Qualitative Methods Research Through the Internet Applications and Services: The Contribution of Audiovisual Media Technology as Technology-Enhanced Research

Constantinos Nicolaou[1]

[1] Laboratory of Electronic Media, School of Journalism and Mass Communications, Faculty of Economic and Political Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

Correspondence: Constantinos Nicolaou, Laboratory of Electronic Media, School of Journalism and Mass Communications, Faculty of Economic and Political Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece. E-mail: nicolaouc@jour.auth.gr

Received: March 16, 2021 Accepted: April 9, 2021 Online Published: April 21, 2021

doi:10.5430/irhe.v6n1p1 URL: https://doi.org/10.5430/irhe.v6n1p1

Abstract

This article discusses traditional methods and techniques of methodological qualitative research using the Internet applications and services as technology-enhanced research. The rapid developments of technology have reformed the methodology of qualitative research with new trends and perspectives of research methods, which are now carried out from and through the Internet (e.g., audiovisual methods from and through audiovisual media technology). The Internet is now a huge research challenge for researchers as an opportunity for action (such as the philosophy and the methodology of action research). Through extensive and rich literature, an attempt is made to understand the whole subject in relation to audiovisual media technology, which requires many new skills and abilities. The main purpose of this article is to become an important guide, but also a list of (new) methods for conducting a qualitative research, while its bibliography can be used as a source for further study.

Keywords: qualitative research methods, online research, technology-enhanced research, internet, audiovisual media technology, ICTs, research

1. Introduction

We live in a world where development in many fields is controlled by both interest and trust. Many sciences use this realization in order to find ways which will allow further improvement or/and change to take place. Nowadays, when everything is extremely visualized, the future of numerous science and research fields lies upon the use of information and communications technologies (ICTs). A type of research is Online/Internet research (Internet research from here on) through the Internet applications and services, those provide an interesting and creative way of action for researchers while, in the same time, offer the opportunity of direct involvement in the process. The web constitutes a huge research challenge, mainly for the reason that it is constantly changing. Moreover, using the Internet in combination with modern visualized technology (e.g., audiovisual media technology) (Nicolaou et al., 2019), we can succeed in using new innovative methods on qualitative research methods, both on a personal and professional (including educational, research, etc.) level, but also in recording history.

The Internet, which is the backbone of information, is a global communication system which changes the way we live our everyday lives, the way we work, communicate and entertain our-selves, with a vast number of technological innovations and new applications and services ranging from electronic mail or e-mailing (email from here on) (online services) (Veglis, 2018) to browsers (e.g., Google Chrome, Firefox, Microsoft Edge, etc.) (software application) and search engines (e.g., Google, Bing, Yahoo!, etc.) (software system) (see also Giomelakis et al., 2019; Sarridis & Nicolaou, 2015; Nicolaou, 2011). It is a global network which is independent from where you live, and a place where one can have access to multiple things (Nicolaou, 2011). It is feasible to express your views relevant to other sources of communication, resulting in the formation of new cultures and thus the formation of new societies.

The current society in which we live in is highly visualized, and requires, in addition to the continued use of visual media, to be receptive and maintain a positive outlook to every emerging innovation. The rapid development of technology, and the expansion of digital technology, has led to the redistribution and reintegration of traditional

qualitative research methods in social research (Hunsinger et al., 2020; Hew et al., 2019; Law, 2009, 2004a; Law & Hetherington, 2002), after the appearance of new (digital/electronic/online) methods by amateurs, non-experts and users of technology, as well as the rebirth of social research (Marres, 2012; Savage & Burrows, 2007). In an effort to describe the Social Sciences in recent decades the (new) digital social reality with clarity and precision (Beer & Burrows, 2007; Burrows & Savvage, 2014; Law & Ruppert, 2013; Law et al., 2011), always based on moral (Buchanan, 2012; Cavanaugh, 1999; Eysenback & Till, 2001; Frankel & Siang, 1999; Hewson, 2016; Lomborg, 2012; McKee & DeVoss, 2007; Mann & Stewert, 2000; Papanis, 2011; Waskul & Douglass, 1996) and scientific interpretations (Lautour & Woolgar, 1986), scientists orient towards original (Estalella, 2016) and new methods and techniques (Law, 2004b, 2009), such as audiovisual or/and virtual or/and digital methods (audiovisual methods from here on) with multiple or even combinations of methods from and through the Internet, while participating in them to create new methods (Hine, 2005; de Roock et al. 2016; Rogers, 2009) and providing technology-enhanced research (Cox, 2007).

In summary, in the field of Human Sciences, the Internet constitutes a huge research challenge, while for researchers as an opportunity for action (Panos, 2008). Internet research is (a) a highly creative opportunity for the researcher, as it allows him to move in a space that is practically constantly under reconfiguration; as well as (b) a process with a high degree of personal involvement for the researcher and, at the same time, for the Internet itself (Mann & Stewart, 2000; Cho & LaRose, 1999; Jones, 1999; Giese, 1998). The increasing use of technology, and in particular Internet applications and services, in the context of a research in recent decades (Blank et al., 2019; Lee & Fielding, 1996; Meimaris, 1996; Weitzman & Miles, 1995; Dimara et al., 1994), becomes the most important factor for its successful implementation. Although all this is now widely known, however, the literature is still incomplete in this field.

In conclusion, this article, therefore, discusses traditional methods and techniques of methodological qualitative research using the Internet applications and services as technology-enhanced research to fill this gap. Furthermore, this article attempts to comprehend the whole subject from the point of audiovisual media technology, which requires many new skills and abilities (see Nicolaou et al., 2019; Nicolaou & Kalliris, 2020) as prerequisite skills that a researcher needs. The main goal of this article is to become an important guide, but also a list of (new) methods for qualitative research from and through the Internet, while providing a rich international bibliography through literature (from theory to practice) whilst including historical elements as a source for further study. The modern age is constantly changing and there will always be room for improvement.

2. Background

The increasing use of technology and the Internet, and in particular of the Internet applications and services, in the context of qualitative research in recent decades (Blank et al., 2019; Lee & Fielding, 1996; Weitzman & Miles, 1995; Dimara et al., 1994); are now considered the most important factor for its successful conduct and requires a new way of approach from and through the audiovisual media technology (see Nicolaou et al., 2019). The computer as an audiovisual media technology, and as an integral part/tool and backbone of Computer Science is ranked as one of the main tools for conducting a research (e.g., Social Research, Methodology of Educational Research, etc.) (see Taylor, 1980), offering solutions to various research problems at various stages (Meimaris, 1996), as well as the creation of new research methods (Adè et al., 2008; Nichols II et al., 1997; de Leeuw et al., 1995; Waterton & Duffy, 1984); such as artificial intelligence and expert systems (Feldon & Kafai 2008; Zhou et al., 2008). Its three (3) main uses in a qualitative research are for (a) data collection; (b) its communication capabilities for access to resources (e.g., databases, big data, metadata, etc.) and research collaborations (through international networks); as well as (c) the processing and analysis data (Meimaris, 1996; Lebart & Salem, 1998; Lebart, 2001). In addition, its main use as a means of research is that through the simulation of reality, the computer offers the dynamic representation of reality, where with virtual (or otherwise imaginary) and augmented reality we learn the actuality (Waterworth, 1992) and interact with the real world in ways that were not possible before (Feldon & Kafai, 2008; Kesim & Ozarslan, 2012). The golden intersection of its use as a research tool and not as a means of achieving satisfactory growth lies in the proper methodological use of the Internet applications and services in the research process from and through the Internet.

The Internet first emerged in the United States of America (USA) in the 1950s (Hauben & Hauben, 1997; Leiner et al., 2009) through the development of computers in various computer labs around the world with a common communication code (Transmission Control Protocol / Internet Protocol - TCP/IP), creating a vast network of computer systems consisting of computers and information stored on their hard drives (Kehoe, 2013). Its continuous evolution has created a global and international (super-)wide area network with a computer interface (White, 2015) for connecting traffic networks and exchanging data and information (Koumartzis & Veglis, 2014), where people use it

through computers or/and other electronic devices (e.g., see Matsiola et al., 2019; Nicolaou et al., 2021). In summary, therefore, this (super-)wide area network consists of computer networks and a network of people (Chesher, 2020; Sarridis & Nicolaou, 2015), which are summarized in the threefold hardware, software and human (Solange & Dufour, 2017). It also introduced a "network of networks" or "cyberspace", realizing the theory of packet switching (Davies, 1977) as a way of communication (Leiner et al. 2003; Kleinrock, 1961), and the theory of government (Wiener, 1948) where communication is classified along with control (Majumder, 1979; Ashby, 1956). Thus, through the communication, retrieval and publication of information (Newby et al., 2019), there is an ever-evolving culture of people, machines and everyday stories (Gauntlett, 2004), based on archetypal norms (Booker, 2004; Lule, 2001; Parker, 2006; Phillips, 2007). Nowadays, when it comes to how the Internet is viewed by the general public (Cohen, 2007; Kitchin, 2007; Eysenbach & Till, 2001), they refer mostly to the visible and not to the invisible part of the Internet, and especially to the World Wide Web (also word-wide web or WorldWideWeb or WWW or web) (WWW from here on) (Kaye & Medoff, 1999), which was developed by Tim Berners-Lee (father of the WWW) and a team of scientists in 1990, creating hypertext technology (Berners-Lee, 1999).

In conclusion, computers and the Internet have and will always have a major role in many fields of qualitative research, since they have created a new, modernized and universal world. Furthermore, they require proper, open-minded and ethical use, since they have the potential to be used as a weapon with devastating results, if found on the wrong hands. The use of computers in the qualitative method fits into the modern and technological lifestyle, and is also considered a natural and relatively accurate way of communication (Burns, 2010; Fritz & Vandermause, 2018); however, this depends on each individual's capabilities and on the willingness to use them effectively. Great effort, training, time and patience are necessary because actual results are not instant. The modern way of life we are experiencing imposes an attitude of acceptance of innovations on us, as a result of living in a world which is constantly developing and in which there is always room for improvement, given that there is positive thinking and acceptance. Knowledge is used and adjusted to a technological environment, making vital changes in every section of human activity as well as qualitative research.

3. Qualitative Research and Research From and Through the Internet

Research is an imperative tool for self-examination and self-improvement. It comes in many forms of application and methodology, which verifies the acceptable but also detects mistakes, such as qualitative research (see also Merriam, 1998; Maxwell, 1998; Cohen et al., 2017). The purpose of qualitative research is to understand the social phenomena (Cohen et al., 2017; Kvale, 1996; Eisner, 1991; Lincoln & Guda, 1985) while aims at describing, analyzing, interpreting, as well as understanding situations and characteristics of social groups by mainly answering how and why (Cohen et al., 2017; Hammarberg et al., 2016; Yilmaz, 2013). The quality of information depends on the quality of where the information was derived from the quality of accounting and analysis of evidence (Peshkin, 1985), in combination with research validity and reliability (Eisner, 1991; Geertz, 1973). The determination and definition of research validity is based on the relativity and relevance of the research ambitions, cases and questions, in relation with the results of the research, while the term reliability depends on the consistency of the research, and also to what extent the results of the research are important as well as if they can be applied more broadly (Elliott & Adelman, 1974; Somekh, 1983; Bassey, 1986; Elliott, 1991).

The sources of the research are available as primary sources and secondary sources where the validity and reliability are insured through external and internal criticism of the evidence (Cohen et al., 2017). The primary sources are data that already exist, can be examined personally and the importance of this information and facts are essential in executing any type of research and detecting the problem, while the secondary sources on the other, is information given by people who were not eyewitness to the facts, objects and situations referred to in the research (Cohen et al., 2017; Chism et al., 2008; Given, 2008; Flick et al., 2004).

The Internet in the area of Human Science, results in a huge research challenges, furnishes a completely new area of research of human behavior and it refers to a specific communication ground. More specifically, the Internet constitutes a huge research challenge as a research tool which can simultaneously consist of the context intra the evolving research, and also a side factor and subject (Papanis, 2011; Panos, 2008). In each occasion, qualitative research from and through the Internet (i.e., Internet research) is a procedure with a great amount of personal interference of the researcher which is prepared with the assistance of two (2) technical strategies: (a) the continuously increasing analytical vigilance, which aims to protect the researcher from possible absorption from the field; and (b) concentration in-depth of analysis in which intention is to build with a prudent way the collection and analysis of research data (Barus-Michel, 1986; Costigan, 1991; Gaiser, 1997; Stewart et al., 1998; Panos, 2008; Papanis, 2011). In summary, Internet research is a highly creative opportunity for the researcher, as it allows him/her to move in a space

that is practically constantly under reconfiguration (Giese, 1998; Papanis, 2011). Furthermore, is also a process with a high degree of personal involvement for the researcher and at the same time it is research for the medium itself - the Internet (Mann & Stewart, 2000; Jones, 1999); and is part of the Action Research field (McNiff, 2017; Elliot, 1991; Ebbutt, 1985).

The method of finding information is primarily a qualitative method, which is carried out from and through the Internet. There are two (2) methods of finding information on the Internet that are being carried out, search and navigation. Search is the process by which a user utilizes search engines (e.g., Google Chrome, Firefox, Microsoft Edge, etc.) or the thematic catalogues this method is based on classical information retrieval techniques from database's, while navigation is the process by which the user pursues to follow a path between various websites (or webpages) or/and weblogs/blogs (blogs or blog from here on) - including interactive websites or/and blogs (e.g., interactive documentary / i-doc, etc.) as well as online social networks (OSNs), social media and platforms (e.g., LinkedIn, Facebook, Twitter, etc.) - utilizing different hyperlinks, which are indicators that lead to other documents, photos/images, websites or other objects on the Internet (e.g., sounds/audio medias, videos, etc.) through (a) audiovisual platforms with interactivity (e.g., YouTube, Vimeo, Netflix, etc.) as content-hosting or/and video-sharing websites which can be moved into the software as a service (SaaS) model (e.g., a video posted on YouTube to transport you to the Netflix); (b) sound platforms (e.g., Mixcloud, SoundCloud, etc.); and (c) photo/image or/and video sharing social networking service (e.g., Pinterest, Instragram, TikTok, etc.) (see Podara et al. 2021; Nicolaou & Kalliris, 2020; Nicolaou et al., 2019; Sarridis & Nicolaou, 2015; Nicolaou, 2011; Papanis, 2011; Veglis et al., 2004; Mann & Stewart, 2000; Jones, 1999).

In conclusion, when qualitative research takes place from and through the Internet, the information collected must always be evaluated (Papanis, 2011). Evaluating information is done with the help of certain criteria. These criteria are fundamental and are as follows: the source of the information, content, style and functionality. Furthermore, they should also be characterized by validity, accuracy, objectivity, timeliness and coverage (see also Hamilton, 1987; Papanis, 2011).

3.1 Methods of Finding Information on the Internet

Methods of finding information on the Internet can be applied at the stage of reviewing the literature of a study or a research as a review methodology. This process is recommended to be done by reputable recognized and trusted websites or to be done on specific websites, because a simple search engine (e.g., Google, Bing, Yahoo!, etc.) as tool is insufficient and does not offer such capabilities, unless its algorithms are specialized (Marres & Rogers, 2000; Muniesa & Tchalakov, 2012; Introna & Nissenbaum, 2000, Vaidhyanathan, 2011). One such (specialized) tool could be Google Scholar, which is a free specialized search engine and provides in a simple way a wide search in databases that is limited to professional, academic and scientific information, and is considered effective and credible (Houzanme, 2012, Wang & Howard, 2012; Cothran, 2011). Although some researchers believe that it has huge content omissions in its structure (Karlsson, 2014; Howland et al., 2009; Jacsó, 2008a, 2008b, 2005) and is unsuitable for searching information (Jacsó, 2010), suggesting specific websites databases as digital/electronic/online libraries or/and search engines (also known as bibliographic databases) (e.g., ERIC, PubMed, Scopus, Web of Science, etc.) or other websites as databases (e.g., ResearchGate.net, Academia.edu, etc.) for the search and export of information (Jacsó 2011, 2008c, 2008d), however (its structure) allows further development (Newman et al., 2007), as an analysis of the real dynamics of the network (Lazer et al., 2009). Also, these methods can be applied during the process of cross-referencing the literature in a study or research, which follows the traditional or the purely traditional tactics, in combination with research from and through the Internet. In addition, it can be used as a method or as a combination of methods in the context of a systematic review or meta-analysis of data and information, in order to draw a more complete conclusion.

3.2 Information Evaluation Method

When a qualitative research is completed from and through the Internet, the information we collect should always be evaluated, especially if it comes from invalid, unrecognized or/and unreliable websites or blogs. The evaluation of the information should be done in relation to the concepts of research validity and reliability as well as based on certain criteria, such as the source of information, the content, the style and the functionality, with the purpose of evaluating and analyzing the content (Finlay & Gough, 2003; Hamilton, 1987). These criteria are very insufficient and are the source of information, its content and its functionality (Veglis et al., 2004). The validity, accuracy, objectivity, timeliness and coverage must also be examined (Veglis et al., 2004), in order to be used when writing a research or study as documentation, alternative presentation, concurrent reports and original sources (see also Cohen et al., 2017). The process of evaluating information can be done through Website Evaluation or/and Heuristic Evaluation as techniques. Website Evaluation is performed based on the instructions and criteria for the evaluation of the information

contained (Veglis et al., 2004) within the websites themselves where the information is found and extracted. Heuristic Evaluation, on the other hand, is a method of evaluating the usability of a web site - system and is usually performed for an inspection and checking process to see if it meets known empirical (heuristic) usability rules (Molich & Nielsen, 1990), known as usability inspection (see also Nielsen & Mack, 1994; Nielsen, 1993). These methods can be applied to evaluate the various websites or blogs from which we obtain information and data to use in a research, either for review and theoretical background, or for research methodology (Papanis, 2011; Schimdt, 2007). In other words, we check the reliability and solvency of the websites or blogs we use (e.g., see Nicolaou, 2011). Also, these methods can be used as the main tool for research on various websites or blogs or on official websites with a common theme to draw conclusions through specific variables, such as the websites of the congressmen/congresswomen of a country, the official websites of public or private (mass) media, universities, companies, institutions, and so on.

3.3 Audiovisual Methods

3.3.1 Content Analysis Through Audiovisual Media Technology

The contribution of audiovisual media technology is now deemed necessary in research, most notably to help researchers. Content analysis is a qualitative research method that allows the researcher to encode content, which can take various forms (Krippendorff, 2004; Holsti, 1969; Weber, 1990) and can be done from and through audiovisual media technology; audiovisual methods (de Roock et al., 2016; Papanis, 2011).The audiovisual content analysis is applied on material from the media or from personal documents, interviews, letters, literary texts, photos/images, etc.; and are clearly related to mediums such as the Internet, videos (in this case, TV series, TV productions, TV shows, etc.) and cinema or/and documentaries (also including online/web documentaries / web-docs or i-docs) (see Podara et al. 2021; Nicolaou et al., 2019; Papanis, 2011; Silverman, 2011; Lindenmann, 1997). The main feature of this research type is that the data are collected from and through the use of visual media (e.g., digital and printed photos/images, photography, graphic design, fashion, videos, architectural structures, and fine arts). The primary reason to design visual media is to communicate a message or/and information, and they are two-dimensional materials (Newby et al., 2019). The society in which we live today is highly visualized, especially if we consider that we use visual materials daily, such as photographs in various publications (e.g., newspapers, magazines, books, etc.), posters/signs on the streets (i.e., billboards), up to graphics (Nicolaou et al., 2019; Cayley, 2017; Papanis, 2011; Lindenmann, 1997) which we encounter on various websites on the Internet through the computer's screen (King, 1996) as well as through the screen projectors, televisions, smartphones, and various other mediums or/and other electronic devices (see also Matsiola et al., 2019; Nicolaou et al., 2021). The reason is that visual materials are more efficient and allow the representation of photos/images, causing identical cognitive recognition processes, such as those we follow in the real world. In the context of the research process, visual media has the ability to increase the effectiveness of results through graphs, illustrations, charts, and more with motion, since it is mostly based on the way the message is presented, as well as on the receiver's ability to decode the messages (Nicolaou et al., 2019). In addition, visual media emphasizes concepts, increases understanding and broadens perception, giving the abstract or the virtual representation of the information referred to in the text as content or structure (Newby et al., 2019). For effective use it must meet certain requirements, such as: (a) transmit messages which are or must be unambiguous; (b) the information being transported should be clear and limited; and finally (c) to be “readable” and display the maximum degree of “virtuality” and figurativeness (Cayley, 2017; Bleed, 2005).

3.3.2 Observation Through Audiovisual Media Technology

Observation is a method of data collection and a desirable method of measurement, with direct sources of information, which helps to build the theoretical solution of a research (Cohen et al., 2017). With the same criteria, which are applied to the hitherto traditional version of the method (Denzin, 2004; Collier & Collier, 1986), it can be applied as a method in a corresponding research from and through the Internet (e.g., see Nicolaou, 2011). The online method should apply the basic principles of organization of audiovisual methods (Denzin, 2004) and the basic principles of analysis of the respective data (Collier & Collier, 1986). An example of observation through audiovisual media technology on the Internet can be considered the “activity tracking” of individuals who are members of a group on social media or/and platforms (e.g., Facebook) or in a forum, where in the academic literature they are referred to as potential communities on the Internet. Through observation in these communities, other methodologies or/and tools of recording and analysis can be applied in parallel and simultaneously, e.g., of individuals who constitute the communities through specific models, such as Hedström's model of analytical sociology (Hedström, 2005) or Wooldridge's model for intelligent entities (Wooldridge, 2009). Another example of observation through audiovisual media technology on the Internet can be considered the observation of a medium, e.g., the video/s or/and more

specifically of a TV show or TV series to record the strategies, tactics and practices that are implemented from and through the social media (Sarridis & Nicolaou, 2015).

3.3.3 Experiment Through Audiovisual Media Technology

The qualitative experimental method (previous named the comparative grouping method) is an unknown method (see Hibler & Biswas, 1992; Robinson & Mendelson, 2012), where with the rapid development of technology, and the use of Internet applications and services, it began to become widely known and come to the fore in recent years, offering and adding many values to methodological qualitative research (see Nicolaou & Kalliris, 2020; Nicolaou et al. 2021). This method does not have a modern version, like other research methods, but an advanced form. The advanced form of the method is from and through ICTs, such (a) conducting an experiment using audiovisual media technology, such as video/s (see Nicolaou & Kalliris, 2020) or/and sounds/audio medias (see Nicolaou et al., 2021), (i) as an interactive seminar or/and workshop (see also Ørngreen & Levinsen, 2017) through stimulated recall technique (see also Beers et al., 2006; Mackey & Gass, 2005); or (ii) through a focus group (see Santos et al., 2020; Strout et al., 2017) with focus group interviews (see Sparkes & Smith, 2014); (b) checking the usability of a website or blog through Heuristic Evaluation (see Nicolaou, 2011); or/and (c) as a case study (see Nicolaou et al., 2021; Barden, 2013); and finally (d) conducting a web experiments through the Internet applications and services, such as WEXTOR (http://wextor.org/) (Reips & Neuhaus, 2002) which is a web-based tool and production machine experimental production machines that help in the study and interpretation of psychological and social phenomena (see also Papanis, 2011). In summary, we should mention that the experimental method in a research is mostly used to check whether the conclusions that have emerged after an extensive or systematic review are valid or to test a hypothesis and draw some conclusions (Miller, 1975; Doby, 1967; Selltiz et al., 1959; Goode & Hall, 1952). The types and forms of experiments (Goode & Hall, 1952; Simon, 1978), the criteria and the procedure (Winer, 1971; Campbell & Stanley, 1966; Cook & Campbell, 1979), the aims and the scientific rules (Doby, 1967; Mayntz et al., 1976; Miller, 1975) that must be applied in each experiment respectively also apply to the advanced form of the method.

3.4 Questionnaire Through the Internet: Online Questionnaire

The quality questionnaire is a tried and tested method, which gives the assurance that nothing will be forgotten, as well as the assurance that the questions are always asked in the same way to everyone who participates in the research (see also Schwarz, 1999). The preparation of a/an digital/electronic/online quality questionnaire (online questionnaire from here on) is no different from the traditional printed quality questionnaire, and should be written based on the basic guidelines and drafting techniques, as well as the basic types and characteristics that a good questionnaire should follow (Babbie, 2018; Cohen et al., 2017).

A quality questionnaire is a list of questions to which the candidates of the research are asked to answer in written form, with an ambition to acquire necessary information for the research (Tuckman, 1972; Cho & Larose, 1999). The method to completing a questionnaire is the standard procedure of acquiring data in Social Sciences, for it is a tested method, taking precautions that nothing has been left out, and also assures consistency i.e., the questions are the same for all candidates. The only difference between the traditional quality questionnaire and the online questionnaire is that the survey is conducted online through a specialized online platform (such as Google Form, Microsoft Forms, etc.), which can provide direct statistical techniques, such as frequency tables, presenting the frequencies and percentages of the different values of the variables, graphs (bar graphs) for a better understanding of the results (Fink, 1995) as e.g., part of a technical research, while some of them can also give two-dimensional tables with the frequencies and the corresponding percentages (e.g., the specialized online platform Survs.com).

Historically, the online questionnaire is the (new) modern version of the Computer-Assisted Self-Interviewing (CASI) method, where a quality questionnaire in the form of a computer diskette was sent to the respondent for completion (Meimaris, 1996). Also, the advanced form of "self-interview" is with the use of audio and video, named "Audio-CASI" and "Video-CASI" respectively (Lessler & O'Reilly, 1997; O'Reilly et al., 1994).

3.5 Interviews Through the Internet: Online Interviews

Interviews are one of the main research tools of a qualitative research. Once a researcher chooses interview as a research tool, s/he must be ready to listen to the personal interviewees' points of view (Flick et al., 2004) in order to compile information that is as accurate as possible. The interviews include issues of validity and self-expression -for both sides. Moreover, the relationship between the data and the arising issues is a kind of perceived truth (Cazden, 2000; Williamson, 2006) and is linked to how each side comprehends the issue under consideration. In summary, the most common types of interviews for qualitative research are as follows: (a) unstructured (also called non-directive) interview in which questions are not prearranged; (b) semi-structured interview in which the interviewer/researcher

does not strictly follow a formalized list of questions; and (c) structured (directive) interview in which the interviewer/researcher asks a particular set of predetermined questions (see also Paraskevopoulou-Kollia, 2020, 2008; Cohen et al., 2017).

Nowadays, interviews can now also be conducted online as distance interviews (Paraskevopoulou-Kollia, 2020) from and through the Internet applications and services. This method is the evolution of the method, used since the 1980s in the USA, called "Computer-Assisted Interviewing" (CAI) to control and coordinate the method of telephone interview (Computer-Assisted Telephone Interviewing - CATI) (Saris, 1991; Meimaris, 1996). In Europe, the CAI method was introduced in 1987 in the Netherlands and the United Kingdom (US) for "Computer-Assisted Personal Interviewing" (CAPI) (Meimaris, 1996).

Distance interviews are divided in the literature into two (2) categories: asynchronous and synchronous digital/electronic/online interviews (online interviews from here on). Asynchronous online interviews are mostly about interviews that can be done through email (as email interviews) (Selwyn & Robson, 1998; Brondani et al., 2011) or/and chatrooms or/and newsgroups or/and forums (Coomper, 1997), and cannot held in real time (Burns, 2010; Fritz & Vandermause , 2018), while synchronous online interviews are conducted in real time (O'Connor et al., 2008) through Internet Relay Chat or Messaging Apps / Social Messaging / Social Chat (e.g., Skype, Viber, Facebook Messenger, WhatsApp, etc.) (Internet applications and services) (see also Nicolaou & Kalliris, 2020). Also, asynchronous online interviews allow researchers to interview more than one participant (as mass or group interview) (Meho, 2006), while synchronous online interviews can offer exciting opportunities for qualitative interviewing where the researcher and the participant can see each other during the interview (e.g., through webcams, etc.) (Seitz, 2016; Deakin & Wakefield, 2014; Hanna, 2012).

In conclusion, the researcher who chooses online interviews (asynchronous or synchronous) as a research tool has the advantage and opportunity of avoiding any error associated, e.g., with texting (see Selwyn & Robson, 1998). The mains characteristics of online interviews are that they (a) minimize the geographical distance (Dimond et al., 2012; Burns, 2010; Chen & Hinton, 1999); (b) offer access to a world-wide sample (Meho, 2006); (c) do not cost a lot or/and if nothing at all (Fontes & O'Mahony, 2008; Opdenakker, 2006); and most important (d) may help in interviewing individuals or/and vulnerable social groups and special audiences (e.g., the elderly, people with muscular disabilities or kinetic problems, deaf people) (Synnot et al., 2014; Brondani et al., 2011; McCoyd & Kerson, 2006). In a nutshell, whatever category of distance (online) interview (asynchronous or synchronous) is chosen to be used as a data collection tool in a research, all the procedures and rules that apply to a traditional interview (as well as the corresponding type of interview) should always be strictly adhered to (e.g., writing an interview guide, etc.) (Paraskevopoulou-Kollia, 2008; Merton & Kendall, 1946).

4. Conclusion

The changes that ICTs has brought in recent decades, have unfortunately led to the appearance of new (digital/electronic/online) methods by amateurs, non-experts and users of technology (Marres, 2012; Savage & Burrows, 2007), which need to be restored. This article, in addition to the restoration of (new) methods, also aimed to become an important guide, but also a list of (new) methods for conducting a qualitative research through the Internet applications and services (original or/and new qualitative methods and techniques) as technology-enhanced research (see Cox, 2007). Furthermore, this article tried to comprehend the whole subject from the point of audiovisual media technology, which requires many new skills and abilities (see Nicolaou et al., 2019; Nicolaou & Kalliris, 2020). These are the researcher's fundamental pre-requirements in order to conduct research from and through the Internet, using audiovisual media technology. Additionally, this article attempted to cover at great extend the international bibliography (from theory to practice) whilst including historical elements, in order to have a broader understanding of the existing bibliography on the whole subject, but also to be a source for further study. The trends and perspectives of these (new) methods and techniques are part of the field of Internet and Internet research, and are mostly carried out from and through the audiovisual media technology (Nicolaou et al., 2019; Nicolaou & Kalliris, 2020). In conclusion, what should be noted is that there will always be room for further improvement of methodological qualitative research, using the theoretical approaches correctly as basic principles, and given that we live in a world that is constantly changing. The modern age we live in requires us to be receptive to any innovation that arises.

References

Adèr, H. J., Mellenbergh, G. J., & Hand, D. J. (2008). *Advising on Research Methods: A consultant's companion*. Huizen: Johannes van Kessel Publishing.

Ashby, W. R. (1956). *Introduction to Cybernetics.* Chapman & Hall. https://doi.org/10.5962/bhl.title.5851

Babbie, E. (2021). *The Practice of Social Research* (15th ed.). Boston, MA, USA: Cengage. (First published, 1975)

Barden, O. (2013). New approaches for new media: moving towards a connected methodology. *Qualitative Research Journal, 13*(1), 6-24. https://doi.org/10.1108/14439881311314496

Barus-Michael, J. (1986). Le chercheur premier objet de la recherch é *Bulletin de Psychologie, XXXIX*(377), 801-804.

Bassey, M. (1986). Does Action Research Require Sophisticated Research Methods?. In D. Hustler, A. Cassidy, & E. C. Cuff (Eds.), *Action Research in Classrooms and Schools* (pp. 18-24). HarperCollins Publishers Ltd.

Beer, D., & Burrows, R. (2007). Sociology and, of and in Web 2.0: Some Initial Considerations. *Sociological Research Online, 12*(5), 67-79. https://doi.org/10.5153/sro.1560

Beers, P., Boshuizen, H., & Kirschner, P. (2006). Cognitive load measurements and stimulated recall interviews for studying the effects of information and communication technology. *Education Technology Research Development, 56*, 309-328. https://doi.org/10.1007/s11423-006-9020-7

Berners-Lee, T. (1999). *Weaving the Web: The Past, Present and Future of the World. Wide Web by Its Inventor*. London, UK: Orion Business Publishing.

Blank, G., McGartney, J. L., & Brent, E. (Eds.) (2019). *New Technology in Sociology: Practical Applications in Research and Work*. Routledge. https://doi.org/10.4324/9780429334405

Bleed, R. (2005). Visual literacy in higher education. *Educause Learning Initiative, 1*, 1-11.

Booker, C. (2004). *The Seven Basic Plots: Why We Tell Stories*. Continuum.

Brondani, M. A., MacEntee, M. I., & O'Connor, D. (2011). Email as a data collection tool when interviewing older adults. *International Journal of Qualitative Methods, 10*(3), 221-230.

Buchanan, E. A. (2012). E-Research Ethics and E-Planning. *International Journal of E-Planning Research, 1*(1), 5-15.

Burns, E. (2010). Developing email interview practices in qualitative research. *Sociological research online, 15*(4), 1-12. https://doi.org/10.5153/sro.2232

Burrows, R., & Savage, M. (2014). After the crisis? Big Data and the methodological challenges of empirical sociology. *Big Data & Society*. https://doi.org/10.1177/2053951714540280

Campbell, D. T., & Stanley, J. C. (1966). *Experimental and Quasi-Experimental Designs for Research*. Rand McNally and Company.

Cavanagh, A. (1999). Behaviour in public? Ethics in online ethnography. *Cybersociology Magazine, 6*.

Cayley, J. (2017). Reconfiguration: Symbolic image and language Art. *Humanities, 6*, 8.

Cazden, C. (2000). Taking Cultural Differences into Account. In B. Cope, & M. Kalantis (Eds.), *Multiliteracies: Literacy, Learning and the Design of Social Futures*. Routledge.

Chen, P., & Hinton, S. M. (1999). Realtime interviewing using the world wide web. *Sociological Research Online, 4*(3), 1-19. https://doi.org/10.5153/sro.308

Chesher, C. (2020). How Computer Networks Became Social. In J. Hunsinger, M. M. Allen, & L. Klastrup (Eds.), *Second International Handbook of Internet Research* (pp. 105-126). Dordrecht, The Netherlands: Springer.

Chism, N. V. N., Douglas, E., &Hilson W. J. Jr. (2008). Qualitative research basics: A guide for engineering educators. *Rigorous Research in Engineering Education NSF DUE-0341127*.

Cho, H. Y., & LaRose, R. (1999). Privacy issues in Internet surveys. *Social Science Computer Review, 17*(4), 421-434.

Cohen, J. E. (2007). Cyberspace as/and space. *Columbia Law Review, 107*, 210-256.

Cohen, L., Manion, L., & Morrison, K. (2017). *Research Methods in Education* (8th ed.). Routledge.

Coiler, J. J., & Coiler, M. (1986). *Visual Anthropology: Photography as a Research Method*. University of New Mexico.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Rand McNally.

Costigan, J. (1991). Forest, Trees and Internet Research. In S. Jones (Ed.), *Doing Internet Research – Critical Issues and Methods for Examining the Net* (pp. 203-220). SAGE Publications, Inc.

Cothran, T. (2011). Google Scholar acceptance and use among graduate students: a quantitative study. *Library & Information Science Research, 33*(4), 293-301. https://doi.org/10.1016/j.lisr.2011.02.001

Cox, R. (2007). Technology-enhanced research: educational ICT systems as research instruments. *Technology, Pedagogy and Education*, *16*(3), 337-356. https://doi.org/10.1080/14759390701614470

Davies, D. W. (1977). Introduction to Packet Switching. In G. G. Boulaye, & D. W. Lewin (Eds.), *Computer Architecture. NATO Advanced Study Institutes Se*ries (Series C - Mathematical and Physical Sciences) (vol. 32, pp. 75-96). Springer, Dordrecht. https://doi.org/10.1007/978-94-010-1226-3_5

Deakin, H., & Wakefield, K. (2014). Skype interviewing: Reflections of two PhD researchers. *Qualitative research, 14*(5), 603-616. https://doi.org/10.1177/1468794113488126

Denzin, N. K. (2004). Reading film: using films and videos as empirical social science material. In U. Flick, E. von Kardorff, & I. Steinke (Eds.), *A Companion to Qualitative Research* (translated, B. Jenner) (pp. 237-242). SAGE Publication Ltd.

de Leeuw, E. D., Hox, J. J., & Snijkers, G. (1995). The Effect of Computer-assisted Interviewing on Data Quality. A Review. *Market Research Society Journal, 37*(4), 1-19. https://doi.org/10.1177/147078539503700401

de Roock, R., Bhatt, I., & Adams, J. (2016). Video Analysis in Digital Literacy Studies: Exploring Innovative Methods. In. H. Snee, C. Hine, Y. Morey, S. Roberts, & H. Watson (Eds.), *Digital Methods for Social Science. An Interdisciplinary Guide to Research Innovation* (pp. 127-142). Palgrave Macmillan.

Dimara, E., Kalavassis, F., & Me ïmaris, M. (1994). Analyse d'un questionnaire sur l'introduction des nouvelles technologies dans l'enseignement en Gr èce: comp étences des ma îtres et perspectives p édagogiques. *Cahiers de l'Analyse des Donn ées, 19*(3), 283-304.

Dimond, J. P., Fiesler, C., DiSalvo, B., Pelc, J., & Bruckman, A. S. (2012). Qualitative data collection technologies: a comparison of instant messaging, email, and phone. In *Proceedings of the 17th ACM international conference on Supporting group work* (pp. 277-280). ACM. https://doi.org/10.1145/2389176.2389218

Dody, J. T. (1967). *An Introducation to Social Research*. Appleton-Century-Crofts.

Ebbutt, D. (1985). Educational Action Research: Some General Concerns and Specific Quibbles. In R. G. Burgess (Ed.), *Issues in Educational Research: Qualitative Methods* (pp. 152-174). The Falmer Press.

Elliott, J., & Adelman, C. (1974). *Ford Teaching Project: Classroom Action Research.* Center of Applied Research in Education.

Elliot, J. (1991). *Action Research for Educational Change.* Open University Press.

Eisner, W. E. (1991). *The enlightened eye, qualitative inquiry and the enhancement of educational practice*. Macmillan.

Estalella, A. (2016). Prototyping social sciences. Emplacing digital methods. In H. Snee, C. Hine, Y. Morey, S. Roberts, & H. Watson (Eds.), *Digital Methods for Social Science. An Interdisciplinary Guide to Research Innovation* (pp. 127-142). Palgrave Macmillan. https://doi.org/10.1057/9781137453662_8

Eysenbach, G., & Till, J. E. (2001). Ethical issues in qualitative research on internet communities. *BMJ, 323*, 1103-110. https://doi.org/10.1136/bmj.323.7321.1103

Feldon, D. F., & Kafai, Y. B. (2008). Mixed methods for mixed reality: understanding users' avatar activities in virtual worlds. *Educational Technology Research and Development, 56*(5- 6), 575-593.

Finlay, L., & Gough, B. (Eds.) (2003). *Reflexivity: A Practical Guide for Researchers in Health and Social Sciences*. Oxford, UK; Malden, MA, USA: Wiley-Blackwell Publishing. https://doi.org/10.1002/9780470776094

Fink, A. (1995). *How to analyze survey data.* SAGE Publications, Inc.

Flick, U., von Kardorff, E., & Steinke, I. (2004). What is qualitative research? An introduction to the field. *A Companion to Qualitative Research*, 3-11.

Frankel, M. S., & Siang, S. (1999). *Ethical and legal aspects of human subjects research in cyberspace: A report of a workshop*. American Association for the Advancement of Science.

Fritz, R. L., & Vandermause, R. (2018). Data collection via in-depth email interviewing: Lessons from the field. *Qualitative Health Research, 28*(10), 1640-1649. https://doi.org/10.1177/1049732316689067

Fontes, T. O., & O'Mahony, M. (2008). In-depth interviewing by Instant Messaging. *Social Research Update, 53*(2), 1-4.

Gaiser, T. J. (1997). Conducting On-Line Focus Groups: A Methodological Discussion. *Social Science Computer Review, 15*(2), 135-144. https://doi.org/10.1177/089443939701500202

Gauntlett, D. (2004). Web Studies: What's New. In D. Gauntlett, & R. Horsley (Eds.), *Web.Studies* (2nd ed., pp. 3-23). Bloomsbury Academic.

Geertz, C. (1973). *The interpretation of cultures* (vol. 5019). Basic books.

Giese, M. (1998). Self With Body: Textual Self-Representation in a Electronic Community. *First Monday, 3*(4).

Giomelakis, D., Karypidou, C., &Veglis, A. (2019). SEO inside Newsrooms: Reports from the Field. *Future Internet 11*(12), 261. https://doi.org/10.3390/fi11120261

Goode, W. J., & Hatt, P. K. (1952). *Methods in Social Research*. McGraw-Hill Co.

Hamilton, S. (1987). *A Communication Audit Handbook – Helping Organisation Communicate*. Pitman.

Hammarberg, K., Kirkman, M., & de Lacey, S. (2016). Qualitative research methods: when to use them and how to judge them. *Human Reproduction, 31*(3), 498-501. https://doi.org/10.1093/humrep/dev334

Hanna, P. (2012). Using internet technologies (such as Skype) as a research medium: A research note. *Qualitative Research, 12*(2), 239-242. https://doi.org/10.1177/1468794111426607

Hauben, R., &Hauben, M. (1997). *Netizens: On the History and Impact of Usenet and the Internet*. IEEE Computer Society Press. https://doi.org/10.5210/fm.v3i7.605

Hedström, P. (2005). *Dissecting the Social: On the Principles of Analytical Sociology*. Cambridge University Press.

Hew, K. F., Lan, M., Tang, Y., Jia, C., & Lo, C. K. (2019). Where is the "theory" within the field of educational technology research?. *British Journal of Educational Technology, 50*(3), 956-971.

Hewson, C. (2016). Ethics Issues in Digital Methods Research. In. H. Snee, C. Hine, Y. Morey, S. Roberts, & H. Watson (Eds.), *Digital Methods for Social Science. An Interdisciplinary Guide to Research Innovation* (pp. 206-221). Palgrave Macmillan. https://doi.org/10.1057/9781137453662_13

Hibler, D. L., & Biswas, G. (1992). TEPS: Through experiments and qualitative physics problem solving. In B. Faltings, & P. Struss (Eds.), *Recent Advances in Qualitative Physics* (pp. 345-360). The MIT Press.

Hine, C. (2005). *Virtual Methods: Issues in Social Research on the Internet*. Berg Publishers.

Holsti, O. (1969). *Content Analysis for the Social Sciences and Humanities*. Addison-Wesley.

Houzanme, U. T. (2012). Google Scholar versus Google Scholar: Among Publish or Perish, Scholarometer, and My Citations, Which Citation Count Tool Is Telling Which Truth? In A. Tokar, M. Beurskens, S. Keuneke, M. Mahrt, I. Peters, C. Puschmann, T. van Treeck, & K. Weller (Eds.), *Science and the Internet* (pp. 223-236). Düsseldorf University Press.

Howland, J. L., Wright, T. C., Boughan, R. A., & Roberts, B. C. (2009). How scholarly is Google Scholar? a comparison to library databases. *College & Research Libraries, 70*(3), 227-234. https://doi.org/10.5860/0700227

Hunsinger, J., Allen, M. M., & Klastrup, L. (Eds.) (2020). *Second International Handbook of Internet Research*. Dordrecht, The Netherlands: Springer. https://doi.org/10.1007/978-94-024-1555-1

Introna, L. D., &Nissenbaum, H. (2000). Shaping the Web: Why the Politics of Search Engines Matters. *The Information Society, 16*(3), 169-185. https://doi.org/10.1080/01972240050133634

Jacsó, P. (2011). Google Scholar duped and deduped-the aura of "robometrics". *Online Information Review, 35*(1), 154-160. https://doi.org/10.1108/14684521111113632

Jacsó, P. (2010). Metadata mega mess in Google Scholar. *Online Information Review, 34*(1), 175-191.

Jacsó, P. (2008a). Testing the calculation of a realistic h-index in Google Scholar, Scopus, and Web of Science for FW Lancaster. *Library Trends, 56*(4), 784-815. https://doi.org/10.1353/lib.0.0011

Jacsó, P. (2008b). The pros and cons of computing the h-index using Scopus. *Online Information Review, 32*(4), 524-535. https://doi.org/10.1108/14684520810897403

Jacsó, P. (2008c). The pros and cons of computing the h-index using Google Scholar. *Online Information Review, 32*(3), 437-452. https://doi.org/10.1108/14684520810889718

Jacsó, P. (2008d). Google Scholar Revisited. *Online Information Review, 32*(1), 102-114.

Jacsó, P. (2005). Google Scholar: the pros and the cons. *Online Information Review, 29*(2), 208-214.

Jones, S. (1999). Studying the Net: Intricacies and Issues. In S. Jones (Ed.), *Doing Internet Research – Critical Issues and Methods for Examining the Net* (pp. 1-28). SAGE Publications, Inc.

Karlsson, N. (2014). The crossroads of academic electronic availability: how well does Google Scholar measure up against a university-based metadata system in 2014?. *Current Science, 107*(10), 1661-1665.

Kaye, B. K., &Medoff, N. J. (1999). *The World Wide Web: A Mass Communication Perspective*. Mayfield Publishing Company.

Kehoe, B. P. (2013). *Zen and the Art of the Internet*. Tredition Classics.

Kesim, M., & Ozarslan, Y. (2012). Augmented reality in education: Current technologies and the potential for education. *Procedia - Social and Behavioral Sciences, 47*, 297-302. https://doi.org/10.1016/j.sbspro.2012.06.654

King, S. A. (1996). *Is the Internet Addictive, or Are Addicts Using the Internet?*. Retrieved from http://www.concentric.net/~Astorm/iad.html

Kitchin, H. A. (2007). *Research ethics and the Internet: Negotiating Canada's Tri-Council Policy Statement*. Fernwood Publishing.

Kleinrock, L. (1961). Information flow in large communication nets. *RLE Quarterly Progress Report, 1*.

Koumartzis, N., &Veglis, A. (2014). Internet Regulation and Online Censorship. *International Journal of E-Politics (IJEP), 5*(4), 66-81. https://doi.org/10.4018/ijep.2014100104

Krippendorff, K. (2004). *Content Analysis: An Introduction to Its Methodology* (2nd ed.). SAGE Publications, Inc.

Kvale, S. (1996). *Interviews, an introduction to qualitative research interviewing*. SAGE Publications, Inc.

Latour, B., &Woolgar, S. (1986). *The Construction of Scientific Facts* (2nd ed.). Princeton University Press.

Law, J. (2009). Seeing Like a Survey. *Cultural Sociology, 3*(2), 239-256. https://doi.org/10.1177/1749975509105533

Law, J. (2004a). *After Method: Mess in Social Science Research*. Routledge.

Law, J. (2004b). And if the Global Were Small and Noncoherent? Method, Complexity, and the Baroque. *Environment and Planning D: Society and Space, 22*(1), 13-26. https://doi.org/10.1068/d316t

Law, J., & Hetherington, K. (2000). Materialities, spatialities, globalities. In J. Bryson, P. Daniels, N. Henry, & J. Pollard (Eds.), *Knowledge, Space, Economy* (pp. 34–49, 2nd online version recast). Routledge.

Law, J., & Ruppert, E. (2013). The Social Life of Methods: Devices. *Journal of Cultural Economy, 6*(3), 229-240.

Law, J., Ruppert, E., & Savage, M. (2011, March). *The Double Social Life of Methods* [Working Paper 95]. CRESC, Manchester, United Kingdom.

Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabási, A., Brewer, D., … van Alstyne, M. (2009). *Computational Social Science, Science, 5915*(323), 721-723. https://doi.org/10.1126/science.1167742

Lebart, L. (2001). Traitement statistique des questions ouvertes : quelques pistes de recherche. *Journal de la société française de statistique, 142*(4), 7-20.

Lebart, L., & Salem, A. (1988). *Analyse statistique des données textuelles. Questions ouvertes et lexicométrie*. Dunod.

Lee, R. M., & Fielding, N. (1996). Qualitative Data Analysis: Representations of a Technology: A Comment on Coffey, Holbrook and Atkinson. *Sociological Research Online, 1*(4). https://doi.org/10.5153/sro.1326

Leiner, B., Cerf, V., Clark, D., Kahn, R., Kleinrock, L., Lynch, D., … Wolff, S. (2009). A brief history of the internet. *ACM SIGCOMM Computer Communication Review, 39*(5), 22-31. https://doi.org/10.1145/1629607.1629613

Lessier, J. T., & O'Reilly, J. M. (1997). Mode of Interview and Reporting of Sensitive Issues: Design and Implementation of Audio Computer-Assisted Self-Interviewing. In L. Harrison, & A. Hughes (Eds.), *The Validity of Self-Reported Drug Use: Improving the Accuracy of Survey Estimates [NIDA Research Monograph 167]* (pp. 366-382). National Institute on Drug Abuse (NIDA).

Lincoln, Y. S., & Guba, E. (1985). *Naturalistic Inquiry*. SAGE Publications, Inc.

Lindenmann, W. K. (1997). Setting minimum standards for measuring public relations effectiveness. *Public Relations Review, 23*(4), 391-408. https://doi.org/10.1016/S0363-8111(97)90053-9

Lomborg, S. (2012). Personal internet archives and ethics. *Research Ethics, 9*(1), 20-31.

Lule, J. (2001). *Daily News Eternal Stories: The Mythological Role of Journalism*. Guilford Press.

Mackey, A., & Gass, S. M. (2005). *Second Language Research: Methodology and Design.* Routledge.

Majumder, D. D. (1979). Cybernetics and general systems—a unitary science?. *Kybernetes, 8*(1), 7-15.

Mann, C., & Stewart, F. (2000). *New Technologies for Social Research: Internet communication and qualitative research*. SAGE Publications, Inc. https://doi.org/10.4135/9781849209281

Marres, N. (2012). The Redistribution of Methods: On Intervention in Digital Social Research, Broadly Conceived. *The Sociological Review, 60*(1_suppl), 139-165. https://doi.org/10.1111/j.1467-954X.2012.02121.x

Marres, N., & Rogers, R. (2000). Depluralising the Web and Repluralising Public Debate: The Case of the GM Food Debate on the Web. In R. Rogers (Ed.), *Preferred Placement: Knowledge Politics on the Web* (pp. 113-135). Jan van Eyck Editions.

Matsiola, M., Spiliopoulos, P., Kotsakis, R., Nicolaou, C., & Podara, A. (2019). Technology-Enhanced Learning in Audiovisual Education: The Case of Radio Journalism Course Design. *Education Sciences, 9*(1), 62.

Maxwell, J. A. (1998). Designing a Qualitative Study. In L. Bickman, & D. J. Rog (Eds.), *Handbook of Applied Social Research Methods* (pp. 214-253). SAGE Publications, Inc. https://doi.org/10.4135/9781483348858.n7

Mayntz, R., Holm, K., &Hoebner, B. (1976). *Introduction to Empirical Sociology*. Penguin Books, Ltd.

McCoyd, J. L., & Kerson, T. S. (2006). Conducting intensive interviews using email: A serendipitous comparative opportunity. *Qualitative Social Work, 5*(3), 389-406. https://doi.org/10.1177/1473325006067367

McKee, H. A., & DeVoss, D. N. (Eds.) (2007). *Digital writing research: Technologies, methodologies, and ethical issues*. Hampton Press.

McNiff, J. (2017). *Action Research*. SAGE Publications, Inc.

Meimaris, M. (1996). Attitudes des professeurs grecs face aux nouvelles technologies: textes des réponses libres à un questionnaire. *Les Cahiers de l'Analyse des Données, 21*(2), 221-242.

Meho, L. I. (2006). E‐mail interviewing in qualitative research: A methodological discussion. *Journal of the Association for Information Science and Technology, 57*(10), 1284-1295. https://doi.org/10.1002/asi.20416

Merton R. K., & Kendal, P. L. (1946). The Focused Interview. *American Journal of Sociology, 51*(6), 541-557.

Merriam, S. B. (1998). *Qualitative Research and Case Study Application in Education*. Jossey-Bass Publishers.

Miller, D. C. (1975). *Handbook of Research Design and Social Measurement*. David McKay.

Molich, R., & Nielsen, J. (1990). Improving a human-computer dialogue. *Communications of the ACM, 33*(3), 338-348. https://doi.org/10.1145/77481.77486

Muniesa, F., & Tchalakov, I. (2012). Networks, Agents and Models: Objections and Explorations. *International Journal of Actor-Network Theory and Technological Innovation (IJANTTI), 4*(1), 13-23.

Newby, T. J., Stepich, D. A., Lehman, J. D., Russell, J. D., & Leftwich, A. T. (2019). *Educational Technology for Teaching and Learning* (4th ed.). Pearson Education (First published, 1996)

Newman, M., Barabási, A., & Watts, D. (2007). *The Structure and Dynamics of Networks*. Princeton University Press.

Nichols II, W. L., Baker, R. P., & Martin, J. (1997). The effect of new data collection technologies on survey data quality. In L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, & D. Trewin (Eds.), *Survey measurement and process quality* (pp. 221-248). Wiley. https://doi.org/10.1002/9781118490013.ch9

Nicolaou, C. (2011). *Public Relations and New Technologies*. Unpublished CIPR Professional PR Diploma Thesis. Chartered Institute of Public Relations, London, United Kingdom.

Nicolaou, C., Podara, A., & Karypidou, C. (2021). *Audiovisual media in education and Generation Z: Application of audiovisual media theory in education with an emphasis on Radio.* The 6th International Scientific Conference on Communication of Institute of Humanities and Social Sciences on Information, Awareness and Education in Late Modernity, Heraklion, Crete, Greece.

Nicolaou, C., & Kalliris, G. (2020). Audiovisual Media Communications in Adult Education: The case of Cyprus and Greece of Adults as Adult Learners. *Eur. J. Investig. Health Psychol. Educ., 10*(4), 967-994.

Nicolaou, C., Matsiola, M., & Kalliris, G. (2019). Technology-Enhanced Learning and Teaching Methodologies through Audiovisual Media. *Education Sciences, 9*(3), 196. https://doi.org/10.3390/educsci9030196

Nielsen, J. (1993). *Usability Engineering*. Cambridge, MA, USA: AP Professional.

Nielsen, J., & Mack, R. L. (1994). *Usability Inspection Methods*. New York, NY, USA: John Wiley & Sons.

O'Connor, H., Madge, C., Shaw, R., & Wellens, J. (2008). Internet-based interviewing. In N. Fielding, R. M. Lee, & G. Blank (Eds.), *The Sage handbook of online research methods* (pp. 271-289). SAGE Publications, Inc.

Opdenakker, R. (2006). Advantages and Disadvantages of Four Interview Techniques in Qualitative Research [44 paragraphs]. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 7*(4), Art. 11.

O'Reilly, J. M., Hubbard, M. L., Lessler, J. T., Biemer, P. P., & Turner, C. F. (1994). Audio and Video Computer-Assisted Self Interviewing: Preliminary Tests of New Technologies for Data Collection. *Journal of Official Statistics, 10*(2), 197-214.

Panos, D. (2008). Qualitative Research on the Internet: discussing "old" problems in a "new" environment. In K. Koskinas, & S. Arsenis (Eds.), *Virtual Communities and the Internet: Socio-Psychological approaches and technical applications* (pp. 237-248). Athens, Greece: Klidarithmos.

Papanis, E. (2011). *Research Methodology and Internet*. Athens, Greece: I. Sideris.

Paraskevopoulou-Kollia, E.-A. (2020). Methodology of qualitative research: interviews and online interviews. *Open Education - The Journal for Open and Distance Education and Educational Technology, 15*(2), 24-37.

Paraskevopoulou-Kollia, E.-A. (2008). Methodology of qualitative research in social sciences and interviews. *Open Education - The Journal for Open and Distance Education and Educational Technology, 4*(1), 72-81.

Parker, P. (2006). *The Art and Science of Screenwriting* (2nd ed.). Intellect. (First published, 1999)

Peshkin, A. (1985). Virtuous subjectivity in the participant observer's I's. In D. N. Berg, & K. K. Smith (Eds.), *Exploring Clinical Methods for Social Research* (pp. 267-281). SAGE Publications, Inc.

Phillips, A. (2007). *Good writing for Journalists.* SAGE Publications, Inc.

Podara, A., Giomelakis, D., Nicolaou, C., Matsiola, M., & Kotsakis, R. (2021). Digital Storytelling in Cultural Heritage: Audience Engagement in the Interactive Documentary New Life. *Sustainability, 13*(3), 1193.

Reips, U.-D., & Neuhaus, C. (2002). WEXTOR: A Web-Based tool for generating and visualizing experimental designs and procedures. *Behavior Research Methods, Instruments, & Computers, 34*(2), 234-240.

Rogers, R. (2009). *The End of the Virtual: Digital Methods* (Vov.339). Amsterdam University Press (VossiuspersUvA).

Robinson, S., & Mendelson, A. L. (2012). A Qualitative Experiment: Research on Mediated Meaning Construction Using a Hybrid Approach. *Journal of Mixed Methods Research, 6*(4), 332-347.

Santos, F., Miguel, J., Wright, P. M., Sá, C., & Saraiva, L. (2020). Exploring the Impact of a TPSR Program on Transference of Responsibility Goals within a Preschool Setting: An Action Research Study. *Int. J. Environ. Res. Public Health, 17*(24), 9449.

Sarridis, I., & Nicolaou, C. (2015). *Social Media: (Correct) Professional Use*. The 2nd Student Conference of the Department of Applied Informatics—University of Macedonia on Modern Entrepreneurship & Informatics Technologies, Thessaloniki, Greece.

Sarris, W. E. (1991). *Computer-Assisted Interviewing.* SAGE Publication, Inc.

Savage, M., & Burrows, R. (2007). The Coming Crisis of Empirical Sociology. *Sociology, 41*(5), 885-899.

Schmidt, J. (2007). Blogging practices: An analytical framework. *Journal of Computer-Mediated Communication, 12*(4), 1409-1427. https://doi.org/10.1111/j.1083-6101.2007.00379.x

Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist, 54*(2), 93-105.

Scott, J. (2000). *Social Network Analysis.* SAGE Publication, Inc.

Seitz, S. (2016). Pixilated partnerships, overcoming obstacles in qualitative interviews via Skype: A research note. *Qualitative Research, 16*(2), 229-235. https://doi.org/10.1177/1468794115577011

Selltiz, C., Jahoda, M., Deutsch, M., & Cook, S. W. (1959). *Research Methods in Social Relations*. Holt, Rinehart and Winston.

Selwyn, N., & Robson, K. (1998). Using e-mail as a research tool. *Social Research Update, 21*.

Silverman, D. (2011). *Interpreting Qualitative Data: A Gide to the Principles of Qualitative Research* (4th ed.). SAGE Publication, Inc.

Simon, J. L. (1978). *Basic Research Methods in Social Sciences*. Random House.

Solange, G., & Dufour, A. (2017). *Internet* (12e éd.). Presses Universitaires De France - PUF.

Somekh, B. (1983). Triangulation methods in action: A practical example. *Cambridge Journal of Education, 13*(2), 31-37. https://doi.org/10.1080/0305764830130204

Sparkes, A., & Smith, B. (2014). *Qualitative Research Methods in Sport, Exercise and Health: From Process to Product*. London, UK: Routledge. https://doi.org/10.4324/9780203852187

Stewart, F., Eckermann, E., & Zhou, K. (1998). Using the Internet in qualitative public health research: A comparison of Chinese and Australian young women's perceptions of tobacco. *Internet Journal of Health Promotion*.

Stout, T. D., DiFazio, R. L., &Vessey, J. A. (2017). Technology-enhanced focus groups as a component of instrument development. *Nurse Researcher, 25*(1), 16-23. https://doi.org/10.7748/nr.2017.e1458

Synnot, A., Ryan, R., Prictor, M., Fetherstonhaugh, D., & Parker, B. (2014). Audio–visual presentation of information for informed consent for participation in clinical trials. *The Cochrane Database of Systematic Reviews, 2014*(5), CD003717. https://doi.org/10.1002/14651858.CD003717.pub3

Taylor, R. (1980). *The computer in the School: Tutor, Tool, Tutee*. Teachers College Press.

Tuckman, B. W. (1972). *Conducting Educational Research.* Harcourt Brace Jovanovich.

Vaidhyanathan, S. (2011). *The Googlization of Everything (And Why We Should Worry)*. University of California Press. https://doi.org/10.1525/9780520948693

Veglis, A. (2018). *Email*. In the SAGE Encyclopedia of Surveillance, Security, and Privacy (pp. 346-349). SAGE Publication, Inc.

Veglis, A., Abraham, E., & Pomportsis, A. (2004). *Research and Information Collection on the Internet*. Tziolas Publications.

Wang, Y., & Howard, P. (2012). Google Scholar Usage: An Academic Library's Experience. *Journal of Web Librarianship, 6*(2), 94-108. https://doi.org/10.1080/19322909.2012.672067

Waskul, D., & Douglass, M. (1996). Considering the electronic participant: Some polemical observations on the ethics of on-line research. *The Information Society, 12*(2), 129-140. https://doi.org/10.1080/713856142

Waterton, J., & Duffy, J. (1984). A Comparison of Computer Interviewing Techniques and Traditional Methods in the Collection of Self-Report Alcohol Consumption Data in a Field Survey. *International Statistical Review / Revue Internationale De Statistique, 52*(2), 173-182. https://doi.org/10.2307/1403100

Waterworth, J. A. (1992). *Multimedia Interaction with Computers: Human Factors Issues*. Ellis Horwood.

Weber, R. P. (1990). *Basic Content Analysis* (2nd ed.). SAGE Publication, Inc. https://doi.org/10.4135/9781412983488

Weitzman, E. A., & Miles, M. B. (1995). *Computer Programs for Qualitative Data Analysis*. SAGE Publication, Inc.

White, R. (2015). *How Computers Work: The Evolution of Technology* (10th ed.). Que Publishing. (First published, 1992)

Wiener, N. (1948). *Cybernetics: Or, Control and Communication in the Animal and the Machine*. Hermann Editions.

Williamson, T. (2006). Conceptual truth. In *Aristotelian Society Supplementary Volume* (Vol. 80, No. 1, pp. 1-41). Oxford University Press. https://doi.org/10.1111/j.1467-8349.2006.00136.x

Winer, B. J. (1971). *Statistical Principles and Experimental Design.* McGraw-Hill.

Wooldridge, M. (2002). *An Introduction to Multiagent Systems.* Wiley.

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European Journal of Education, 48*(2), 311-325. https://doi.org/10.1111/ejed.12014

Zhou, F., Dun, H. B.-L., & Billinghurst, M. (2008). Trends in augmented reality tracking, interaction and display: A review of ten years of ISMAR. In *Proceedings - 7th IEEE International Symposium on Mixed and Augmented Reality* (pp. 193-202), ISMAR 2008.

Ørngreen, R., & Levinsen, K. (2017). Workshops as a Research Methodology. *The Electronic Journal of e-Learning, 15*(1), 70-81.