

Teachers' Views on the Digital Divide in Greece: A Qualitative Approach

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Abstract

The purpose of this study is to investigate teachers' views on the digital divide and its implications in the field of Primary education in Greece. The research questions were related to the conceptualization of the digital divide by teachers, its consequences and the role of teachers. A total of 22 elementary school teachers were selected out of which 8 were male and 14 were female. The semi-structured interview was used as a research tool and an interview guide was developed that had four themes. The first theme concerned teachers' conceptualizations on the digital divide, the second theme was related to the use of ICT in education, The third theme was about the consequences of the digital divide and the fourth theme included questions about how to deal with the digital divide. The results conclude that the teachers: a) signify the digital divide in a comprehensible way, distinguishing its forms, the factors that influence it, and their implications in their daily social life and educational practice, b) refer to the social inequalities being created in the social environment and c) education policy in Greece is often not supportive of teachers' work.

Keywords: teachers, digital divide, qualitative approach, Greece

1. Introduction

ICTs have shaped a new social reality in recent years. The rapid development of technology, especially after the 1960s, has made a decisive contribution to the creation of a flexible and dynamically changing social environment (McGrew, 2010). Rapid technological change, however, does not integrate all groups of the society at the same pace, bringing out new forms of social discrimination (Cuervo & Menendez, 2006; Dasgupta et al., 2001; Papadopoulos & Dagdilelis, 2009). Access to and use of ICT or digital illiteracy (Tzimogiannis & Gravani, 2008) and the resulting difficulties and struggles arising in the interaction of social subjects create a new form of inequality (Di Maggio et al., 2001; Lytras, 2000).

The concept of the digital divide and its content derives from this ‘digital inequality’, which relates to the accessibility of ICTs and the use of the information they provide (Friemel, 2016; Hargittai, 2018; Shampa, 2010). Theoretical approaches generally cite a digital divide as “[...] *the gap (gap) between individuals, households, businesses and geographical areas of different socio-economic levels regarding their opportunity to access information and communication technologies (ICT) and Internet use for a wide variety of activities [...]*” (OECD, 2001: 5).

According to the Digital Access Development and Promotion Research Institute (2007), the digital divide is about unequal access to new technologies and the knowledge and proper use of that access. Differences between users who access and use new technologies are directly linked to their social, economic and demographic characteristics, making the digital divide a complex social phenomenon (Castells, 2001; Hargittai & Hinnant, 2008). In their research van Deursen & van Dijk (2013) find out about the new kind of social inequality resulting from the digital divide, as Castells (2001) describes it, that when the Internet reaches high levels of development and necessary daily use, that will “*increasingly reflect the well-known social, economic and cultural relationships of the offline world, including inequalities*” (van Deursen & van Dijk, 2013: 507).

Several models have been developed for measuring the digital divide based on personal, geographical, social, educational, etc. criteria (Coward et al., 2008; Koundzeris, 2008). In general, the components considered for measuring the digital divide relate to: a) how often the Internet is used, b) whether the countries and regions in each country have broadband coverage, and c) whether citizens have cultivated their digital skills (Koundzeris & Konstantatos 2009: 4). Indeed, according to the latest metrics based on the DESI - Digital Economy and Society Index, connectivity has improved in Europe. However, it is not enough to meet future needs, and even though Europeans are becoming more and more digitally up-to-date and the number of digital experts is increasing, there is a lack of digital skills (European Commission, 2017. European Court of Auditors, 2018).

2. Digital Divide Forms

Theoretical discussion and research into the dimensions of the digital divide reveal that a new social hierarchy is being formed on the basis of access to information already in school years

and, furthermore, in the opportunities to use this access. It reflects a variety of differences between and within countries (developed and Third World countries), differences within and between societies regarding access to digital media, and their accessibility (Parsons & Hick 2008).

A comprehensive approach to the digital divide worldwide is achieved by Ragnedda & Muschert (2013) by analyzing international disparities in Internet use and access. Their study explores how unequal access and use of new technologies can reproduce social inequalities. In particular, they examine how demographic and socioeconomic factors, such as income, education, age, gender, infrastructure, products and services, influence the way that Internet users in developed countries and regions use and access the Internet (China, Brazil, Eastern Europe, Arab states, etc.), but also in areas not studied (Latin America, Sub-Saharan Africa, etc.). It is, therefore, found that alongside social stratification there is a digital stratification, which at an educational level exacerbates educational inequalities and can lead to social exclusion.

Subramony (2007), using data from an ethnographic case study conducted in 2003-2004 in an Alaska Iñupiat Eskimo group, highlights the complexity of the social problem of ICT accessibility and the issue of digital literacy support. According to Subramony (2007: 57), the scientific debate focuses on the necessity of changing the “[...] *nature of human relationship with technology (from the position of the consumer to the position of the producer of technology), but also in the culture of technology itself*”.

In general, from the multitude of surveys and studies on the digital divide it can be summarized that: (a) this is usually examined at the personal (cultural, economic, social factor), geographical and operational level, b) whereas it can be distinguished on a global (between developed and developing countries) geographical (urban concentration or remote region), social (social class, economic status, gender, age, educational level, disability) and democratic (depending on access to the public and the right to political and social engagement of the individual) (Research Institute for the Development and Promotion of Digital Access, 2007).

Regarding the consequences of the lack of digital convergence at the individual, business and geographical levels, it is noted that they mainly concern social and economic exclusion, especially for socially vulnerable groups of the population, affecting social cohesion and well-being at local, national and international level (Koundzeris & Konstantatos, 2009).

3. Digital Divide and Education. The Role of the Teacher

Education as a secondary socializing factor plays an important role in maintaining social cohesion and alleviating social inequalities or the emergence of social exclusion (Bourdieu & Passeron, 2014). Schools, with the integration of ICTs, have the potential to create new accessibility opportunities for knowledge of vulnerable social groups and to alleviate educational and long-term social inequalities (Fearn, 2008; Harris, 2015; Kyridis, 2015). The effective integration of ICT in education is examined at three levels: at the teacher, school and education policy levels.

The role of the teacher is changing. The teacher is called upon to transform his knowledge and skills, to master information literacy (Bikos, 1989) in order to enhance the teaching practice, but also to respond to the increasing and changing needs of the young social subjects (Elliot, 1977). Depending on the teaching practices they use, they must make good use of the new technologies in PC labs and provide cognitive challenges by raising students' interest with active learning experiences. Research finds out that most teachers often use traditional means of teaching and less than half choose ICT (Lupu et al., 2015). At the same time, the more positive the attitude of teachers towards ICT and their appreciation for the role of technology in teaching and learning is, the more they are integrated into the teaching practice (Mama & Hennessy, 2013).

It is important to note here that the introduction of ICT into education, the functioning of the teacher in the teaching practice, as well as that of the school context depend, in general, on education policy, as reflected in public discourse (global, national) and applied school field (Gravanis & Papadakis, 2005). Education policy exerts "symbolic violence" on teachers, but also directs the goals of the school towards an ideologically applied teaching practice (Althusser, 1971; Bourdieu, 1977; Panagiotopoulos, 2004). In this context, in-service training (Koutras et al., 2001) and the creation of 'digital' culture in teachers are considered to be the determinants (Makrakis, 2000).

The purpose of this study is to investigate teachers' views on the digital divide and its implications in the field of Primary / Secondary education in Greece. The research questions were related to the conceptualization of the digital divide by teachers, its consequences and the role of teachers.

4. Method

The qualitative method was used in the present study. Qualitative research aims at exploring and understanding the meanings and representations that the research subjects give to social phenomena and processes. The application of each methodology is a function of factors such as the subject, the choices of the researcher, etc. (Iosifides, 2008: 21-22)

4.1 Participants

The purposive sampling method was applied to select the participants. In this method, observation units are selected from a population, not randomly, but in terms of specific criteria. In the present study, the focus is on selecting people with and without sufficient knowledge of new technologies to investigate the differences between these two groups. Although the representativeness of the population is not guaranteed, this method is particularly useful for controlling different characteristic cases, considered necessary for conducting qualitative research, and the particular characteristics that are expected to emerge (Tsiolis, 2014). A total of 22 elementary school teachers were selected out of which 8 were male and 14 were female. The age of the participants ranged from 25 to 55 years.

4.2 Research Tool

Semi-structured interviews were used as a research tool. An interview guide with four themes

was developed. The first theme concerned teachers' conceptualizations on the digital divide. Indicative questions were: "What does the digital divide mean to you?", "Can you tell us an example of the digital divide through your school experience?", "What are the causes of the digital divide?", "How do you interpret the creation of the digital divide?" The second theme was related to the use of ICT in education. Indicative questions were: "What do you think about the use of new technologies in education?", "What makes it difficult for you to use new technologies in school?" The third theme was about the consequences of the digital divide. Indicative questions were: "What do you think the effects of the digital divide are on your daily life outside of school?", "What do you think the effects of the digital divide are on your work?", "Who is most affected by the digital divide in school?" The fourth theme included questions about how to deal with the digital divide. Indicative questions were: "In your opinion, what can you do to address the digital divide?", "In your opinion, what can the school do to address the digital divide?"

5. Findings

5.1 Conceptualizing the Digital Divide

Research participants defined digital divide as a differentiation between individuals or groups that possess new technologies and use them in their daily practice, in relation to individuals or groups that are digitally illiterate or have little contact with the new technologies. Specifically, they referred to: "...teachers who may not be familiar with ICT and those who are familiar with and benefit from their use (I2)". "Generally, it refers to people who use new technologies to do their jobs, from simple to complex, and to those who do not use them and find it difficult (P3)"

Interviewees identified a number of factors that may make it difficult for teachers to interact with new technologies such as age, years in the education sector, social class, educational attainment and access to digital resources. Specifically, they cite age and years of educational service as a matter of differentiation in the skills that teachers have and can use in teaching: "The difference between the new and older teachers who are not able to make use of the new technologies and also ... it is the difference between a teacher who has the ability to use the new technologies in their school and someone who has the knowledge, but does not have the means (P5)".

In addition, the social class and educational capital appear to play an important role in creating the digital divide. Families with a high financial and educational level can create digital literacy conditions for their members in relation to families who experience adverse conditions in their daily practice. Specifically, as participant S6 states: "Well-off families who have access to computers or other media have built better relationships with new technologies, while some families who primarily struggle for their livelihoods don't have much access or convenience. to treat computers ". Interviewees' access to digital resources was also mentioned as an important factor. Remote areas with problems in ICT logistics infrastructure do not facilitate the conditions for effective teaching: "... there may not even be any Internet and Wi-Fi connection, and in cases where connection is feasible, the right conditions and infrastructure are not available (S1)".

As far as the forms of the digital divide are concerned, educators recognize the existence of the global divide, both as a gap between countries and as an intra-social gap. *“The digital divide perceives it as the full potential of a state / individual / teacher to access and use new technologies (S4).”*

5.2 Consequences of the Digital Divide

The consequences of the digital divide, reported by our research teachers, are related to the daily practices of individuals experiencing and associated with feelings of marginalization and stigma. O2 said: *“In my daily life ... I think it has influenced me more in the field of communication. As some of my friends do not have any of the applications I have or they do not have the knowledge to use them so we can communicate online.”*

Vulnerable groups, such as the poor, the unemployed and the elderly, are facing the consequences of the digital divide: *“I think that the low socio-economic groups and the groups with some disabilities, the people with disabilities are more affected”*, *“In an information society, inequalities ... are exacerbated, resulting in their being further marginalized and the digital divide widening”*. *“Pupils from poor families cannot keep up with other pupils who know how to use new technologies”*

At the same time, the digital divide shapes the conditions of the teaching practice in relation to the methodology and strategies that a teacher will follow in their day-to-day life. The digital divide also has implications in the classroom climate and access to educational and informational material. The educational task becomes difficult in both an instructive and communicative respect. S2 argued: *“Being unable to use ICT makes it difficult for children to understand the lesson better. Whatever curriculum we undertake, we need to have a computer background as well, as it is necessary to deliver some material in electronic form. Therefore, the teacher who does not have the required knowledge is a burden to other group members.”* S1 emphasized: *“Of course students who have a technology non-cognizant teacher are negatively affected”*. *“Kids are more affected ... the stimuli that their teachers might give them may be less.”* There are also difficulties in teachers' interpersonal relationships. Many times relationships result in conflict because the burden for some teachers who possess skills in new technologies is exaggerated, while there are some who develop inferiority feelings. S9 states: *“Along with a colleague we decided to cooperate and communicate with schools abroad and in Greece. The problem was when another colleague who didn't know how to handle new technologies left it all up to me.”* S7 argued: Most educators, who are not related to the subject and see young people deal with it, hold this view *“let them deal with this part and let them have some predetermined duties, with a few exceptions.”* *“Technologically knowledgeable teachers undertake more activities than others who develop negative or inferiority feelings due to their burdening their colleagues.”*

5.3 The Role of the Teacher

The role of the teacher changes because of the connection of new technologies with education and concerns both issues of different approaches to teaching and the shift of their teaching strategy, since they are inevitably no longer the authority and the only source of knowledge,

but rather have a role as a mediator and leader for the students. The majority of respondents point out that any changes in the role of the teacher due to the integration of new technologies into education are inevitable; yet they cannot replace that role. Three of the respondents were particularly concerned that the future would be deteriorating and that new technologies could replace the teacher. S2: *“The human being must always be the master. The machine is and should remain a tool. If we give the machine a dominant role then the game is lost.”*, S1: *“I read various articles on the Internet and some of them stated that in twenty years the teachers may not exist and the lesson will be done from home like an e-lesson. Well, I think that won't happen because we first learn with contact.”* S3: *“... a dystopian future in which robots exist ... if this happens they will cease to be tools and assume a dominant role ...”*

6. Discussion

The digital divide relates to the accessibility of ICTs and the use of the information they provide (OECD, 2001), shaping a post-modern era of "digital inequalities" in a dynamically changing field (McGrew, 2010). This is also supported by the interviewees of the present work defining it as a differentiation between individuals or groups that possess new technology skills in their daily practice, compared to individuals or groups who are digitally illiterate or have little contact with new technologies.

The awareness of the digital divide is a consequence of everyday life experience and the difficulties that the individual is going through in an environment that is filled with ICT. Teachers interact with the cultural tools and symbols of the information society and through their interaction with them they conceptualize and interpret their natural and social environment and their intra-individuality. ICTs as cultural tools encompass the crystallized social representation of the postmodern era's historicity and at the same time determine the possibility of social entities to interact with them (Hutchins, 1995).

Through this interaction a new social reality is formed and new forms of social inequality and social discrimination emerge (Bauman, 2008; Hargittai & Hinnant, 2008; Hargittai, 2018; van Deursen & van Dijk, 2013). Inequalities are not limited by space and time, but are rather shaped and established in a globalized environment, where the dynamic interactions between the elements that make it up “liquidate” the objective social reality of older years (Bauman, 2008; Giddens, 2002). The teachers participating in this research distinguish the existence of the global divide, the divide between countries, and the intra-social as forms of the digital divide.

At the same time, teachers emphasize factors such as years of education, social class and educational attainment, as well as access to digital resources, as important mediators in highlighting these social inequalities and discrimination. These factors are also found in other studies (Ragnedda & Muschert, 2014). In this respect, the family decisively contributes to the transfer of its cultural and economic capital and the perpetuation of social differences (Bourdieu, 1997; Panagiotopoulos, 2004). Class differences are no longer reflected only in the market level and the integration of individuals into it, but also in information management and new digital tools (Shampa, 2010; Vekiri, 2010), which give new options to individuals' social mobility.

The individual experience this social discrimination in their daily practice and, as reported by the interviewees, non-literate informants express feelings of being marginalized and stigmatized. The educational task becomes difficult in the instructive and communicative sector. New cultural tools alienate people's communication gradually (Castells, 2010), and difficulties also arise in teachers' interpersonal relationships. Oftentimes, conflicting relationships emerge, as the burden on some technology savvy teachers is excessive, while some others feel inferior.

Teachers' digital literacy is used as a tool for meaningful understanding and categorization of their position at the micro level of the school unit. The ever-expanding digital environment of educational reality increasingly determines teachers' choices and, at the same time, it shapes new perceptions of the educational reality and their place within it, formulating a different culture (Subramony, 2007). The social representation of the importance of ICT predominates in the teachers' interpretations above and feelings of inferiority and depreciation reflect individual and social meanings.

At the same time, according to the teachers - participants in this research, the digital divide shapes the conditions of teaching practice in relation to the methodology and strategies that a teacher will follow in their day-to-day life, resulting in implications in the classroom climate and access to educational and informational material (Bikos, 1989; Elliot, 1977; Lupu et al., 2015; Mama & Hennessy, 2013). It is also evident that the education policy in Greece does not provide the appropriate logistical infrastructure for the utilization of new technologies.

Thus, the role of the teacher is important because it shapes the students' interaction with each other, as well as with the educational material itself. The teachers' digital diversity versus the flexible and dynamic footprint of new technologies shapes different areas of educational action that make it difficult to predict their social consequences. The teacher's authority has been abolished and the teacher assumes the role of mediator and guide for students in the new digital educational reality (Amin, 2016; Freire, 1977; Kosnik et al., 2016).

The majority of respondents point out that changes to the role of teachers, due to the integration of new technologies into education, are inevitable, but they cannot replace their role despite the poor predictions of a few of them. In many researches, teachers' attitude towards the integration of new technologies into education has a certain ambiguity, which is most often related to inadequate teacher education and the fear caused by the integration of new technologies into education (Guha, 2000; Gulbahar & Guven, 2008; Pelgrum, 2001; Slaouti & Barton, 2007; Tzimogiannis & Komis, 2006).

In conclusion, the teachers participating in this research signify the digital divide in a comprehensible way, distinguishing its forms, the factors that influence it, and their implications in their daily social life and educational practice. Teachers refer to the social inequalities being created in the social environment and shaped by the use of new cultural tools, such as ICT. They emphasize the differences generated by their use and their importance for teaching and learning along with the necessity for students to be integrated into a society dominated by digital information use and management. The education policy in Greece is often not supportive of teachers' work. Difficulties, such as logistical infrastructure

and inadequate ICT teacher training, exacerbate problems and social inequalities in the educational context. It is necessary for the Greek education to develop those structural changes in its daily practice in order to recognize the individuals' digital diversity, but also to be supportive both logistically and through training and lifelong learning processes, as an essential apparatus for activating social mobility of new social subjects and alleviating social inequalities.

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