Technological transformation in journalism: Journalists’ techno-cultural experiences from actor-network perspective

Gülseren Şendur Atabek
Akdeniz University
gatabek@akdeniz.edu.tr
ORCID: 0000-0001-9118-2329

ABSTRACT

Objective: Technological transformations have profoundly changed the journalism professions. These transformational processes have been experienced by journalists in a techno-cultural environment where their personal and collective memories were shaped. This study employs oral history as the data collection technique in order to explore the details of this techno-cultural change from the actor-network theory (ANT) perspective. Research methods: A sample of 28 senior Turkish journalists were interviewed about their experiences on the technological transformations in their professional life. The transcribed text from these narrations were qualitatively analyzed by NVivo. Results: Journalists agreed that their work was more satisfactory during their past career, and they had faced some difficulties in new forms of technical practices. They also remembered how they were able to tackle some unexpected technical problems by introducing creative inventions. They generally acknowledged the negative effects of technology on the job cuts. Cognitive value: Interviewees’ narrations display the details of the change in journalism professions.

KEYWORDS
journalism technologies, techno-culture, technological change, actor-network theory, journalism history

Following the introduction of new technologies after the 1960s, massive changes have been observed in many professions. Journalism is not an exception to this radical transformation process. Digital technologies have transformed journalism across various aspects. These trans-
formations on micro and macro levels have created an apparent interest among communication and media scholars. This article aims to explore the details of these changes from the perspectives of journalists who actually experienced this historical process. Oral history narrations of personal and collective experiences of journalists are analyzed in order to scrutinize this techno-cultural change from actor-network theory (ANT) perspective.

Many media ecologists have investigated the cultural aspects of technological change. Marshall McLuhan’s *Centre for Culture and Technology* was a pioneering institution in establishing the ties between technology and culture in academia. His phrase “medium is the message” underlined the strong cultural associations between the media technology and the media content (1964/1994). Similarly, eminent media ecologists Ong (2002) and Ellul (1985) provided inspiring examples of how technology affected media culture throughout history. Following the media ecology tradition, Carey (1992) examined the relationship between technology and culture from a wider perspective. He emphasized that “our understanding of culture cannot be secured unless they are tied to a vivid sense of technology and social structure” (p. 49). More recently, from Actor-Network Theory (ANT) perspective, Vannini (2009) defined ‘technological culture’ as ‘material culture’, pointing to the interaction between human actors and nonhuman actors. He described this techno-cultural interaction as “a practical, everyday way of doing things with things” (p. 10). In this context, techno-culture is a useful concept linking the user as actor and the technology as actant, in their experiences. The techno-cultural approach here will enable us to explore the relationship between the technologies and the journalists, through the narrations of what they had experienced in material and historical context.

**Literature review**

Technology has always been an amplifier and accelerator of media industry trends (Deuze & Prenger, 2019). Apparently, Turkish journalism is not an exception to this trend. However, technological adaptation of Turkish journalism is typically very enthusiastic towards new technologies, most of which are imported. Media owners in particular were very passionate about the transfer of the latest technologies. For example, Bekir Yıldız, a prominent Turkish writer and journalist, who had worked as a *gastarbeiter* in Heidelberg factory in the 1960s, reflects on the contradiction how the promotional brochures of Heidelberg were manually typeset while its newest technology offsets were heavily imported by Turkish media industry (Ceyhun, 1985, p. 169). Despite this rapid importation of offset machinery resulted in lower capacity utilization levels, the printing industry’s desire for the highest available technology still continues. Similarly, computers were introduced in the Turkish media industry as early as 1971 with daily *Yeni Asır*, making it one of the earliest adopters in Europe (Karaduman, 2008; Yıldırım, 2008). This appetite for technology is usually attributed to the Turkish modernization process taking place since beginning with the early Republic (Aguiar, 2007; Çelik, 2011). This collective desire and demand for technology excite new forms of social relations and function as the concrete experiences of modernity (Çelik, 2016).

Journalism in Turkey has a long and robust professional tradition dating back to the 19th century (Topuz, 2003; Koloğlu, 2018). Turkish journalism is mapped between the East and the West (Hanitzsch et al., 2011) from a professional and cultural perspective. Historically, many journalists in Turkey have identified as liberals, viewing their role as having a mission to inform the public objectively (Akser, 2018). Until the end of the 20th century, the Turkish media could be regarded as relatively free despite the political and economic problems stemming from conservative governments and media moguls. Especially after the 1980 coup, independent news organizations were bought out by media conglomerates which exercised power over politicians,
including the governments, to force them to act in line with their business interests (Adaklı, 2009). This era was characterized by high-rate media concentration, accompanied with the insertion of high-tech infrastructure into the media business. However, Turkish journalism in the 21st century is witnessing even more troubled times in many respects. Today, journalism in Turkey faces a deteriorating situation in terms of employment opportunities while facing strong pressures from a deteriorating undemocratic media ecosystem (Akser & Baybars-Hawks, 2012; Yesil, 2016). Many scholars confirm that concentration in media ownership and political interventions from governments are the main threats to media pluralism in Turkey (Christensen, 2007; Ozcan, 2010; Kaya & Cakmur, 2010). Scholars mostly agree that this disappointing media system is a current reflection of the polarized, populist and competitive authoritarian political system (Castaldo, 2018; Elçi, 2019; Yılmaz & Turner, 2019; Coskun, 2020; Çelik, 2020; İşeri & Ersoy, 2021).

This paper presents the qualitative data from oral history narrations that will shed light on journalists’ experiences within the Turkish context. This qualitative data provides the details on the techno-cultural aspects of an enormous technological transformation. Previously, it was shown that possess the ingenuity to innovatively adapt to new work practices (Şendur Atabek & Atabek, 2020). Similarly, the profession of journalism is adapting to this new techno-cultural environment. Technology presents both threats and opportunities in the journalism profession.

This double role of technology can be better mapped when the ANT (Callon, 1986; Law, 1992; Latour, 2005; Latour, 2011) perspective is applied to the journalism field. As a relational sociological approach, ANT assumes that human and nonhuman actors mutually shape, transform, and translate each other through networking practices. Therefore, journalists as human actors and technology as nonhuman actants mutually shape, transform and translate each other through journalism practices, in the journalism field. ANT considers technology, instruments and devices as actants in a complex network that includes actors such as journalists, their sources, technicians of various sorts, the media organizations, audiences etc. (Hemmingway, 2008). All these actors are part of a production process, and all exert their influence upon it. A growing body of scholarship has suggested that ANT provides a robust insight into journalism and media studies (e.g., Turner, 2005; Couldry, 2008; Plesner, 2009; Primo & Zago, 2014; Domingo, Masip & Meijer 2014; Lewis & Westlund, 2015; Spöhrer & Ochsner, 2016; Wiard, 2019; Ryfe, 2021). In addition to its sophisticated epistemological and theoretical conceptions, ANT also provides new elaborated methodological perspectives. Recent research has diligently employed ANT into the research on journalism (e.g., Schmitz Weiss & Domingo, 2010; Fioravanti & Velho, 2010; Spyridou et al., 2013; Morlandstø & Mathisen, 2017; Mari, 2017; Wu, Tandoc & Salmon, 2019; Zhang, 2021; Mari, 2021; Moon, 2021) and media studies (e.g., Micó, Masip & Domingo, 2013; Poell, de Kloet & Zeng, 2014; Méadel, 2015; Salovaara, 2016; Betlemidze, 2019). Most of these research studies apply ANT to the current issues of journalism, and only a few provide a historical perspective. Indeed, ANT can be employed for examining historical transformations. There is a gap for application of ANT perspective to the historical evaluation of techno-cultural transformations in the journalism field. Furthermore, studies using the personal narrations of the journalists from ANT perspective are quite limited. In Latour’s (1991) words, “the main difficulty of integrating technology into social theory is the lack of a narrative resource” (p. 130). The present study attempts to bridge these gaps by leveraging oral history narrations to explore journalists’ techno-cultural experiences from an ANT perspective.

The study addresses two research questions. Firstly, the interviewed journalists had experienced both the analog and digital technologies through their career. Their personal and collective memories reflect the professional adaptation process, and I assume that this process is depicted in detail through their oral history narrations. Therefore, I pose the first research
question as RQ 1: How did the journalists perceived themselves in the old and new work conditions through technological transformations? Secondly, these journalists are skillfully able to compare the pros and cons of the technological practices in journalism. It is assumed that their everyday experiences with journalism technologies render them with more realistic, detailed and healthier information on technologies than the pro-technology exaggerations of the media industry. Therefore, the second research question is formulated as RQ 2: How do the journalists compare the analog and digital journalism technologies in their work place? From the ANT perspective, the technology mediated journalism experiences are grouped under four themes. I plan to address RQ 1 through “professionals in transition” and “lost jobs vs. new jobs” themes, while RQ 2 is addressed through “remembered instruments” and “innovative practices” themes. Callon (1986) notes that an actor-network may represent infinite levels of reality. These four themes are expected to represent certain reality levels of complex relationships in journalists, journalism and technology actor-network.

Material and method

Following the qualitative research design, this study employed oral history as a data collection technique. In fact, oral history is more than just a data collection technique, it represents a methodological stance which opens up new areas of inquiry with the people who actually made and experienced history (Thompson, 2000). Oral history narrations provide a detailed account of personal experiences on how social change actually occurred. This justification is crucial for employing oral history in this study, which conceptualizes technology as a lived experience (McCarthy & Wright 2004). Thus, narrations of journalists’ personal experiences are vital for comprehending the various aspects of technological changes in the journalism profession. Accordingly, it will be possible to conceptualize the technology and the equipment as the actants in these oral history narrations from the ANT perspective.

The author conducted oral history interviews with all the sampled journalists. Prior to conducting interviews, a pilot interview was conducted to test the interview flow and the studio equipment. Following Ritchie’s suggestion (2003), each interview session was planned to last no more than two hours to prevent a ‘narcotic’ effect on the interviewee. All interviewees were verbally informed of the research’s aim and scope before starting each interview session. Also, a written consent form from each interviewee and an ethical approval were obtained from the university’s Ethics Committee. As explained in the literature (Besley & Roberts, 2010; Lindlof & Bryan, 2002), due to their professions the journalist interviewed were able to provide detailed outstanding qualitative data. The manually transcribed text of these oral history narrations was analyzed and coded using the computer assisted qualitative data analysis software NVivo (Bazeley & Jackson, 2013; Maher et al., 2018; Niedbalski & Ślęzak, 2019). The author herself carried out all the coding to avoid the inter-coder reliability issues. The coding procedure was conducted in alignment with the two research questions mentioned above.

The oral history approach is a subject-oriented approach (Larson, 2007), and accordingly oral history interviews were specifically on technological change in journalism professions. The sample is a sub-set of a larger study on media technologies and social change in Turkey. I employed purposive and snowballing sampling techniques, and received assistance from the Izmir Journalists Association (IGC) for sampling preparations. Participants were fully informed about the study before giving their consent, and the ethical committee approval was obtained from Yaşar University (Izmir) in compliance with the Scientific and Technical Research Council of Turkey (TÜBİTAK) requirements. The sample size of the present study, 28, is considered to be fairly satisfactory when compared with Mason’s (2010) survey findings on qualitative
researches. Considering the saturation issue (Glaser & Strauss, 1967), the sample size is reasonable, in the sense that beyond this size, no additional data was expected to contribute further to the understanding of the phenomenon. The composition of the sample is representative to encompass diverse journalism professions, including reporters, editors, broadcast journalists, newswire reporters and photojournalists. Among the sampled journalists, women constituted 18%, with only 5 being female. However, this does not indicate a bias of under-representation in this sample, as shown in previous studies (Öke, 1994; Altun, 1995) employment rate of Turkish women journalists was quite low in the period studied. A majority, 68%, were university graduates. The median age of the sampled journalists was 60. Giving a precise distribution of these professionals within the sample is challenging since many professionals started their career as reporters and later became editors, and few of them, in the end, became owners. However, based on their longest career period, I assumed that the sampled journalists come from three broad professional categories: print, broadcast, and newswire. On the other hand, transfer from one professional domain to the other was also common place. Some journalists started their career in print journalism, and later transferred to broadcast journalism. Sociodemographic distribution of sampled journalists is shown in Table 1.

Table 1. Socio-demographic distribution of journalists in the sample

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Education</th>
<th>Age</th>
<th>Profession</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>23</td>
<td>Middle school</td>
<td>&lt;40</td>
<td>Print</td>
<td>10</td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>High school</td>
<td>41–60</td>
<td>Broadcast</td>
<td>15</td>
</tr>
<tr>
<td>University</td>
<td>19</td>
<td>University</td>
<td>60&lt;</td>
<td>Newswire</td>
<td>3</td>
</tr>
</tbody>
</table>

**Results**

This paper focuses on the transformation of journalism professions through technological changes since the 1980s in Turkey. It evaluates the journalists as actors and the technology as the Actant of these historical changes from an ANT perspective. Journalism as a profession, along with the technological instruments and devices used in journalistic practices, are also included in the analyses as the actants of the change. Given that the interviewed journalists’ median age is 60, their narrations cover the period of historical transition from analog to digital technologies. Therefore, these narrations offered a valuable opportunity to trace the details of these professional transformations in journalism regarding technology.

As explained above, in addressing the first research question on the journalists’ perceptions of work conditions, the narrations are evaluated under ‘professionals in transition’ and ‘lost jobs vs. new jobs’ themes. In addressing the second research question on the comparison of analog and digital journalism technologies in their workplace, the narrations are evaluated under ‘remembered instruments’ and ‘innovative practices’ themes.

**Professionals in transition**

The interviewed journalists longingly remembered the satisfaction and the self-esteem during their past job experiences. Although they mentioned the difficulties stemming from the insufficient technology during their past work, they emphasized the satisfaction and the self-esteem they experienced in these days. Their nostalgia for professional satisfaction and self-esteem was usually associated with low technology. Telephone, typewriter, telex and computer were frequently mentioned as the sources of difficulties in news writing practices. Before the introduction of digital exchanges in the 1980s, number of telephone and telex lines were quite limited, and the journalists had to wait in queues for calls. In some newsrooms, the number of telephone apparatuses
was insufficient, and the reporters had to wait for their turn. Typewriters, compared to computers, were particularly remembered for the challenges of correcting and rewriting. At the beginning of newsroom computerization, limited numbers of computers were also a problem for the reporters, who had to wait for their turn to type in the story. Despite all such technological insufficiencies, their professional satisfaction and self-esteem were high. “We were very busy, working hard and tired, but we were much happier” explained one informant. Another one compared today and the past as “in those days it was very hard, I remember reporting on the phone more than ten hours… but then, journalism used to be a prestigious and respectable profession, not like today”. Despite such traumatizing experiences, journalists’ loyalty to journalism as an ideal remains intact (Deuze, 2019). The introduction of higher technology obviously improves productivity but does not necessarily advance the professional quality. As Latour (1988, p. 301) explained, “when humans are displaced and deskilled, nonhumans have to be upgraded and reskilled”. The use of advanced technology and sophisticated equipment in journalism has gradually led to the devaluation of professional skills. In parallel to this, journalists’ perceptions of their profession in the public have also deteriorated. The interviewees generally made statements about the decline in the reputation of their profession, such as “those old good days of journalism, it is not even comparable to what it is now”. Nevertheless, journalists attribute the decline in the reputation of their profession to economic downturns rather than technology.

**Lost jobs vs. new jobs**

Almost all narrators mentioned the technology as a negative factor contributing to the disappearance of many jobs in journalism. With the introduction of digital technologies after the 1980s, division of labor in the printing industry had changed radically. Regarding the digitalization of the newspaper printing industry, stitching masters, montage masters, color separators, and print camera men were laid off in a short period of transition. Similarly, newsroom jobs, such as telex operators, dark room technicians were also eliminated. Recently, a new wave of job losses was witnessed due to the transition of print newspapers to complete online versions. The informants underlined the rapid contraction of the job market for the newspaper print industry in Turkey. For example, İzmir Branch Representative of The Journalists’ Union of Turkey informed particularly “the sad loss of the jobs for typesetting and dark room sections” due to an “awesome and rapid innovation process”. This contraction is visible especially in the local press enterprises. As depicted by one informant, today “there are local online news platforms run by only 1–2 journalists who are also maintaining the technical side”. The number of jobs in the broadcast industry has also shrunk. Many broadcast enterprises have also consolidated radio and television roles in order to reduce their employment costs. As Pavlik and McIntosh (2018) explained, the digital technology forced the convergence of media formats and industries as well as programming content. This type of convergence is highly effective in local broadcasting where journalists produce content for radio, television and online outlets simultaneously. The professional roles of the journalists as actors are not fixed over the all periods of their careers. In terms of ANT, technology, as a prevalent actant, forces the professional journalists to acquire new skills through their careers. As the oral history narrations in this study reveal, most of journalists adapted to the new technologies quite easily and continued their professions. Some of them had the chance to transfer from print journalism to broadcast journalism, while some others had to quit the profession either with retirement or switching totally to a new sector. Based on 31 qualitative research interviews, Linden (2017) asserts that journalists have shown a strong capacity for adaptation of new technology. The present study also confirms such adaptation in the Turkish case. However, these changes occurred within a highly commercialized labor market, leading to significant un-
employment among journalists. Through this radical change period, journalists’ perceptions of their profession have shifted negatively.

**Remembered instruments**

Croteau and Hoynes (2018) identify three main social forces influencing media technologies: industry, government, and users. The media industry opts to deploy it, governments choose to regulate it, and users decide to adopt or adapt it. Therefore, users’ experiences with journalism technology and instruments are crucial for understanding technology’s social position. Instruments, as technical artefacts, are integral to a profession. For instance, Méadel (2015) explains how people-meter as an actant created a new audience definition to be accepted by all actors of the television system. From the ANT perspective, instruments that are used in journalistic practices are nonhuman actants in the profession. Nonhuman actants, or ‘things,’ play a significant role and impact our collective lives, according to Bencherki (2017). Journalists use many technological instruments, such as typewriters, cameras, telephones, computers etc., in their journalism practices. The early adoption of a new technology usually represented a status symbol. Even a typewriter was a status symbol among the journalists in the early 1950s. Later in the 1990s, the computers became a status symbol, as evidenced in oral history narrations. Nevertheless, in parallel with the job losses in the journalism labor market, several professional instruments that were used in journalism practices had become obsolete within a short period. Rapid introduction of digital technologies had caused swift depreciation of some communication and media technologies. The informants also remembered such obsolete instruments. For instance, they named *Leafax*, a device for transmitting photographs over telephone lines, as once the highest available technology for the photojournalists. It was a short-lived transition technology from telephoto to computers. One informant described it as ‘a kind of early laptop’. Such short-lived and obsolete media technologies still shape the memories of journalists because they acted as a genuine facilitator for their work practices. Another remembered obsolete technology was the digital backs for analogue cameras, that was quite an expensive add-on for large format cameras. Journalists frequently mentioned using Western-branded instruments in their work, including *Heidelberg, Remington, Leica, IBM, Philips, Ampex*, among others. This is not surprising since Turkey had imported most of the professional equipment from Western countries such as the USA, UK, and Germany. However, just before the beginning of the 21st century, this market structure has almost completely changed, and countries like Japan and PRC prevailed in the market.

**Innovative practices**

From time to time, practicing journalism may require some technological innovations from the journalists themselves. Latour (1991, p. 109) suggests that the world of innovations is not ‘filled with actors to which fixed contours may be granted’. Journalist as innovators may also have blurred professional contours. They may act as technicians in finding solutions to some technological problems they face. The oral history participants narrated many interesting technological innovations that they had experienced during their professional life. Most of these innovations were informal practices. For example, applying woman stocks as lens diffusers, using an aquarium heater in dark room development baths, or reversing a 50 mm lens to use it as a macro lens are such practical innovations by the journalists. The transition from typewriters to computers necessitated innovative writing practices. Similarly, the introduction of fax machines in newsrooms introduced innovative news-gathering practices. Instead, such practices are spread through professionals’ informal networks. However, they are spread among professionals’
informal networks. A photojournalist, narrating about his own innovative practical solutions, claimed that “these techniques were not written in any textbook, they were not taught at schools either”. Standard journalism education usually incorporates the technology as a formal body of knowledge emitted by corporates in the media technology market, thus ignoring the real-life innovative experiences of journalists. ANT considers the use of machinery as the delegation of work to the actants. When a new instrument is used, some of the works that were previously performed by the actors are delegated to this new instrument, the actant. Latour states that “every time you want to know what a nonhuman does, simply imagine what other humans or other nonhumans would have to do were this character not present” (1988, p. 299). Many of the new journalistic technologies and new instruments as nonhuman actants has changed the journalistic practices innovatively. The oral history informants often compared their journalistic practices “before” and “after” the introduction of such new technologies and instruments. They also recounted how enthusiastically and innovative they have adopted to these new technologies. However, some technological innovations were not welcome. Large-scale technological changes were a source of tension between the journalist and the owners. For example, as the narrations indicate, the owners of Yeni Asır regional newspaper were urging the journalists to use newly installed computers as a part of their agile technology policy, and some journalists were resisting and continued to use typewriters. The interviewees stated that especially older journalists have difficulty in using computers, so they insist on using typewriters, and in some cases, they even use typewriters secretly in the office.

Discussion and conclusion
Since the 1980s, journalists in Turkey have witnessed intensive technological transformations in a techno-cultural environment where their personal and collective memories were shaped. This study employed oral history interviews as the data collection technique in order to explore the details of this techno-cultural change from the ANT perspective. 28 senior Turkish journalists were interviewed about their experiences with the technological transformations in their professional life. Their oral history narrations are analyzed and grouped under four themes in relation with the ANT perspective. These themes – ‘professional satisfaction with self-esteem,’ ‘lost jobs vs. new jobs,’ ‘remembered instruments,’ and ‘innovative practices’ – help address the research questions regarding the adaptation to new technologies and the comparison between old and new technologies. Through these themes, it is traceable how journalism technologies and instruments act as mediators in journalism practices.

Latour notes that “ANT is not an empty claim that objects do things ‘instead’ of human actors” (2005, p. 72). As the oral history narrations reveal, journalism technologies and instruments act not only as mere intermediates but also as mediators in such a way that they transform, translate, and modify the journalistic processes and perceptions. The introduction of technologies such as the typewriter, telephone, telex, telephoto, and computer into newsrooms has had multifaceted impacts on journalism, affecting business organization, employment, competition, news content, and news values.

Journalism in Turkey has witnessed large-scale technological changes throughout its history. Change of the alphabet in 1928 created significant technological challenges in journalism and the printing industry. The industry’s swift transition from typewriters to computers in the 1980s presented numerous challenges. Journalists generally seek to learn new technologies to enhance their employability, yet face significant pressure to keep pace with these changes (Min & Fin, 2021). This was also the case for the Turkish journalists interviewed. Lewis and Westlund (2015) name four historical stages in journalism in terms of technological developments: human-
centric journalism, technology-supported journalism, technology-infused journalism, and technology-oriented journalism. The oral history narrations in this study confirm that at least the last three phases were experienced in the professional lifespan of the interviewed journalists. Consequently, these journalists experienced considerable stress due to the rapid evolution in the relationship between journalism and technology. As a result, public perceptions of the journalism profession have deteriorated, a sentiment echoed in their nostalgic reflections on the profession’s past. Nevertheless, journalists do not attribute the decline in the reputation of their profession to technology, but rather to unfavourable economic conditions. As the oral history narrations reveal, Turkish journalists’ techno-cultural experiences reflects an interplay between the positive and negative sides of technological changes.

Latour’s concept of technology as a ‘black box’ – where ‘technical work is made invisible by its own success’ (Latour, 1999, p. 304) – is nuanced by the oral history narrations in this study. The oral history narrations in this study demonstrated some of the technology-related problematic issues in journalism. These narrations reveal that not all journalism technologies operate smoothly enough to be considered ‘black boxes’ in Latour’s terms. Nevertheless, journalists’ own innovative interventions to such technical problems helped ease their career up to a certain extend. The narrations reveal that journalists generally view the impact of technological developments on journalistic content – such as speed, image, and print quality – positively.

The contribution of this study from an ANT perspective is that in explaining how technology is transforming journalism, it also reveals that technology as a non-human actor is as influential as journalists as human actors. In this way, it is shown that technology, devices, and practices of use are important factors in the development of journalism as a profession. It is evident that technology, with its devices and usage practices, will continue to play a crucial role in journalism studies.

It would be appropriate to mention three limitations of the study here. The first limitation pertains to the oral history methodology. While interviews provide valuable subjective insights, they can also introduce biases that may not fully represent the broader context. Incorporating additional data through other qualitative methods could enhance the analysis. The second limitation concerns the representativeness of the sampled journalists. A more diverse sample from different countries might reflect the techno-cultural differences in a comparative study design. The explorations of this study are primarily generalizable to similar developing countries which mainly import media technologies. However, highly developed countries that produce media technologies might have a different techno-cultural history. Lastly, the study could enrich the analysis from a political economy perspective by additionally employing the field theory (Bourdieu, 1990; 2005) that requires a careful integration with the ANT, as competently exemplified by Prior (2008). Obviously, all these limitations may be eliminated by future research.

Echoing Latour’s (1991) words “all the actors co-evolve” in journalism; the journalists, the profession, and the technology. This study presented a section of that evolution. As the oral history narrations revealed, the technological changes were not merely a replacement of new equipment with the old. All these new technologies and instruments as actants played a more complicated role in journalism field. Finally, I hope the narrations of technology in this study will contribute to the media archaeology. These narrations provide not just personal memories but collective insights into the experiences of actors within the field of journalism. Journalism education institutions are also expected to reflect these techno-cultural aspects of journalism into their curricula, most of which usually conceive technology as a factor that independently determines the journalism professions. It is apparent that the journalism profession will continue to evolve through the interplay between the new technologies and the journalists in a network.
Acknowledgement
This paper is based on the data from the research project (No: 218K137) supported by Scientific and Technical Research Council of Turkey (TÜBİTAK). Institutional ethical approval is obtained from Yaşar University Ethical Committee (Decision no: 2018/11). I also thank to İzmir Association of Journalists for guiding me on sampling process.

Bibliography


