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THE DIGITAL DIVIDE PROFILE OF GREECE: ONE STEP FURTHER

ABSTRACT

The issue of “digital divide” as a new form of social inequality regarding the access to and use of information and communication technologies (ICTs) has not yet received substantial attention in contemporary policy and social debate in Greece. Most of the research has taken place within the framework of the “Observatory for the Greek information society” supported by the EU and established as part of EU-funded initiatives concerning the promotion of the “Information Society” within European countries. Within this context, the aim of this article is to give an overview of the Greek digital divide, drawing on the survey data of the Observatory for Greek Information Society published over the period 2008 to 2010, and at the same time to bring out the fundamental limitations and implicit assumptions underlying such official research. The goal is to uncover the issues at stake and the challenges for further investigation.

Keywords: ICTs (information and communication technologies), digital divide, digital inequality, Internet, Observatory for the Greek Information Society

1. INTRODUCTION

Regardless of whether one agrees with the appropriateness of such labels as the “information age” or “information society”, it is generally admitted that access to and use of information and communication technologies (ICTs) such as the Internet and World Wide Web have become increasingly important means for the economic growth and social progression of nation-

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states, and for socioeconomic opportunity and success at the individual level throughout the first stages of the 21st century. In this light the concept of “digital divide” indicating differences between “information haves and have-nots” acquires important interest as a new form of social inequality in public, political and academic debate. In recent years substantial policies have been enforced by the USA, the European Union and various international organizations and initiatives such as the United Nations Development Program, UNESCO, OECD and the World Bank to combat the disparity in access to and use of ICTs both among and within countries.

However, while there is a lively debate about new ICTs among policy-makers and social scientists on an international level, and the digital divide has been one of the most discussed topics in academia and the field of social sciences during the last decade, the debate in Greece remains limited and the relationship between ICTs and inequality has not yet gained significance as a sociopolitical and economic issue. On the one hand, digital divide research is introduced and established as an external engagement, as part of EU-funded initiatives concerning the promotion of the “Information Society” within European countries and, on the other hand, the digital divide as a political and social problem in academic circles is notable solely because of its absence in contemporary Greek social research and discourse.

Within this framework, in order to develop a more sophisticated understanding of digital inequalities in Greece, we begin by presenting the complex, multifaceted nature of the issue which is in continual evolution focusing on current international literature. Next, we present an overview of Greek digital divides according to the Findings survey of the Observatory for the Greek Information Society. In particular, we provide a discussion on the key findings, research motivations, underlying trends, implicit assumptions and limitations that appear to underpin the discourse of these official studies.

2. FROM DIGITAL DIVIDE TO DIGITAL INEQUALITY

It is now widely accepted that the notion of digital divide is too simplistic and is no longer useful in capturing the diversity and complexity of information inequalities in advanced industrial societies. A number of authors (van Dijk, 2005; DiMaggio, Hargittai, Celeste and Shafer, 2004; Hargittai, 2008; Selwyn, 2004; Warschauer, 2002) cite the need to move beyond a conventional understanding of digital divide as a simple dichotomy between those who have access to technology and those who do not. During the initial

period of ICTs adoption in the 90s, investigations focused mainly on the physical access to computers and connectivity, but recently the discourse about the digital divide has expanded to the meaningful and effective use of ICTs. As ICTs' penetration into society increases and web 2.0 technologies such as wikis, social networking and blogging have come to the fore, another digital divide is opening up that is not about access to communication devices but rather refers to the quality of use, often termed the second digital divide or digital divide 2.0. The key issue is the ability of users when online to analyze and critically evaluate texts, images and sounds, create media content and apply these skills and knowledge in business, education and domestic environments (Carvin, 2000). In this respect, as users differ in their on-line abilities, activities and derived benefits from digital technologies, the attention shifts from the restrictive binary logic of digital divide to a more elaborate and nuanced understanding of digital inequalities in the information age. In particular, the problem is understood as a multidimensional (Norris, 2001), complex and dynamic phenomenon (van Dijk and Hacker, 2000) that requires multilevel analysis on international, national and individual levels, as well as a multidimensional approach in terms of access, usage, on-line content and impact on quality of life.

According to current literature, there are at least three aspects to the analysis of digital inequalities. Firstly, we refer to the problem of access regarding connectivity and computers. The unequal access to ICTs is viewed as another socioeconomic division or contemporary source of inequality. The initial focus of investigation and discussion is based on the technological infrastructure and the links between physical access or basic usage of ICTs and socio-demographic characteristics of the population such as income, education, gender, age, ethnicity and geographic location. The second aspect refers to the unequal ways in which ICTs are used, indicating the qualitative dimension of inequality through information technology. According to this approach, access to ICTs is not the sole or even the most important factor, but rather the differentiation in levels of skills, knowledge, usage and outcome for individuals using new technologies, constitutes a more substantial form of digital inequality. Instead of looking at differences among users and non-users, the strategy is to build up a more sophisticated analysis related to the investigation of the complex and multifaceted nature of the uses in the area of digital inclusion (van Dijk, 2005; DiMaggio et al., 2004; Hargittai, 2008). While the above aspects deal with the digital divide as being connected to the issues of access and use themselves, the third approach calls attention to the wider context of

community, institutional and societal structures that support unequal or equal access to and use of ICTs. It seeks to understand the deeper social, economic and cultural causes behind digital inequality and how access and usage is embedded in society (Warschauer, 2003). In this context, the existing studies tend to agree on the need to conceptualize information inequalities as a complex phenomenon. Therefore, the challenge of research is to adequately combine questions of access and meaningful use with the complex interaction of institutional, economic, cultural and social conditions, rather than deploy each aspect separately.

Finally, the question of digital divide or digital inequality is complicated further by the pluralistic, evolving and dynamic nature of ICTs. It is important to note that ICTs are not a homogeneous, fixed and static object (DiMaggio and Hargittai, 2001). The term ICTs more accurately refers to a heterogeneous range of technologies such as computer hardware and software, digital broadcast technologies, and telecommunication technologies such as mobile phones or the world-wide web. The technical and social qualities of use can vary considerably across these different forms of ICTs. For example, searching the world-wide web on a mobile phone or on a desktop PC constitutes a radically different basis of access and use, indicating at the same time different types of users. Furthermore, ICTs are not finished and complete with predetermined capacities but are in continual evolution. This dynamic nature takes two forms: Firstly, it involves the continual development of ICTs themselves which are changing fast with newer versions and devices being released and spreading into society and secondly, it derives from the embedded social dimension of ICTs that leads the way to break out of the binary logic between technology and society. In particular, because of the emergence of the Internet and more specifically the web, we cannot separate technology from social processes. Instead the web constitutes socio-technical networks in which technologies and societies are intertwined and mutually formed (Warschauer, 2003: 301).

3. THE DIGITAL DIVIDE PROFILE OF GREECE: ONE STEP FURTHER

In Greece, most of the research on the relationship between ICTs and inequality has taken place within the official framework of the “Observatory for the Greek information society” supported by the EU and in line with the EU’s i2010 Strategic Plan for the elimination of digital inequality in and among the 27 EU countries. While these official EU-funded and initiated

studies accurately demonstrate that the problem of digital divide in Greece is extensive, the issue of digital divide as a new form of social inequality has not yet received substantial attention from social sciences domestically.

The existing Greek research and debate on the relationship between digital technologies and social inequality is underdeveloped and uncoordinated and leans towards an overly deterministic account that separates technology on the one hand and social processes on the other. Based on this social/technological dichotomy, we found a community of scholars who work on ICTs and another who work on social inequality and very little overlap or scholarly exchange between the two. In this respect ICTs are still considered the exclusive domain of computer specialists who generally celebrate the wonders of digital technology. In contrast, the deep-rooted humanist tradition related mainly to Greece's technological backwardness, has led to domestic social scientists systematically overlooking the technological world as an object of study. In this context, many social scientists present technology as entirely dependent on social and economic conditions or seem to have accepted that technical mediation as such leads to mass alienation. Researchers (Alexopoulos, Koutsouris and Tzouramani, 2010; Foteinou, 2010; Koutsouris, 2010; Stiakakis, Kariotellis and Vlachopoulou, 2010; Tsatsou, 2008) have only recently started to discuss the "digital divide" concentrating on the Greek case. However, while there is a diffusion of articles in international, not domestic scientific journals, the overall research remains disorganized and ineffective.

Within this context, while the official statistics bring to light the importance of addressing the question of digital divide in the country, they continue to be the dominant research conducted in Greece. Although it has proved to be of considerable importance, this body of work represents a restrictive framework, focusing on the technical and quantitative aspects of the problem rather than being interconnected with the institutional-political, socioeconomic, cultural and qualitative aspects. Construed in this way, the question of information inequality as a pressing social problem remains an overlooked and unexplored research area in Greece.

In order to give a comprehensive picture of the Greek digital divide, this analysis draws on survey data of the Observatory for Greek Information Society published over the period 2008 to 2010 (Measurement of eEurope/i2010 Indicators for Greece-2008 Findings) pointing out, at the same time, the fundamental limitations and the implicit assumptions underlying such official statistics. The goal is to uncover the issues at stake and the

challenges for further investigation. In the official studies, the question of the existing digital divide is presented and identified as twofold: at the European level between Greece and its European partners, and at the domestic level between societal sections within the country.

3.1. The question of digital divide between Greece and its European partners

On the European level the results show Greece at the bottom of the list of member-states in the fundamental ICTs indicators such as technological infrastructure, Internet access and usage in households and delivery of on-line public services, though it has made significant progress in the ICT field during the last four years. Specifically, according to the “Measurement of eEurope /i2010 (set by the European Commission) for Greece-2008 Finding” survey and Eurostat (Europe’s Digital Competitiveness Report a. 2009: 28-29):

- Greece occupies 23rd position among the EU27 member states in terms of broadband penetration.
- Greece ranks 25th in terms of household Internet access- 39,4%, compared with 60% for EU27 and 64% for EU15.
- Half the population (56%), has never used the Internet (30% for EU 27), ranking 26th in EU27.
- 34% of Greeks (26th ranking) are regular users - defined as those who use it at least once a week - (EU27:56% and EU15:60%) and 23% (again, 26th position) are frequent users - using the Internet every day or almost everyday - (EU27:43%).
- 18,2% of Greeks are information literate while the European average is 31%.
- The online availability of public services in the areas of government, health and education remains among the lowest in Europe. The online delivery of basic public services for citizens is 33% (21st ranking) compared with 66% for EU27.

Official statistics tend to portray a state of deprivation with Greece facing a developmental problem as far as technology is concerned. Indicative of this technological viewpoint is that such studies are generally reserved for computer specialists with no training in social sciences. In this respect the research has focused on providing biannual reports on broadband penetration and, more importantly, the significant improvement of information infrastructure in terms of broadband connections, is very often used when

explaining the observed growth of Internet use penetration over recent years. From this standpoint the reports also claim that Greece is catching up and narrowing the gap because of the progress of broadband connections delivery (Observatory for the Greek Information Society b.).

However, although the improvement of the telecommunications infrastructure is the necessary route to increasing Internet connections, the emphasis on the significant progress of broadband availability as the only determining factor in explaining the current state of digital divide leads to partial explanations of a complex techno-social reality. As the lines of inquiry do not extend to the institutional-political, economic and cultural contexts of the development and use of ICTs, the official research implicitly assumes that the provision of broadband connections alone can overcome the gap. In this respect the reports embrace a tendency for technological determinism by emphasizing the autonomy of information technology as a societal force. Likewise, such a position amounts to a form of “technological optimism” presuming that the country’s unequal information access exists as a transient phenomenon and can be diminished by providing technologies: Once Greece goes online with sufficient memory and speed, the issue of digital inequality will no longer be a concern.

Furthermore, the issue of the Greek digital divide is itself reduced to the topic of connectivity based on information infrastructure to such an extent, that the official research disregards the dynamic and evolving nature of ICTs. In Greece the issue of digital divide is centered on constant “broadband” access, whereas another form of technological connectivity is opening up, i.e., wireless connections. As the President of the Association of Greek Internet Users confirms; “[...] ADSL is a technology which, Europe is abandoning, but Greece is only now discovering...” (Tsatsou, 2008: 156). From this point of view, the divide in terms of connectivity not only persists but may also deepen.

The problem of the Greek digital divide starts becoming more relevant when we move from the realm of measures for connectivity to the economic, sociopolitical and cultural characteristics of Greece. As revealed by the related literature, information inequality is closely linked to the level of economic growth and development already existent between countries (Norris, 2001). From this perspective, the underdevelopment of Greece in terms of access to information resources could be seen as an aspect of its material wealth and wealth production. In this respect the wide gap between Greece and other EU member-states reflects the traditional core-periphery pattern between rich North and poor Southeastern European

countries, following previously established patterns of wealth inequality among the EU member states. Within this framework, the problem lies in exploring how the low level of access and usage of information and communication resources follows previously established patterns of core-periphery, and how it emerges as a new form of inequality, deepening the socioeconomic chasm between Greece and rich Northern Europe.

Although there is a strong link between economic wealth and access to information resources, this approach risks oversimplifying a situation that is obviously more complex. For instance it does not explain why Greece remains at a surprisingly low level in the fundamental Internet indicators. Thus we should also refer to government policy and institutional factors that support access to ICTs (Milner, 2006; Wilson, 2004). In fact, the Greek telecommunication infrastructure is strongly influenced by state-run agencies in promoting the construction of a high-speed broadband network. However, given the weakness of the public sector in general, and of the Greek State in particular (originating in particularistic-clientelistic elements and an intense and strict hierarchical bureaucracy), this course has been marked by delays, inefficiencies and inconsistencies that block the timely and efficient implementation of the broadband infrastructure. Similarly, the State's lack of modernization and its role in the Greek digital divide is evident in the fact that the digitalization of public administration still lags far behind, online availability of public services in the areas of administration, health and education is limited and the Greek Public Educational System has yet to adopt ICTs in teaching and learning.

Furthermore, Internet adoption has been affected by the high connection costs. OTE (Hellenic Telecommunications Organization), the only supplier of connectivity, enjoyed a state monopoly until 2005 and a quasi-monopoly from 2005 - 2008 as the leading and dominant provider in the telecommunications market (Papanikolaou, 2009). For instance, as regards Internet access, Greece is one of the two most expensive member states (Europe's Digital Competitiveness Report b. 2009:15). Finally, another institutional factor playing a key role in the country's limited Internet diffusion is the Greek media's coverage of the Internet as dangerous and alienating. Unfortunately, the Greek institutional framework and its role in the current state of digital divide has been "hugely overlooked" (Tsatsou, 2008: 152) and remains unexplored in Greek research.

It is important to note that the issue of the role of Greek institutions and policies as a parameter explaining the digital divide, does not merely result in the failure of timely adoption of technology but has far-reaching

consequences. It implies a self-reinforcing cycle that discourages Internet access and contributes to an ever-widening gap between Greece and its European partners. The low level of connectivity due to poor infrastructure and high costs means that no special online content is provided in the Greek language. Where there is limited online availability of services and information including e-government, e-business and e-learning, access to the Internet has limited significance in everyday living, offering jobs, strengthening communities and assisting education. In this case access is meaningless to the needs of Greek citizens, and serves to further people's unwillingness to use new technologies. Thus, the Internet does not represent the same benefits to Greeks as it does to the residents of EU15 member- states.

More importantly, expensive access to information and insufficient or low-quality online content lead to the Matthew effect. As van Dijk (2006: 183-186) argues, those already in a position of power and strength because of high levels of income and education are able to access and employ ICTs in a manner that results in increasing wealth and power, thus intensifying inequalities. Those Greeks who cannot afford the high costs and do not know any of the major languages that dominate available global Internet content, have difficulty even getting online, much less using the Internet productively. In contrast, wealthier and more culturally sophisticated users participate in the global information society and have more opportunities in the labor market, education, politics and society. In this way people with high levels of income and education have been globally connected, while disadvantaged people become disconnected and excluded from the global information society (Bauman, 1998; Castells, 2000), thus deepening the traditional core-periphery pattern, as well as the established pattern of social inequality on a domestic level.

3.2 Digital divides between societal sections within Greece

The limited, even restrictive way of exploring the relationship between ICTs and inequality is reinforced when these –otherwise valuable– official studies examine the connection between access to and use of ICTs and socio-demographic characteristics of the population. Outlining the problem statistically and relying solely on quantitative measures, the research has focused on counting the number of people who have access to and basic usage of ICTs. The results appear descriptive and of neutral value. Nonetheless, this body of work diverts our attention away from the socioeco-

conomic aspects of digital exclusion and digital inequality within the country while simultaneously obscuring the complex, multifaceted and qualitative nature of the problem.

Two significant points emerge when looking at the national figures showing the differences in access to and use of the Internet for 2008 (Observatory for the Greek Information Society a. and d.). Firstly, although Greece has experienced rapid Internet access growth during the past few years, overall Internet adoption remains fairly low. The data show that 56% percent of individuals in Greek society are still “excluded” from digital networks. Thus, the first digital divide related to access to technology is a serious gap between online and offline residents. Secondly, there are huge usage differences between those online. Here, Greece exhibits extensive inequality between socio-demographic groups (age, gender, education, geographic location) compared with other EU member states. More specifically:

- The studies find that age is a very important factor influencing Internet take-up. The results show that young Greek users are generally savvy with digital media, with the same rates of ICT access and use as the EU-27 average. The highest share of regular Internet users is in the 16-24 age group (76,5%) with only 12% in the 55-74 age group.
- As regards gender, there is a marked contrast in regular use of the information network. Men outnumber women – 41,9 % and 26,1% correspondingly.
- Education has a considerable impact on Internet usage with percentage use increasing with the level of education: - higher education (university/college) 72,9% (technical college) 59,5%, - secondary education (senior high school) 46,5% (junior high school) 31,5%, - primary/elementary education 3,2%. Significantly greater usage is observed in individuals of higher education.
- On a regional level, the percentage of Internet use in large cities reaches 49,5% (Athens) and 46,5% (Thessaloniki) while in urban regions it stands at 30,6% with semi-urban or rural areas at 21,2%.

As with the surveys and statistical analyses on digital divides produced by governments, the IT industry and researchers the world over, the results show that digital inequality in Greece is strongly influenced by variables such as age, education level, gender and geographic location. Surprisingly however, there has been no systematic study about socioeconomic status and income (Observatory for the Greek Information Society a. and d.). The official studies approach the problem mainly in demographic terms, neglecting the socioeconomic aspects of digital inequality. In addition, stud-

ies don't raise questions about access to and use of the Internet between different ethnic groups. As a result, drawing our attention away from economic disadvantages, the concept of digital divides has been naturalized providing a poor framework for social analysis.

Why is it that the elderly, those with a lower education level, a large proportion of women and residents of rural areas are more or less excluded from cyberspace and the benefits it can bring? While this lack of Internet access reflects well-established traditional forms of social inequality, when the official reports attempt to identify the causal factors for the gap between information haves and have-nots within the country, the question is treated merely as a developmental gap -as already mentioned previously- or as a voluntary divide. More specifically, instead of addressing the issue as a problem of digital exclusion, the official research refers to "low Internet adoption" within the country. In this regard, the reports claim that it is an expression of people's unwillingness to use the Internet due to the negative attitudes towards technology or lack of digital skills (Observatory for the Greek Information Society c.). No consideration is given to the socioeconomic and cultural reasons for this "lack of interest" and the issue of digital exclusion is reduced to a matter of choice rather than seen as connected to wider contexts.

As far as digital inclusion is concerned, although a significant number of Greeks (44%) have Internet access (whether a personal connection or not), the figures show that ICT skill levels and frequency of Internet use are among the lowest in Europe, deepening the overall divide even further. Nonetheless, the issue of digital inequality among those online remains an unexplored area of inquiry in Greece. The data is still scarce and superficial and there is urgent need for further research.

Firstly, while official research connects aspects such as time spent online, location, use of the Internet for various purposes (e.g., sending and receiving emails, looking up information, using online services, getting news, downloading music) with socio-demographic groups, the relationship between Internet know-how, diversity of usage, socioeconomic status and ethnicity is not examined. Moreover, the clear-cut differences in usage and skills along the lines of age, level of education, gender and geography are not explained: How and why do different groups have different levels of skills and use? Thus the unequal ways that the Internet is used are taken for granted rather than gaining significance as a socioeconomic problem.

Secondly, this body of work does not provide a nuanced analysis of the differentiated uses and skills in the area of digital inclusion. In particular,

it doesn't raise questions about divisions within the categories of women, men or young users, nor about the multiple variations in people's ability to find content online. For example, although the Internet is strongly associated with youth, often referred to as "digital natives" (Prensky, 2001) or the "Net generation" (Tapscott, 1998), treating youth as a single group ignores the differences between those with favorable and unfavorable conditions of access and use, and emphasizes the experience of economically privileged youth (Robinson, 2009: 489-490).

Thirdly, by measuring the types and frequency of use, the official studies typically capture the quantity of Internet use but do not reveal the qualitative depth of its use. In this context, the different beliefs, attitudes, motivations, experiences and content preferences of Greek users which influence their ability to use the Internet effectively are not revealed. Furthermore, the official statistics do not combine questions of use and skills with the impact and consequences of engagement with the Internet for individuals. In fact, we still know little about how Internet use impacts the social life of individuals in Greece and about the effects of different ways of using the Internet.

Finally, any attempt to investigate the problem of digital inequalities must take into consideration online content issues such as the amount and quality of the local online information and services. Insufficient or low-quality content discourages Internet take-up. This point is illustrated by the fact that only 6% of Greeks have performed a completed transaction with the public sector and 19% have searched for information on the relevant websites whereas the online delivery of basic public services for citizens is 33% (Observatory for the Greek Information Society a.). Given that Greek Internet users recognize the benefits of electronic public services, this limited use on a daily basis can only be explained by giving attention to factors of functionality, "high or low-graphics", user-friendliness and interactivity of the web sites.

4. CONCLUSION

It is evident from this brief analysis that Greece faces different types of clear-cut digital divides: on the European level the wide gap in terms of access, usage and skills between Greece and the majority of other member countries, and on a national level the age, gender, educational and regional divide. As the terrain of exploring the relationship between ICTs and inequality is generally based on official statistics, the issue of Greek digital

divides has not yet gained significance as a social problem. More specifically, three closely linked ways are delineated, showing how an asocial approach is deployed in the official body of otherwise valuable work. Firstly, this approach directs our attention away from the economic, sociopolitical and cultural characteristics of Greece. Secondly, it fails to appreciate the socio-economic aspects of digital inequalities. Finally, it masks both the multifaceted, complex nature and the qualitative depth of the problem. As a result, the Greek case of digital divides is reduced to its technological aspects and, as a social phenomenon, it remains unanswered and unexplored and needs to be taken one step further.

REFERENCES

- Alexopoulos, G., Koutsouris A., Tzouramani I., 2010, "Adoption and use of ICTs among rural youth: Evidence from Greece", *International Journal of ICT and Human Development*, 2 (3): 1-18.
- Bauman Z., 1998, *Globalization. The Human Consequences*, Cambridge, Polity Press.
- Carvin A., 2000, "More than just access", *Educause*, Nov./Dec., pp. 38-47.
- Castells M., 2000, *End of Millennium* (2end ed), Oxford, Blackwell.
- van Dijk J. & Hacker K., 2000, "The digital divide as a complex and dynamic phenomenon". Paper presented at the 50th Annual Conference of the International Communication, Acapulco, 1-5 June. [http://www.google.gr/url?sa=t&source=web&cd=2&ved=0CCEQFjAB&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.98.2068%26rep%3Drep1%26type%3Dpdf&rct=j&q=van%20Dijk%20J.%20%26%20Hacker%20K.%20\(2000\)&ei=ke62TfysOsusOp-8vIkP&usg=AFQjCNHonTmGgPRR025fEKxfGdvrLN95g&sig2=O8T1bqIbHNL2ZDBBobiwBg](http://www.google.gr/url?sa=t&source=web&cd=2&ved=0CCEQFjAB&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.98.2068%26rep%3Drep1%26type%3Dpdf&rct=j&q=van%20Dijk%20J.%20%26%20Hacker%20K.%20(2000)&ei=ke62TfysOsusOp-8vIkP&usg=AFQjCNHonTmGgPRR025fEKxfGdvrLN95g&sig2=O8T1bqIbHNL2ZDBBobiwBg)
- van Dijk J., 2005, *The Deepening Divide: Inequality in the Information Society*, Thousand Oaks, CA, Sage Publications.
- van Dijk J., 2006, *The Network Society. Social Aspects of New Media*, (2end ed), Sage, London.
- DiMaggio P. and E. Hargittai, 2001, "From the 'digital divide' to 'digital inequality': Studying Internet use as penetration increases" (Working paper 15). Princeton, NJ: Center for Arts and Cultural Policy Studies, Woodrow Wilson School, Princeton University. <http://www.princeton.edu/~artspol/workpap/WP15%20-%20DiMaggio%2BHargittai.pdf>
- DiMaggio, P., Hargittai E., Celeste C., Shafer S., 2004, "Digital Inequality: From Unequal Access to Differentiated Use", in K. Neckerman (ed.) *Social Inequality*, New York, Russell Sage Foundation, pp. 355-400.
- Europe's Digital Competitiveness Report a. Volume 2: i2010 — ICT Country Profiles, Brussels 2009. http://ec.europa.eu/information_society/europe/i2010/docs/annual_report/2009/sec_2009_1104.pdf
- Europe's Digital Competitiveness Report b. Volume 1: i2010 — Annual Information Society Report 2009 Benchmarking i2010: Trends and main achievements, Brussels. http://ec.europa.eu/information_society/europe/i2010/docs/annual_report/2009/sec_2009_1103.pdf
- Foteinou G., 2010, "e-Exclusion and the Gender Digital Divide", *SIGCAS Computers and Society*, 40 (2): 50-61.

- Hargittai E., 2008, "The digital reproduction of inequality", in D. Grusky (ed.), *Social Stratification*, Boulder, CO, Westview Press, pp. 936-944.
- Koutsouris A., 2010, "The emergence of the intra-rural digital divide: A critical review of the adoption of ICTs in rural areas and the farming community", *9th European IFSA Symposium*, 4-7 July, Vienna (Austria), pp. 23-31.
- Milner H., 2006, "The digital divide: The role of political institutions in technology diffusion", *Comparative Political Studies*, 39: 176-199.
- Norris P., 2001, *Digital Divide*, Cambridge, Cambridge University Press.
- Observatory for the Greek Information Society a. Measurement of eEurope/i2010. Indicators for Greece -2008 Findings. <http://www.observatory.gr/files/meletes/Booklet%20eEurope%202008%20en.pdf>
- Observatory for the Greek Information Society b. Measuring the i2010 indicators study. Press release (in Greek). http://www.observatory.gr/files/press_releases/090401_DT_i2010.pdf
- Observatory for the Greek Information Society c. Digital inclusion and digital literacy in Greece. Press release (in Greek). http://www.observatory.gr/files/press_releases/E-INCL_PR151209_%CE%94%CE%B9%CE%B1%CE%B4%CE%B9%CE%BA%CF%84%CF%85%CE%B1%CE%BA%CF%8C%CF%82%20%CE%91%CE%BB%CF%86%CE%B1%CE%B2%CE%B7%CF%84%CE%B9%CF%83%CE%BC%CF%8C%CF%82.pdf
- Observatory for the Greek Information Society d. Digital inclusion. Measuring digital divide (in Greek). http://www.observatory.gr/files/meletes/INCL_A0907XX_TX_%CE%97%CE%BB.%20%CE%95%CE%BD%CF%83%CF%89%CE%BC%CE%AC%CF%84%CF%89%CF%83%CE%B7%20%CE%BA%CE%B1%CE%B9%20%CE%9C%CE%AD%CF%84%CF%81%CE%B7%CF%83%CE%B7.pdf
- Papanikolaou A., 2009, "The Greek telecommunications regulator prohibits the incumbent's 'Double-Play' bundled offering of unlimited international calls taking into account a risk of a margin squeeze of its competitors (OTE)", *e-Competitions* (EU Competition Laws e-bulletin), N 26136, May 2009-I.
- Prensky M., 2001, "Digital natives, digital immigrants", *On the Horizon*, 9: 1-6.
- Robinson L., 2009, "A taste for the necessary. A Bourdieuan approach to digital inequality", *Information, Communication & Society*, 12: 4, 488-507.
- Selwyn N., 2004, "Reconsidering political and popular understandings of the digital divide", *New Media & Society*, 6: 341-362.
- Stiakakis, E., Kariotellis P. and Vlachopoulou M., 2010m "From the digital divide to digital inequality: A secondary research in the European Union", in A. B. Sideris and Ch. Z. Patrikakis (eds), *e-Democracy 2009*, LNICST 26, pp. 43-54.
- Tapscott D., 1998, *Growing Up Digital: The Rise of the Net Generations*. New York, McGraw Hill.
- Tsatsou P., 2008, "Digital divides and the role of policy regulation: A qualitative study", *Social Dimensions of Information and Communication Technology Policy*, *IFIP International Federation for Information Processing*, 282: 141-160.
- Warschauer M., 2002, "Reconceptualizing the Digital Divide", *First Monday*, 7 (7): July.
- Warschauer M., 2003, "Dissecting the 'digital divide': A case study in Egypt", *The Information Society*, 19: 297-304.
- Wilson E. J., 2004, *The Information Revolution and Developing Countries*, Cambridge, MA: MIT Press.