

References

- Bershidsky, L. (2014). Here Comes Generation Z. *Bloomberg View*. <https://www.bloomberg.com/view/articles/2014-06-18/nailing-generation-z> (Accessed on: 28 January 2017).
- DeGraff, J. (2014). Digital Natives vs. Digital Immigrants. *The Huffington Post*. http://www.huffingtonpost.com/jeff-degraff/digital-natives-vs-digital-b_5499606.html (Accessed on: 28 February 2017).
- György, M.–Szűts, Z. (2016). What Is the Worth of Digital Content and Online Curriculum for Students? Lessons from survey conducted at BME. In: *SISY 2016, IEEE 14th International Symposium on Intelligent Systems and Informatics*. Szabadka, Serbia, 29–31 Aug. 2016, 245–250.
- Palfrey, J.–Gasser, U. (2011). Reclaiming an Awkward Term: What We Might Learn from “Digital Natives”. *A Journal of Law and Policy for the Information Society* 7(1): 33–55.
- Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. *On the Horizon* 9(5): 1–6.
- (2012). *From Digital Natives to Digital Wisdom: Hopeful Essays for 21st Century Learning*. Los Angeles: Corwin Press.
- Schuetz, A. (1944). The Stranger: an Essay in Social Psychology. *American Journal of Sociology* 49(6): 499–507.
- Szűts, Z. (2014). Szingularitás előtt – papír és képernyő között. *Korunk* 10: 29–34.
- Szűts, Z.–Yoo, J. (2014). Interactivity and Reception. The Question of Hypermedial, Geo-Spatial and Augmented literature. *World Literature Studies* 4: 18–31.
- Webster, F. (2007). *Theories of the Information Society*. London: Routledge.
- Weiser, M. (1991). The Computer for the 21st Century. *Scientific American* 265(3): 94–104.