Studying the influence of Bulletin Board System technologies on the communication culture of pre-internet Turkish-speaking online communities: a socio-technical approach

Ivo Furman

Abstract

How does the technological infrastructure of a communications medium influence the culture of an online community? Taking up a socio-technical (STS) approach to online communities and computer mediated communication, this study introduces and explores the communication culture of Bulletin Board Systems (BBS) active in Turkey between 1995 and 1996. In the first part of the study, the researcher provides a brief history of BBS networks worldwide and of pre-Internet communication networks in Turkey. In the second part, using a sample from a privately owned archive of correspondences from Hitnet, a national-scale FidoNet-style BBS network popular in Turkey between 1992 and 1996, the study documents how some of the technical constraints on the level of hardware, software, and human-computer interaction (HCI) influenced the communication culture of the Hitnet community. At the same time, the study pays especial attention to the workarounds devised by community members to work around these constraints.

Keywords: *Online communities*; *Bulletin Board Systems (BBS)*; *socio-technical systems (STS)*; *sociology of computer-mediated communication*; *Turkey*.

Introduction

Part of the allure of joining online communities in patriarchal and conservative societies is the possibility to socialize both anonymously and non-anonymously

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in a safe environment.[1] This observation certainly applies to Turkey, where the triad of Mediterranean cultural codes of honor and shame, Islam, and a secular nationalist ideology form the basis of a society with strongly conservative cultural values.[2] These conservative cultural values, when combined with a faulty democratic regime traditionally characterized by a lack of press freedoms and widespread censure of the freedom of speech,[3] make it difficult for individuals not a part of the social status quo to socialize in public and express alternative ethnic/sexual identities or ideologies. In this context, computer-mediated communication (CMC) technologies afford the possibility of circumnavigating some of the more restrictive codes of public life in Turkish society. They also allow individuals to join online communities and socialize with people sharing similar cultural values and ideologies.

Online or virtual communities can be defined as groups of people with shared interests or goals for whom CMC is a primary form of interaction.[4] CMC allows people to find and socialize with others who share similar interests, thereby forming and sustaining virtual communities[5] on the basis of social homophily. Much like social relations in the offline world, homophily, or the tendency of social actors to form ties with similar others, is the driving force behind the formation of larger social aggregates, such as communities or social networks.[6] Perceived affinity between social actors creates the preconditions necessary for the aggregation of collective identities, communities, or neighborhoods online. Sustaining interaction is the other vital component for the emergence of online aggregates: "social aggregations […] emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace."[7] Drawing from this, one can define online or virtual communities as "groups of people with common interests and practices that communicate regularly and for

1 Martin Slama, "The Agency of the Heart: Internet Chatting as Youth Culture in Indonesia," *Social Anthropology* 18, no. 3 (August 2010): 316–30, doi:10.1111/j.1469-8676.2010.00110.x.

2 Meltem Müftüler-Bac, "Turkish Women's Predicament," *Women's Studies International Forum* 22, no. 3 (1999): 303–15, doi:10.1016/S0277-5395(99)00029-1.

3 See Ivo Furman, "Holy Sources of Knowledge: A Biographic Case-Study of the Role of Peer-Production in the Formation of the Networked Public Sphere in Turkey" (Ph.D. dissertation, Goldsmiths College, University of London, London, 2014).

4 Alan R. Dennis, Sridar K. Pootheri, and Vijaya L. Natarajan, "Lessons from the Early Adopters of Web Groupware," *Journal of Management Information Systems* 14, no. 4 (Spring 1998): 65–86.

5 Starr Roxanne Hiltz and Barry Wellman, "Asynchronous Learning Networks as a Virtual Classroom," *Communications of the ACM* 40, no. 9 (September 1997): 44–49, doi:10.1145/260750.260764.

6 Miller McPherson, Lynn Smith-Lovin, and James M. Cook, "Birds of a Feather: Homophily in Social Networks," *Annual Review of Sociology* 27 (2001): 415–445.

7 Howard Rheingold, *The Virtual Community: Finding Connection in a Computerized World* (London: Secker & Warburg, 1994), 5.

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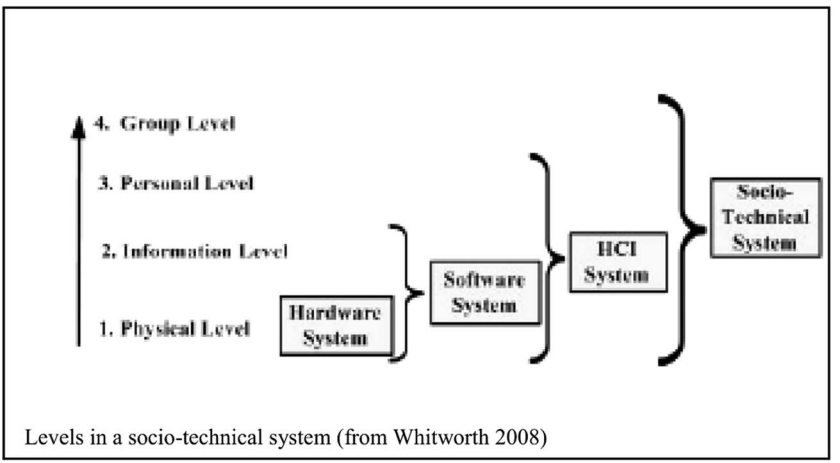
some duration in an organized way over the Internet through a common location or mechanism."[8]

One important yet understudied aspect regarding the formation of online communities is the role played by the technological medium in facilitating this experience. The affordances of a communications technology facilitate the experience of participation in online communities and, as such, either intensifies or inhibits certain modes of self-expression and communal self-organization. Often, researchers of online communities and CMC focus on human actors at the expense of the non-human, effectively "blackboxing" the role played by the technological medium in shaping CMC. One more holistic framework that can include non-human actors in a study of online communities is the socio-technical system (STS) approach. Socio-technical systems can be defined as systems of people communicating with people that arise through interactions mediated by a technological artifact rather than the natural world.[9] Online communities need to be seen as products of socio-technical systems, which they then appropriate and reshape according to their immediate needs.[10] It has been argued that there are four levels in a socio-technical system: the physical level, the information level, the personal level, and the group level, as visualized in the following figure:



Levels in a socio-technical system (from Whitworth 2008)

8 Catherine M. Ridings, David Gefen, and Bay Arinze, "Some Antecedents and Effects of Trust in Virtual Communities," *The Journal of Strategic Information Systems* 11, no. 3–4 (December 2002): 271–95, doi:10.1016/S0963-8687(02)00021-5.

9 Brian Whitworth, "The Social Requirements of Technical Systems," in *Handbook of Research on Socio-Technical Design and Social Networking Systems*, ed. Brian Whitworth and Aldo de Moor (Hershey, PA: Information Science Reference, 2009), 3–22.

10 Wiebe E. Bijker, *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change* (Cambridge, MA: MIT Press, 1997).

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For an online aggregate to emerge, the technological artifact firstly needs to be a stable configuration of hardware and software architectures. While physical architecture enables or restricts specific forms of social organization in the natural world, it is hardware and computer code that plays the same "architectural" role in digital environments. The architecture of a digital artifact is its underlying software structure,[11] which is designed according to a "matrix of concepts."[12] As suggested by Langdon Winner,[13] the "matrix of concepts" that goes into the design of a technological artifact are political insofar as they act as guiding principles in the design of the artifact. As such, these guiding principles and values constitute a particular vision regarding the role of the technological artifact in society and are hence, as Nolin notes,[14] *ideological*. Therefore, the coding practices that software architectures lead a "double life" wherein they not only organize socio-technical systems through the affordances of HCI, but also subjectivize participants into a particular "worldview."[15]

Human-computer interaction (HCI), which constitutes the basis of the personal level, is based on computer-mediated, personal exchanges of information through an interface which is itself built from hardware and software architectures.[16] Affordances play a key role within the context of HCI, as they determine the field of CMC available to the individual user.[17] As a term, affordances was introduced by Gibson in 1977 to describe the range of possibilities an environment offers to an organism embedded within the environment. These properties consist of "a specific combination of the

11 Barbara Van Schewick, *Internet Architecture and Innovation* (Cambridge, MA: The MIT Press, 2010).

12 Philip E. Agre, "P2P and the Promise of Internet Equality," *Communications of the ACM* 46, no. 2 (February 2003): 39, doi:10.1145/606272.606298.

13 Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago: University of Chicago Press, 1986).

14 Jan Michael Nolin, "Speedism, Boxism and Markism: Three Ideologies of the Internet," *First Monday* 15, no. 10 (October 2010), doi:10.5210/fm.v15i10.2566.

15 Tarleton Gillespie, "The Stories Digital Tools Tell," in *New Media: Theses on Convergence Media and Digital Reproduction*, ed. John Caldwell and Anna Everett (New York: Routledge, 2003), 107–127.

16 Personal exchanges of information through computer-mediated tools can be said to encompass three processes of communication: (1) factual information exchange; i.e., the exchange of factual data or information; (2) personal information exchange; i.e., the exchange of personal sender state information; and (3) group information exchange; i.e., the exchange of group normative information. See Brian Whitworth, Brent Gallupe, and Robert McQueen, "A Cognitive Three-Process Model of Computer-Mediated Group Interaction," *Group Decision and Negotiation* 9, no. 5 (September 2000): 431–456, doi:10.1023/A:1008780324737.

17 Brian Whitworth, and Adnan Ahmad. 2012. "Socio-Technical System Design," in *Encyclopedia of Human-Computer Interaction*, ed. Mads Soegaard and Rikke Friis Dam (Aarhus, Denmark: The Interaction-Design.org Foundation, 2012), http://www.interaction-design.org/encyclopedia/socio-technical_system_design.html.

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properties of its substance and its surfaces taken with reference to an animal."[18] Affordances in physical environments rely on a number of different sensory stimulation methodologies to communicate functions to users. In contrast, affordances in digital environments depend solely on visual stimulation through user interfaces (UI) in order to communicate function.

In the context of HCI, the placement of affordances plays a key role in the emergence of the specific configurations of a socio-technical system. danah boyd writes:

> Networked technologies introduce new affordances for amplifying, recording, and spreading information and social acts. These affordances can shape publics and how people negotiate them. While such affordances do not determine social practice, they can destabilize core assumptions people make when engaging in social life. As such, they can reshape publics both directly and through the practices that people develop to account for the affordances. When left unchecked, networked technologies can play a powerful role in controlling information and configuring interactions.[19]

The power of affordances to configure socio-technical systems means that affordances have over the past decade become an increasingly popular concept for guiding HCI design. In the context of HCI, affordances have been used as a framework to refer to the action potential that can be attributed to a technology.[20] Examining the relationship between UI and experience through the perspective of affordances reveals the symbiotic relationship between the action to be taken and the emergence of socio-technical systems. Being the communicator of technological capacity, one can argue that affordances constitute the aspect of hardware and software architectures visible to individual users.

Looking at literature that uses a theoretical framework influenced by an STS approach to technology, one can argue that these studies are not just about applying sociological analysis to how technological mediums shape the

18 James Gibson, "The Theory of Affordances," in *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*, ed. Robert Shaw and John Bransford (Hillsdale, NJ and New York: Lawrence Erlbaum Associates, 1977), 69–70.

19 Danah Boyd, "Social Network Sites as Networked Publics: Affordances, Dynamics, and Implications," in *A Networked Self: Identity, Community and Culture on Social Network Sites*, ed. Zizi Papacharissi (New York: Routledge, 2011): 39.

20 See James J. Gibson, *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979); Ian Hutchby, "Technologies, Texts and Affordances," *Sociology* 35, no. 2 (May 2001): 441–56, doi:10.1177/S0038038501000219; Paul M. Leonardi, "Digital Materiality? How Artifacts without Matter, Matter," *First Monday* 15, no. 6 (June 2010), doi:10.5210/fm.v15i6.3036; and Ann Majchrzak and M. Lynne Markus, "Technology Affordances and Constraints Theory (of MIS)," in *Encyclopedia of Management Theory*, ed. Eric H. Kessler (Thousand Oaks, CA: SAGE Publications, Inc., 2013), 832–836, doi:http://dx.doi.org/10.4135/9781452276090.n256.

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organization of society, but also how social and technical aspects integrate into complex assemblages which shape both social organization and technology.[21] As noted elsewhere,[22] some of the most notable attempts to study the link between architectures and social organization have been made by Susan Leigh Star and her colleagues within the field of science and technology studies.[23] Star's article on the "ethnography of infrastructure" effectively conveys the idea that the study of architectural design choices, technical specifications, standards, and number sequences plays a crucial role in shaping processes of communication and socialization more familiar to social scientists.[24] Drawing from this observation, she argues as follows:

> It takes some digging to unearth the dramas inherent in system design creating, to restore narrative to what appears to be dead lists. […] Much of the ethnographic study of information systems implicitly involves the study of infrastructure. Struggles with infrastructure are built into the very fabric of technical work […]. However, it is easy to stay within the traditional purview of field studies: talk, community, identity, and group processes, as now mediated by information technology. […] Study an information system and neglect its standards, wires, and settings, and you miss equally essential aspects of aesthetics, justice, and change.[25]

An approach which takes into account the influence of the technological medium in shaping the range of human socialization online brings about considerable changes in methodology, as the scope of the fieldwork enlarges to include arenas where the shapes of architecture and infrastructure are observed, de-constructed, and reconstructed, and where decisions are made about codes, standards, bricolages, and reconfigurations,[26] effectively combining together "historical and

21 See Manuel De Landa, *A New Philosophy of Society: Assemblage Theory and Social Complexity* (London and New York: Continuum, 2006).

22 Francesca Musiani, "Caring about the Plumbing: On the Importance of Architectures in Social Studies of (Peer-to-Peer) Technology," *Journal of Peer Production* 1 (2012), http://peerproduction.net/issues/issue-1/peer-reviewed-papers/caring-about-the-plumbing/.

23 Susan Leigh Star and Karen Ruhleder, "Steps towards an Ecology of Infrastructure: Complex Problems in Design and Access for Large-Scale Collaborative Systems," in *CSCW '94: Proceedings of the 1994 ACM Conference on Computer Supported Cooperative Work* (New York: ACM, 1994), 253–264, doi:10.1145/192844.193021; Susan Leigh Star, "The Ethnography of Infrastructure," *American Behavioral Scientist* 43, no. 3 (1999): 377–391, doi:10.1177/00027649921955326; Susan Leigh Star and Geoffrey C. Bowker, "How to Infrastructure," in *Handbook of New Media: Social Shaping and Social Consequences of ICTs, Updated Student Edition*, ed. Leah A. Lievrouw and Sonia M. Livingstone (London: SAGE Publications Ltd., 2010), 230–246, doi:http://dx.doi.org/10.4135/9781446211304.n13.

24 Star, "The Ethnography of Infrastructure," 377.

25 Ibid., 377–378.

26 Star and Bowker, "How to Infrastructure," 151–152.

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literary analysis, traditional tools like interviews and observations, systems analysis, and usability studies."[27] Using the STS framework, this study will examine how the communication culture of the *Hi! Türkiye Network* (an online community active in Turkey between 1992 and 1996, commonly abbreviated to Hitnet) was shaped by the both the architecture of Bulletin Board Systems (a pre-Internet and asynchronous communication network) and the capacities afforded by the UI of Bluewave, the primary terminal used between 1992 and 1996 to communicate on Turkish BBSes.

Although there is a steady and growing literature on the communication culture of Turkish speakers on the Internet,[28] no comprehensive academic study exists on the organization of pre-Internet online communities or pre-Internet CMC cultures in Turkey. One possible explanation as to why the academic establishment in Turkey has overlooked both subjects can be linked to the lack of archival material. Unfortunately, as I shall explore in depth further on in this study, most privately owned BBS networks were simply taken offline after falling into disuse from late 1996 onwards. As a result, much of the information stored by BBS administrators has remained in private hands. Furthermore, much of these private archives has been lost due to the lack of standardized and secure procedures for data storage.

The archival sample used for this study is publicly accessible and has been uploaded to the Internet by a former BBS enthusiast. However, a number of technical steps had to be taken in order to be able to access it. DosBox, a free emulator software that simulates an IBM PC computer running on MS-DOS (one of the earliest operating systems) was used to run Wolverine, an Offline Mail Reader (OMR) with Turkish language support.[29] Without an emulator, running Wolverine would have been impossible because of incompatibilities between older MS-DOS software and modern operating systems. The next step was to use Wolverine to access the files within the archive. Each file contained a batch of message logs which were ranked

27 Star, "The Ethnography of Infrastructure," 382.

28 See Mutlu Binark and Günseli Bardaktutan-Sütçü, "Türkiye'de İnternet Kafeler: İnternet Kafeler Üzerine Üretilen Söylemler ve Mekan-Kullanıcı İlişkisi," *Amme İdaresi Dergisi* 41, no. 1 (2008): 113–48; Mutlu Binark, Gunseli Bayraktutan-Sütcü, and Fatma Buçakçı, "How Turkish Young People Utilize Internet Cafes: The Results of Ethnographic Research in Ankara," *Observatorio* 8 (2009): 286–310; Hümeyra Can and Nilüfer Can, "The Inner Self Desires a Friendly Chat: Chat Metaphors in Turkish and English," *Metaphor and Symbol* 25, no. 1 (2010): 34–55, doi:10.1080/10926480903538480; Ayışığı Sevdik and Varol Akman, "Internet in the Lives of Turkish Women," *First Monday* 7, no. 3 (March 2002), doi:10.5210/fm.v7i3.937; and Ayşegül Tahiroğlu et al., "Internet Use Among Turkish Adolescents," *CyberPsychology & Behavior* 11, no. 5 (October 2008): 537–43, doi:10.1089/cpb.2007.0165.

29 OMRs were graphic interface terminal programs designed specifically for BBS networks that allowed users to send or receive messages to the mainframe computer.

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according to size, date, and the total number of messages. The message logs were primarily from three local BBS networks: ADABBS, BBS_BLUE, and ESS. Of the total of 160 files that were accessible as an archive, 35 belonged to ADABBS, 6 to BBS_BLUE, and 119 to ESS. Technically speaking, Hitnet was more of a communications network linking local BBSes with each other. The Hitnet network provided the possibility of message circulation between islands of local networks, such as ADABBS (Ankara) or ESS (Eskişehir), and did not have centralized control over the localized configurations of these networks. Therefore, despite the existence of a larger Hitnet community, the archive itself is made up of message logs from local networks and not of Hitnet as a BBS. Due to the constraints imposed by the scope and length of an academic article, only eight of the files—those with the largest number of messages—were selected from the archive to be used in this study.

Bulletin Board Systems: digital communication cultures from the pre-internet era

Looking at how fast Internet usage has spread in the past decade and at the diverse array of social media tools currently at our disposal, one might be tempted to assume that the mediation of our social lives through computers is a recent phenomenon. This is simply not true. Contrary to popular belief, the process of CMC entering our social lives is a phenomenon that can be traced to the Bulletin Board Systems (BBSes) started in North America during the winter of 1978.[30]

Bulletin Board Systems were small-scale networks of computers linked together using primitive modem technologies and regular telephone lines. At the same time, they were the first commercially available civilian networks that allowed humans to communicate with each other through computers on a global scale. To set up a BBS, one needed computers, a modem, and a phone line. In 1963, Bell Systems had introduced Bell 103, the first commercially available modem. The modem offered the possibility of modulating an electrical signal from a computer into a phone line and then demodulating it into data on the other end.[31] In 1974, the first commercially available microcomputer, the Altair 8800, became available.[32] By 1977, modems running

30 In 1973, Plato Systems introduced a bug reporting network called Plato Notes, which eventually evolved into a full-sized messaging system. Despite pre-dating BBSes, Plato was only available on a number of campuses, and was never adopted for mass use. Another messaging network, which was called "Community Memory" and which ran on four terminals in Berkley and San Francisco between 1972 and 1974, can also be considered a predecessor to BBSes.

31 See Appendix, Illustrations 1 and 2.

32 See Appendix, Illustration 3.

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inside computers began to be commercially available, and in the same year XMODEM, a program and protocol for transferring files via modem, was written by IBM employee Ward Christensen. The next year, on February 16, 1978, Christensen worked together with his partner Randy Suess to bring online CBBS, the first BBS. Soon afterwards, the duo wrote an article for *Byte* magazine to introduce their invention, and they began to distribute free copies of the software needed to run a BBS. Soon afterwards, the BBS craze took off in North America, and for nearly the next 20 years, dial-up BBSes were the primary way for computer users to get online.

In terms of infrastructure, BBSes were relatively simple to maintain. There would be one mainframe computer in the local network to which other computers would connect and access the data uploaded by the system operator (a "sysop") of the BBS.[33] The main technological impediment of early BBSes was caused by the slow connection speed of modems: the first modems had connection speeds of around 300 Baud, which was roughly equal to reading speed, or about 30 characters per second. Slow connection speeds made exchanging data through terminal programs a long and arduous process. Terminal programs were software with functional graphic interfaces designed to exchange small data packets between the mainframe computer by directing the modem to call a local telephone number.[34] On the other end of the line, there would be a dedicated mainframe computer which would answer the modem to circulate the flow of data between the two computers. The key factor in running a successful BBS was the enthusiasm of sysops. Besides having the technical skills to maintain the mainframe computer needed for the local network, sysops would also be in charge of circulating mail traffic and uploading new software and multi-player door games.[35] After the development of FidoNet in 1982, a software that allowed BBSes to network between each other, sysops were also in charge of maintaining the list of telephone numbers (the "node list") needed to connect with other nodes in the FidoNet system.[36] As becoming a sysop was a voluntary position, the upkeep of the system and the circulation of data on BBSes depended greatly on the technical skills of the person assuming this position.

33 See Appendix, Illustration 4.

34 Graphic interfaces were developed only after the popularization of BBSes in North America. The first BBS boards functioned without a screen, instead using printers to send or receive data.

35 *Trade Wars* and *Legend of the Red Dragon* were examples of BBS games popular in North America during this period. These games relied on a door system that allowed users on BBSes to connect to external programs located on either the hard drive of the mainframe computer or on a floppy disk. Users were allotted a specific amount of time to play these online games, due to infrastructural constraints.

36 See Appendix, Illustration 5.

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Regular telephone lines and slow modem speeds meant that only a limited number of users were able to simultaneously connect to a BBS; users often had to take turns to access the mainframe computer, and only had limited connection time. Furthermore, long-distance calls to non-local telephone numbers were prohibitively expensive during this period, often leading to inflated phone bills for BBS enthusiasts. Users also needed to know the actual telephone number of a BBS in order to be able to connect to the mainframe. These technical constraints meant that BBSes could not really scale up as networks, and as a result almost all BBSes were local phenomena. The only way for sysops to scale up their BBSes in size was through becoming commercial "super" BBSes that would offer services to users in exchange for a monthly membership fee.[37] Despite the limitations in scale, BBSes offered the possibility for users to socialize with each other through forum-like mailing lists as well as simple games accessible through the mainframe computer. Looking back, one can argue that the contents of these data packages, each perhaps the size of a few kilobytes, constitute the first bits of digitalized social life. However, due to technical limitations, the social life created on BBS networks was geographically confined to North America. It was only after the development of FidoNet during the mid-1980s that BBSes evolved into a global network and expanded beyond North America. Using a store-and-forward system allowed the messages to be passed along the nodes in FidoNet without incurring high costs for long-distance or international calls. This made FidoNet the first global communications network for the general public to send electronic messages through computers.[38] The scope of FidoNet would only be surpassed after the popularization of the Internet as a communication technology. The culture of CMC in Turkey can be said to begin with the expansion of FidoNet as a global network.

Hi Türkiye Network: pre-Internet digital communication cultures in Turkey

In comparison to North America and Europe, Turkey can be considered a late adopter of BBS networks. While the potential of the Internet for CMC remained mostly unharnessed in Turkey during the mid- to late 1990s, there was a vibrant BBS ecology centered around the national-scale Hi! Türkiye Network. Ssg, the founder of Ekşisözlük (a large and well-established Turkish-speaking community

37 By the early 1990s, the commercial BBS industry had become a reality, with many companies offering different sorts of paid services, including software, warez, and pornography. There was even a magazine called *Boardwatch* dedicated exclusively to the BBS industry.

38 A system of "regions" and "nets" was developed to organize the FidoNet nodes located around the world into one network. The stability of FidoNet technology caused the network to rapidly grow, and even to last for more than 20 years. In 1984, there were only 132 nodes on FidoNet, but by 1995, there were over 35,787.

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hosting website) and an early participant in BBS communities, describes the Hitnet period of digital culture in Turkey through a definition of the network:

> [hitnet:] a fidonet-style bbs communication network founded around 1993 (when the internet was just something between universities which was lying dormant) when a few people felt the need to communicate. it reached the height of its popularity in 1995 and 1996, then lost popularity when turk telekom introduced its internet-only 822 telephone lines, and these days [1999] it is probably no longer in use.[39]

The first nationwide BBS network was founded on December 12, 1992, at the home of Can Doğancan in Ankara, by a group of nine computer enthusiasts. After examining the FidoNet network protocols, this group of enthusiasts decided to form a FidoNet-style network called Hi! Türkiye Network, which linked local BBS networks through an echo-mail system that allowed messages to be exchanged on a national scale. ADABBS, their own BBS, became the first node in this emerging national network. Despite the technological constraints imposed by primitive modem technology and unspecialized telephone lines, Hitnet quickly grew from a local BBS network into a larger, nationwide network. It connected with the local BBSes that were spawning in different urban centers throughout Turkey via echo-net mail nodes, and in this way formed a wider Hitnet network. The most renowned local BBSes during the early 1990s in Turkey were Ada bbs, buces, and heaven in Ankara; ess, eebbs, and kedi bbs in Eskişehir; bizim bbs, istanbul bbs, and sentinel bbs in İstanbul; and abaza bbs, bbsturk, ege bbs, and iris bbs in İzmir. There were also a large number of pirate BBSes operating in Turkey between 1994 and 1996. These pirate BBSes, too numerous and transient to have actual names, were temporary BBS boards set up to illegally share files or software within a small online community.

As the software of Hitnet was an adaptation of FidoNet protocols, the network evolved to be connected with the global FidoNet network. Hitnet was located on Fido-net zone 8, a zone for "othernets" that used Fido-compatible software, but were not FidoNet BBSes *per se*. This system of organization created a steady circulation of data wherein a local BBS could communicate with another BBS on the other side of the world through FidoNet. The interactions created out of these data exchanges can perhaps be seen as the first attempts by Turkish speakers to communicate and socialize on a wider, global CMC network. As the Hitnet network began to expand and link local BBS networks throughout the country, the upkeep costs incurred by keeping up a

39 https://eksisozluk.com/entry/455

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national network caused Hitnet to evolve into a paid, members-only service. Its transition into a pay service, "super" BBS, which occurred around 1995, also marked the beginning of Hitnet's decline. Fed up with paying membership fees to become a node on Hitnet, many local BBS sysops began to form alternative, free-of-charge networks. This caused a decline in both the number of Hitnet users and in the number of BBS nodes on the network. Some of the FidoNet-style networks founded during this period were Sciencenet (55:100/100), Turknet (35:101/104), and Peacenet (33:500/134). In comparison with Hitnet, these networks were much smaller in scale and offered free-of-charge access to national BBS networks.[40] As the national BBS network in Turkey was fragmenting into smaller, more sustainable free-of-charge networks, the commercial Internet first became available to the general public in 1996. Being a more affordable and stable communications backbone, the Internet hastened the demise of BBS networks in Turkey. Following the global trend, BBS users began to migrate onto the Internet from 1996 onwards. As a result, some commercial BBSes went bankrupt, while others evolved into Internet Service Providers (ISPs).[41] By the end of the millennium, BBSes were already a forgotten networking technology.

Despite their rapid disappearance, BBSes were the first civilian (and, to an extent, commercial) computer-to-computer networks that facilitated CMC on a global scale. Technical constraints on the level of access and hardware meant that CMC on BBSes was not really integrated into daily life: users would have to either go online early in the morning or late at night to avoid paying peak charges for telephone lines. Furthermore, limits on the number of phone lines able to simultaneously connect to a BBS meant that users often needed to take turns to connect to the mainframe. When connected, the slow data exchange speeds of modems meant that only limited information could be exchanged between the mainframe and the user. In other words, a number of technical limitations on the hardware backbone limited the degree and range of CMC possible on a BBS network. Drawing from these observations, one can argue that the communication culture in online communities based around BBS networks were of an asynchronous nature. The asynchronous nature of communication on BBSes meant that users had to use terminal programs similar to email clients to log on to the mainframe and download the most recent circulation of messages. After reading the messages, users would then use the same programs, called offline mail readers (OMRs), to compose replies, which would be exchanged with the mainframe computer in the next round of CMC.

40 Ozan Varol, Es. 189, 8/03/1996, 15:36.

41 One famous example of a commercial BBS evolving into an ISP was America Online (AOL), which had begun as a BSS called Quantum Link.

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The earliest and most popular OMR during the 1990s was a program called Bluewave, which was an American software product designed for FidoNet systems in the United States.[42] One of the major issues with Bluewave as an OMR was that it was designed for English, and hence did not allow users to write using Turkish characters. Eventually, a Bluewave-compatible OMR with Turkish character support was developed by coder and Hitnet enthusiast Ssg in 1996.[43] However, by 1996, BBSes were declining in popularity, which meant that Wolverine never fully caught on with Turkish users. Therefore, one can say that, between 1992 and 1996, Bluewave was the most used OMR in Turkey. This meant that almost all Turkish BBS users had to opt for using English characters on Hitnet between 1992 and 1996. Supporting only a "low-end ASCII" character set, Bluewave users tended to be restricted to only using English upper- and lower-case letters and numerals, as well as some commonly used mathematical and punctuation symbols (e.g., "$," "%," "()," "+," etc.), without any umlauts or other diacritics. Faced with a constraint which forced both the sender and receiver to rely on a narrow set of predetermined symbols with which they had to endeavor to create and share meaning, Hitnet users appropriated the the characters available on the Bluewave OMR to substitute for the missing Turkish characters. What emerged from the combination of using English language characters to communicate in Turkish was a complex code of transliteration in which Turkish phonetics were transcribed using English characters.

The influence of software architectures on language: transliteration, abbreviations, and acronyms

Studies on the subject of online communication show that there tend to be differences between conventional written language and the written language used in CMC environments.[44] As described above, the characters available on BBS OMRS were limited during the mid-1990s and tended to constrain the discourse in ways unique to the medium.[45] Although there have been a few

42 See Appendix, Illustrations 6, 7, and 8.

43 See Appendix, Illustration 9.

44 Susan C. Herring, ed. *Computer-Mediated Communication: Linguistic, Social, and Cross-Cultural Perspectives: Pragmatics & Beyond* (Amsterdam and Philadelphia: J. Benjamins, 1996); Susan C. Herring, "Computer-Mediated Discourse," in *The Handbook of Discourse Analysis*, ed. Deborah Schiffrin, Deborah Tannen, and Heidi Ehernberger Hamilton (Oxford: Blackwell, 2001), 612–634; Yukiko Nishimura, "Linguistic Innovations and Interactional Features of Casual Online Communication in Japanese," *Journal of Computer-Mediated Communication* 9, no. 1 (November 2003), doi:10.1111/j.1083-6101.2003.tb00356.x.

45 Diane F. Witmer, "Risky Business: Why People Feel Safe in Sexually Explicit On-Line Communication," *Journal of Computer-Mediated Communication* 2, no. 4 (March 1997), doi:10.1111/j.1083-6101.1997.tb00199.x.

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studies conducted about the differences between conventional written Turkish and written Turkish in CMC,[46] most of these studies either view the impact of CMC on the Turkish language in a negative manner or examine the impact of the Internet on language through the perspective of multiculturalism. In contrast, this paper argues that the colloquial language used by Turkish-speaking BBS users is a by-product of the technical constraints imposed by the communications medium. Using messages from the sample obtained for this study, I will focus on how Turkish-speaking users had to develop "workarounds" to resolve the issue of communicating effectively using English characters.

Sociologists in general, and sociologists of technology in particular, have used the term "workaround" to explain how an actor is able to adjust a technology to meet their particular needs or goals. In this context, the pioneering work of Les Gasser constitutes a significant contribution to further understanding the practices of workarounds. Gasser wrote that working around means "intentionally using computing in ways for which it was not designed or avoiding a computer's use and […] relying on an alternative means of accomplishing work."[47] Gasser's work, in this sense, can be read as an account of how actors, by deploying some form of effort or skill, are able to overcome a difficulty or a constraint imposed by a technology. From this perspective, one can argue that transliteration and some of the more complex linguistic features presented in this study all constitute workaround practices. Due to the limited sample of data used in this analysis, this study does not aim to document all of the workaround practices used by Turkish-speaking BBS users to communicate in Turkish. Instead, it aims to provide a snapshot of how the constraints imposed by the technological medium of the BBS communication platform influenced the colloquial written language used for CMC.

46 Canan Aslan, "Content Analysis on Language Mistakes Made by Turkish, Turkish Language and Literature Teachers in Internet," paper presented at the 7th International Educational Technology (IETC) Conference, Nicosia, Turkish Republic of Northern Cyprus, May 3–5, 2007, http://files.eric.ed.gov/fulltext/ED500242.pdf; Ender Ateşman, "İnternet ve Dil Kullanımı," paper presented at Akademik Bilişim 2000, Süleyman Demirel University, Isparta, Turkey, February 10, 2000, http://ab.org.tr/ab2000/dokumanlar/atesman-bildiri.ppt; Volker Hinnenkamp, "Deutsch, Doyc or Doitsch? Chatters as Languagers – The Case of a German-Turkish Chat Room," *International Journal of Multilingualism* 5, no. 3 (August 2008): 253–75, doi:10.1080/14790710802390228; Mehmet Kara, "İnternet Türkçesinin Çığlığı: Türkçe Dili (!) ve Diğerleri," *Akademik Araştırmalar Dergisi* 8, no. 30 (October 2006): 157–170; Emin Özdemir, "Bilgisunar Türkçesinin Toplumsal ve Kültürel Etkileri," paper presented at İnternet Haftası 2006: İnternet'in Türkçesi, Middle East Technical University, Ankara, Turkey, April 20, 2006; and Nilgün Tosun, "The Effect of the Internet and Mobile Phones on the Habit of Teacher Candidates' Using Turkish Language as Written Language," *Procedia: Social and Behavioral Sciences* 55 (October 2012): 766–75, doi:10.1016/j.sbspro.2012.09.562.

47 Les Gasser, "The Integration of Computing and Routine Work," *ACM Transactions on Information Systems* 4, no. 3 (July 1, 1986): 216, doi:10.1145/214427.214429.

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As noted above, the lack of Turkish character support on OMRs required Hitnet users to develop a code of transliteration in order to capture the orthography of Turkish. Some examples of this code are as follows:

- $ = ş [ʃ]
- I = ı [ɯ]
- ch = ç [tʃ]

While transliteration constituted one aspect of the communication culture on Hitnet, there was also a rich slang constructed through abbreviations and acronyms. The slang encountered on Hitnet tends to combine English and Turkish words in a mash-up, bricolage manner[48] to form acronyms, which can at times be extremely difficult for outsiders to understand. As a result, one often encounters messages wherein more experienced users unpack and explain these abbreviations and acronyms to newer users on Hitnet. The abbreviations used on Hitnet tend to follow a particular logic in which longer Turkish words are condensed and made smaller by removing vowels. Some examples of such abbreviations are as follows:

- slms (*selamlar* means "greetings" in Turkish)
- mrb (*merhaba* means "hello" in Turkish)
- tsk (*teşekkür* means "thanks" in Turkish)

One of the possible causes behind the enduring practice of using abbreviations in BBS networks was the limited size of data package exchanges between terminal and mainframe computers. While abbreviations did make the process of typing a message easier, it also shortened the actual size of the message being exchanged. Small data packages meant shorter uploading/downloading times for end users. As a result, the practice of using abbreviations persisted within the Hitnet community. Abbreviations constituted the key element in the formation of other unique linguistic practices on Hitnet. Built upon abbreviations, acronyms on Hitnet were used to describe certain moods or emotions that cannot be described linguistically. Some examples of the kinds of acronyms used on Hitnet can be found in the following message, which was addressed to all Hitnet users:

Selam all, [*Greetings everyone*]
Hitnet'te en cok *kullanilan* kisaltmalar: [*Some of the most used abbreviations on Hitnet:*]
RTFM = Read The F***ing Manual
ESRTFM = Esas Sen RTFM [*Actually*, you *RTFM*]
BHUBADHOD = *Bana* Ha? Ulan Ben Adami Dagitirim Ha Ona Gore [*Me, huh? I'll kick your ass, so behave*]

48 Dick Hebdige, *Subculture: The Meaning of Style* (London and New York: Routledge, 1991).

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HBBY = Hic Bi B*k Yapamazsin [*You can't do shit*]
UTNTNL = Ulan *Tabancam* Nerde Tabancam Nerde Laan [*Dude, where's my gun? Where the hell's my gun?*]
HHHBBY = Hah Hah Hah Biliyordum Bi$ii Yapamiyacagini [*Ha ha ha, I knew you wouldn't be able to do anything*]
DOABDDD = Demek oyle… Al Bakalim: DI$IN!* *DI$IN* *DI$IN* [*Is that so… Then take this: BANG BANG BANG*]
AKKSAA = Ahh Kalbim, Karacigerim, ve Sol Abdominal Aortam.. [*Oh my heart, my liver, and my left abdominal aorta*]
HHOU = Heh Heh Oh Olsun… [*Heh heh, serves you right*][49]

What is striking about these acronyms is the usage of both English and Turkish. What the linguistic bricolage of Turkish and English suggests is that Hitnet users needed to have an adequate grasp of both languages in order to be able to participate in the community culture of the network. On occasion, one can find users without a sufficient grasp of English asking other community members to translate mails; however, this tends to be a relatively rare phenomena in the sample used for this study. At the same time, the dual usage of English and Turkish in a mash-up slang format constitutes a prohibitive linguistic barrier for non-Turkish speakers. One needs to know not only the logic behind mash-up slang, which can arbitrarily reference both English and Turkish pop culture, but also why certain words and not others are imported from English and transcribed into Turkish using English characters in order to sound cool or humorous.

The other unique feature of communication culture on Hitnet is the practice of using taglines. Taglines were small and quirky notes put at the end of sent mails to personalize the message. Users would spend quite long periods of time trying to find an interesting phrases or quotes that would distinguish their message from others'; these messages tended to be in either English or Turkish, or even a mixture of both. As in the case of acronym slang, in taglines one can once again see traces of a linguistic code that is multilingual and borrows from both Turkish and Anglophone popular culture. Some examples of taglines are as follows:

- Öl ya da öldür… Bamn!!! Aaarghhh.. heheh… Send the next moderator in!!! :) [*Kill or be killed… Bang!!! Aaarghh.. hahaha… send the next moderator in!!! :)*]
- Öldürdüğünüz vakitler için bir dakika saygı duruşu [*A moment of silence for all the time you've wasted*]
- Bugün çok mutluyum… [*I'm really happy today*]
- Your heart is free. Have the courage to follow it.

49 Es. 188, SSG, 28/02/1996, 00:58, "net kisaltmaları."

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- It's our wits that make us men..
- They may take our lives but they will never take our freedom
- Every man dies, not every man lives
- This tagline is dedicated to CPC 464
- … Nereye kadar? [… *How much more?*]
- A mistake is something a virgin and a skydiver can only do once
- Taglines are irrelevant. You will be assimilated into the Blue Wave
- Not tonight my dear. I have a modem[50]

Much like the practice of using acronyms, one possible explanation for the usage of taglines is the constraints imposed by the technological medium of a BBS. As has been noted elsewhere,[51] CMC environments lack certain cues that serve to regulate social interaction. One can argue that the physical presence of the body or the face is perhaps the most important element lacking in Hitnet CMC environments. Unable to put a visual image or any sort of personalization on Hitnet correspondences, Hitnet participants devised taglines as a way to both add a meta level to the narrative of the message and personalize it. For example, user Mustafa Çalışkan uses "*bugün çok mutluyum*" ("I'm really happy today") as a tagline when writing a mail about the birth of his baby son and asking for name suggestions for his newly born child.[52] In the context of personalizing correspondence, perhaps the closest resemblance to a tagline in offline interactions would be a signature; however, there is a difference between the mark of the signature, which makes a text belong to someone, and a tagline, which both makes a text belong to someone and adds a supplementary linguistic component to the signature. When used efficiently, taglines not only function as a signature, but also complement or accent the contents of the text in a particular manner. This manner can range from the self-congratulatory, as in "This tagline is dedicated to CPC 464" (a computer programming class) to the ironic ("Not tonight my dear. I have a modem") when, for example, discussing the same topic of different programming languages.

Similarly, one might argue that the practice of using acronyms in the Hitnet community compensated for the lack of voice in CMC. While acronyms referred to physical activities, the mode of reference, or the way physical activities were symbolically referred to, was often drawn from either Turkish or

50 Idris Sahin, ESS. 50. HR. TR. MIZAH, 23/03/1995, 22:35

51 M.J. Culnan and M.L. Markus, "Information Technologies," in *Handbook of Organizational Communication*, ed. Gerald M. Goldhaber and George A. Barnett (Norwood, NJ: Ablex Pub. Corp., 1988), 420–443 and Don Slater, "Trading Sexpics on IRC: Embodiment and Authenticity on the Internet," *Body & Society* 4, no. 4 (1998): 91–117, doi:10.1177/1357034X98004004005.

52 Mustafa Çalışkan, Deep Blue BBS. HR. TR. OTOMOBİLLER, 4/12/1996, 08:35.

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Anglophone pop culture. What these referential gestures do is to turn an arbitrary physical activity into a reference for ritualized activities or scenes from pop culture. For example, UTNTNL or DOABDDD are physical activities which, when delivered in a certain way, double as popular cultural references. BHUBADHOD refers to tough-guy talk from Hollywood cinema. In other words, these made-up acronyms communicate intensity in an affective manner by relying on pop culture tropes. The absence of GIF (Graphics Interchange Format) or SWF (Small Web Format) files in Hitnet CMC environments, due to technical constraints, might be one explanation for the presence of acronyms: both GIFs and SWFs are commonly used in contexts wherein written descriptions are not enough to convey a mood or intensity. Alongside taglines, acronyms make up the primary method through which pop culture is appropriated by community members to express intangible feelings, moods, and intensities within the technological medium of a BBS.

The influence of software architectures on communication and moderation practices

The lack of Turkish character support constituted an important aspect of the technical limitations of Bluewave OMR software and led Turkish speakers to workaround the problem by devising a complex linguistic code. On the other hand, the lack of an affordance to organize messages exchanged through the terminal program meant that users were often confronted with a mass of uncategorized messages. Having to sift through and determine the relevancy of each message was a time-consuming affair for most users. To workaround this problem, the community moderators of Hitnet devised a taxonomical system to sort messages into separate categories. When posting messages, users would have to chose from a pre-defined conversation category, such as "computer" or "humor." Furthermore, the discussion thread that would emerge out of a contribution had to stay within the boundaries of the category. This often restricted the direction a conversation would take on Hitnet. As the structure of human conversation is not so rigid, shifting from topic to topic, in the sample used in this study one often encounters warnings by moderators to keep to the subject of the conversation category. Whenever a post or conversation would go off topic, moderators would post variations of the following message, effectively ending the dialogue:

> Yukarida alintisi yapilmis olan mesajinizin mesaj alaninin konusu disinda oldugu gorulmektedir. Bundan boyle; luften, mesajlarinizi daha fazla

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hassaslikla yazmanizi, bu konuda yeterli deneyime sahip degilseniz, mesaj yazdiginiz sistemin SyOp'u ile gorusmeniz ve/veya Hitnet19.ZIP adli dosyayi alip OKUMANIZ gerektigini hatirlatirim.[53]
[*The message you have written as a response to the message above is considered off topic. From now on, I urge you to write your messages with more sensitivity, and if you do not have sufficient experience in this regard, I urge you to contact the Sysop of the network where you wrote the message and/or to download the file Hitnet19.ZIP and READ IT.*]

While the name of the moderator, the discussion category, and the recipient tend to be contingent, using this form of address to moderate off-topic content seems to be a standardized practice in the correspondence packages. Beginning from the earliest packages in the correspondence archive and continuing through the packages dating from the end of 1996, this form of address is relatively uniform, and one can only find small variations in the way the moderating message is constructed. What is interesting about the moderating culture on Hitnet is that the assigned moderators only intervene on grounds of format, not of content. This means that most moderator interventions are made on the basis of either off-topic content or when the content is too long for Hitnet discussion threads. On the other hand, the actual contents of the discussion threads were usually not moderated. For example, when a participant posts anti-Semitic humor, the community, rather than the moderator, intervenes to take action against the offensive content. While moderators do not warn the offender about the contents of their contribution, some community members post replies—such as "*Irkciliga Hayir! Her ne nedenle ve niyetle olursa olsun…*" ["No to racism! No matter the reason or intention …][54]—to the offending post, effectively silencing the conversation.

One potential explanation for a type of moderation that focuses on format and not content might be related to the geographical position of Hitnet within the wider FidoNet. As noted above, Hitnet used FidoNet-compatible software but remained exempt from FidoNet guidelines on moderation. This caused the regulatory culture of Hitnet to evolve independently from the general user conduct guidelines of FidoNet. As a result, the regulatory culture of Hitnet was based upon a set of guidelines (*tüzük* in Turkish) written by the early founders of Hitnet. One mandatory stipulation of these guidelines was that participants had to either use variations of their real names as nicknames or risk expulsion from the community. This meant that, in contrast with other pre-Internet digital communities, such as the Multi-User Dungeons (MUDs)

53 Ozgur Okten, ESS. 185 HR. TR. MIZAH, 05/10/1995, 22:01, "*KONU DISI UYARISI*.".
54 Levent Unal, ESS. 77 HR. TR. MIZAH, 14/04/1995, 23:10, "I R K C I L I G A H A Y I R."

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studied by Turkle,[55] Hitnet did not afford much to community members in terms of experimenting with online identities. Low levels of anonymity functioned as a form of self-moderation and surveillance, effectively eliminating the need for moderators to police the contents of posts. Furthermore, they acted as a deterrent against community members making controversial comments, engaging in flame wars, or expressing marginal opinions.

Finally, the affordances of the Bluewave OMR also influenced the contents of interaction within the community. For example, the types and sorts of humor which can be effectively conveyed within a CMC environment are shaped by the technical constraints of the OMR. As Fatma Müge Göçek has pointed out,[56] humor in Turkish culture is often both a site of resistance against social hegemony and a vehicle for social critique. The types of humor found within the sample analyzed for this study can be divided into either banter or jokes. Banter, or what is known in Turkish as *geyik*, is a form of small talk wherein numerous participants in a discussion thread can contribute without necessarily addressing a particular person. Furthermore, in this form of banter, there is no expectation of an elaborate reply, and so quite often the banter wildly jumps from subject to subject and can be rather superficial. The other type of humor commonly found on Hitnet consists of jokes. When looking through numerous correspondence logs, one sees that there are two categories of jokes commonly encountered in the humor category: folk humor and satire. The first type is what might be called "folksy" jokes, which are similar to, for example, Irish or Polish ethnic jokes in Anglophone cultures. This sort of folk humor is typical to Turkey and many other cultures worldwide in that it highlights a cultural inability to grapple with modernization, urban environments, and similar social phenomena.

The second type of joke is related to the culture of Turkish satire and caricature. In this category one can see the influence of the popular Turkish-language satirical journals of the period, *LeMan* and *LeManyak*, in determining the content of the jokes. Quite often, popular satirical cartoons and caricatures from these magazines would be adapted to the digital environment of Hitnet. As it was technically unfeasible at the time for community members to upload images onto messaging boards with Bluewave, most cartoons had to be conveyed to the wider community using only words. A good example of how the satire culture based around *LeMan* and *LeManyak* influenced the humor encountered on Hitnet can be seen in the popular

55 Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon & Schuster, 1995).

56 Fatma Müge Göçek, ed., *Political Cartoons in the Middle East* (Princeton, NJ: Markus Wiener Publishers, 1998).

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LeMan character Erdener Abi (literally "Big Brother Erdener," but perhaps better translated as "Uncle Erdener"):

Uncle Erdener

Created by Kaan Ertem, Erdener Abi is a morose and phlegmatic Turkish man who likes to give extremely banal and uninteresting answers to complex questions. He also has a bad habit of understanding questions literally, and, as a result, often gives unrelated answers which sound bizarre to the reader. Essentially, Erdener Abi is a satire of the modern Turkish everyman. Functioning in a question-answer format, the humor element behind Erdener Abi is based around the bizarre replies given by the character to seemingly innocuous questions. Some classic Erdener Abi jokes as found on Hitnet are as follows:

— Erdener Abi PARASUTUM ACILMIYO!
— Canin Sagolsun
[*Uncle Erdener, MY PARACHUTE DOESN'T WORK! — No worries. Have a nice life.*]
— Erdener Abi Gozluk Almissin?
— Kor oldum, ondan.
[*Uncle Erdener, did you get new glasses? — Only 'cause I went blind*][57]

Although Turkish satire culture had a strong influence on the kinds of humor found on Hitnet, one sees that certain conventions of satire were more popular than others. Perhaps the reason as to why Erdener Abi and not other characters from *LeMan* or *LeManyak* became popular on Hitnet was because of the relative ease with which Erdener Abi jokes could be adapted to a digital, text-only environment. Technically speaking, other characters with long storylines and visual elements were much more difficult to integrate into an environment with constraints on document size and visuals. As a result of these technical constraints, only particular aspects of the rich Turkish satirical tradition were able to filter onto Hitnet. Drawing from this, one can argue that

57 Ozgur Okten, ESS. 018. HR. TR. MIZAH, 03/02/1995, 05:46.

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the reason as to why humor in the one-liner style of Erdener Abi became popular on Hitnet was because this kind of humor was easy to transcribe into a digital, text-only environment. Although the humor consumed within the Hitnet community was a limited version of Turkish satire culture, community members found novel ways of reinterpreting jokes and keeping the conversation interesting. One way through which community members would work around the limited range of satire expressible on messaging boards was to rewrite the contents of the possible humor. For example, the community would hold small competitions to find new one-liners for Erdener Abi or write alternative storylines going beyond the traditional universes of other satire or cartoons characters. The rewriting of storylines for favorite characters or cartoons effectively caused Turkish satire culture to take on another life on Hitnet.

Conclusions

Taking up an STS approach to online communities and CMC, this study has attempted to document how the technological medium of Bulletin Board Systems has influenced the communication culture of Hi! Türkiye Network. The first part of this study was dedicated to a historical overview of the rise and fall of BBS networks worldwide and of pre-Internet communication networks in Turkey. As a late adopter of networking technologies, Turkey enjoyed a brief yet vibrant period of pre-Internet CMC between 1992 and 1996. These local BBSes were interconnected to each other on a national scale using FidoNet protocols. The resulting wider BBS network was called Hi! Türkiye Network. Using a sample from Hitnet, the second part of the study was dedicated to analyzing the impact of the BBS technological medium on the communication culture of the Hitnet community. Observing the constraints on three levels, the study analyzed how Hitnet users devised novel ways of working around the limitations in hardware, software, and HCI on a BBS network. Due to the limited number of users able to simultaneously connect to a BBS network, the socialization options offered in these spaces were limited and asynchronous. As a result, community members would resort to using chain-mail-like formats for communication and relying on offline mail readers (OMRs). The lack of Turkish character support on OMRs meant that Hitnet users had to develop an alternative written language that substituted characters available in the "low-end ASCII" character set for Turkish characters. The constraints on the size of exchanged mail meant that messages had to be short, and users developed a system of abbreviations to work around this problem. The lack of vocal and visual cues to add an affective dimension to online communication was worked around by developing a system of acronyms and taglines. Even the humor on Hitnet was predetermined to a certain degree by

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the lack of vocal and visual cues. Finally, the lack of an affordance to sort and categorize messages exchanged through the terminal program meant that community moderators had to develop a rigid taxonomical system to organize communication. As the structure of human conversation is not so rigid and shifts from topic to topic, the focus of the conversation would often stray from the predefined boundaries set by moderators. As a result, moderators would often be forced to intervene and keep the conversation focused. This led to the formation of moderation practices which focused more on format than on content.

It is hoped that this paper, rather than being a conclusive study of the subject, will open up a new avenue of research for Turkish-speaking researchers interested in science and technology studies and/or cultural studies. Using an approach other than STS, it might be possible to explore an analogy between BBS ecosystems and more contemporary social media platforms such as Reddit or Quora in terms of communication culture and the knowledge production practices that both encourage. Although the STS approach used in this study is a valid analytic framework to explore how technological mediums influence the communication culture of online communities, it falls short theoretically when discussing historical continuities and discontinuities amongst different CMC technologies. In this context, media archeology[58] could also be used to explore recurring themes or the persistent requirements of skills and social hierarchies within online communities throughout the period both before and after the commercial Internet.

Another possible approach for the examination of historical continuities and discontinuities between different CMC technologies could be from the vantage point of cultural capital. Sociologist Pierre Bourdieu defines capital as, "accumulated labour (in its materialized form or its "incorporated," embodied form) which, when appropriated on a private, i.e., exclusive, basis by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labour;" the distribution of capitals among individuals and classes determines "the chances of success for practices."[59] Drawing from this definition, Bourdieu suggests that there are three categories of capital: economic, social, and capital. The term cultural capital refers to non-financial cultural assets that promote social mobility beyond one's economic means.[60] Typical examples of cultural capital include education, style of speech, and physical appearance. Drawing from the works of Bourdieu, Emmison and Frow

58 See Erkki Huhtamo and Jussi Parikka, eds., *Media Archaeology: Approaches, Applications, and Implications* (Berkeley, CA: University of California Press, 2011) and Jussi Parikka, *What Is Media Archaeology?* (Cambridge: Polity Press, 2012).

59 Pierre Bourdieu, "The Forms of Capital," in *Readings in Economic Sociology*, ed. Nicole Woolsey Biggart (Oxford: Blackwell Publishers Ltd., 2002), 280, http://doi.wiley.com/10.1002/9780470755679.ch15.

60 Ibid., 283–288.

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have suggested that information technology (IT) skills need to also be considered a form of cultural capital inasmuch as they promote social mobility in certain contexts.[61] The framework of cultural capital can be applied to the experience of participating in BBS communities. One can hypothetically assume that having knowledge of both the moderating culture and the complex linguistic bricolage developed by the Hitnet community created a certain kind of "media literacy" that would have played an important role in shaping the communicative practices of early Internet communities. Accordingly, this hypothesis warrants further research as to whether the skills learned from participation in BBS communities constituted a form of cultural capital (and hence distinction) in early, Internet-based online communities.

Another potential departure point for further research could be the gendered nature of BBS communities. As has been criticized elsewhere, the analytical/cognitive computing skills supposedly more common among males has been advanced not simply as a reference to the relative absence of women in the pioneering CMC communities, but also proffered as an explanation in academic research.[62] Uncritical acceptance of this "explanation" about the dominance of males in these communities meant that there has been little impetus within the academic establishment to investigate more deeply into the constructions of digital gender and gender relations within these pioneering communities. Potentially speaking, the breadth and depth of the Hitnet archive could be an excellent resource for a critical reexamination of such issues within the context of pre-Internet digital communities both in Turkey and worldwide. Similar studies based on a North American context have explored online harassment in online communities,[63] circulation of masculinity online,[64] male sexuality online,[65] and the construction of race and ethnicity in online communities.[66]

61 Michael Emmison and John Frow, "Information Technology as Cultural Capital," *Australian Universities' Review* 1 (1998): 41–45.

62 Sherry Turkle and Seymour Papert, "Epistemological Pluralism: Styles and Voices within the Computer Culture," *Journal of Women in Culture and Society* 16, no. 1 (Autumn 1990): 128–57.

63 Alison Adam, *Gender, Ethics and Information Technology* (Houndmills, Basingstoke and New York: Palgrave Macmillan, 2005); Eileen Green and Alison Adam, "Online Leisure: Gender and ICTs in the Home," *Information, Communication & Society* 1, no. 3 (1998): 291–312, doi:10.1080/13691189809358971; Alison Adam et al., "Being an 'It' in IT: Gendered Identities in IT Work," *European Journal of Information Systems* 15, no. 4 (August 2006): 368–78, doi:10.1057/palgrave.ejis.3000631.

64 Lori Kendall, "'OH NO! I'M A NERD!': Hegemonic Masculinity on an Online Forum," *Gender & Society* 14, no. 2 (April 2000): 256–274, doi:10.1177/089124300014002003; Lori Kendall, *Hanging Out in the Virtual Pub: Masculinities and Relationships Online* (Berkeley: University of California Press, 2002).

65 John Edward Campbell, *Getting It on Online: Cyberspace, Gay Male Sexuality, and Embodied Identity* (New York: Harrington Park Press, 2004).

66 Lisa Nakamura, *Cybertypes: Race, Ethnicity, and Identity on the Internet* (New York: Routledge, 2002).

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Perhaps the critical contribution of this study within the context of Turkish studies has been to demonstrate that online communities *did* exist in Turkey prior to the arrival of commercial Internet in 1996. In other words, digital culture started before the arrival of the Internet in Turkey. As such, Hitnet and the BBSes making up Hitnet constituted the first civil online community in Turkey. Within the wider field of Internet studies, the critical contribution of this study is that it disputes conventional historical accounts of digital culture, which tend to be narrated from the vantage point of the North American, Anglophone sociocultural context. Reading early accounts and studies of digital culture can be misleading in that one might be led to assume that digital culture was a primarily North American (and English-speaking) phenomenon. As Goggin and McLelland note:

> The United States is all too often taken as "the supposed vanguard of the information society," and there has been little attempt to generate a discussion between scholars working on different language cultures or to develop modes of analysis that do not take Anglophone models as their starting point.[67]

While it is certainly important to acknowledge the strong influence of the North American sociocultural context in the shaping of digital culture worldwide, the findings of this study demonstrate that this influence is certainly not an overdetermining one. As a case study, Hitnet can serve as a departure point for the construction of historical narratives of digital culture that will take into account "very local histories and cultures of use."[68]

By using the example of BBS networks, the secondary contribution of this study has been to demonstrate how technological mediums influence the communication culture of online communities. Workarounds, among other practices, are a demonstration of how online communities effectively appropriate and reshape communication technologies within their cultural milieu, rather than being overdetermined by their affordances.

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67 Gerard Goggin and Mark J. McLelland, "Internationalizing Internet Studies: Beyond Anglophone Paradigms," in *Internationalizing Internet Studies: Beyond Anglophone Paradigms*, ed. Gerard Goggin and Mark J. McLelland (New York: Routledge, 2007), 8.

68 Ibid., 17.

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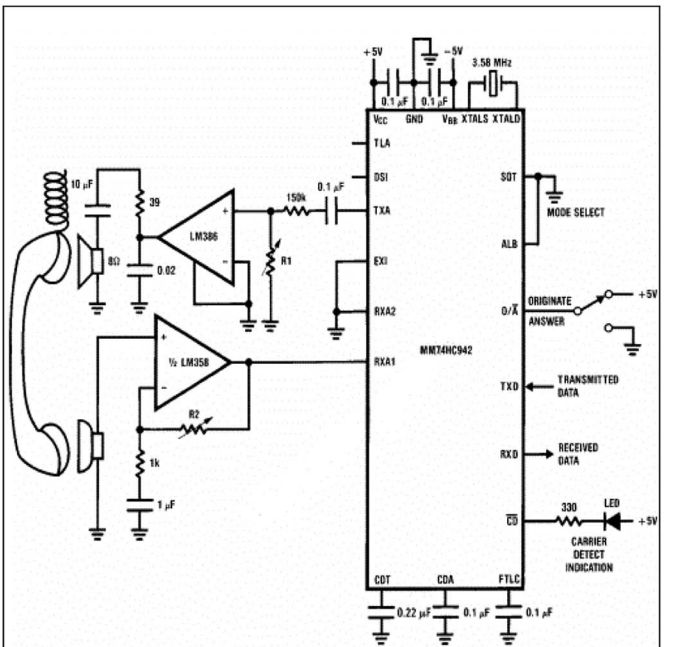
Appendix

Illustration 1: Circuit diagram of the Bell 103 modem, from http://www.next.gr

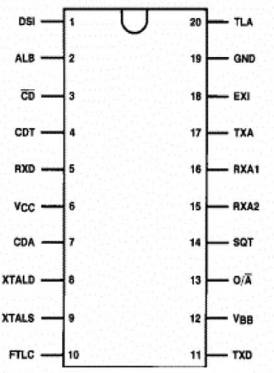


Note: The efficiency of the acoustic coupling will set the valves of R1 and R2.

TABLE I. BELL 103 Allocation

Data	Originate Modem		Answer Modem	
	Transmit	Receive	Transmit	Receive
Space	1070Hz	2025Hz	2025Hz	1070Hz
Mark	1270Hz	2225Hz	2225Hz	1270Hz

Dual-In-Line Package



TL/F/5348–1

Top View

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Illustration 2: Bell Modem 103, from times.com

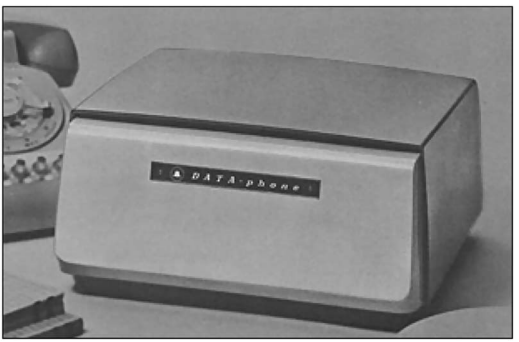

Illustration 3: An Altair 8800

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Illustration 4: A BBS terminal system that combines a Commodore 64 with a compatible acoustic coupler to connect to a BBS

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Illustration 5: Global organization of FidoNet. The "points" are terminal access points, while the "nodes" are BBS mainframes, which are networked with nodes from other regions. These regions are then networked with each other through nodes in other zones.

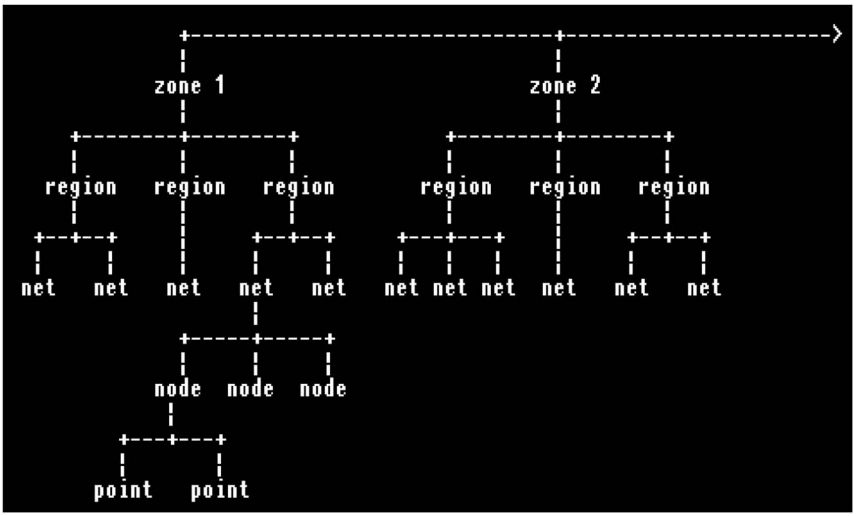

Illustration 6: An offline mail reader. One can access downloaded correspondence messages through a simple DOS-based graphic interface.

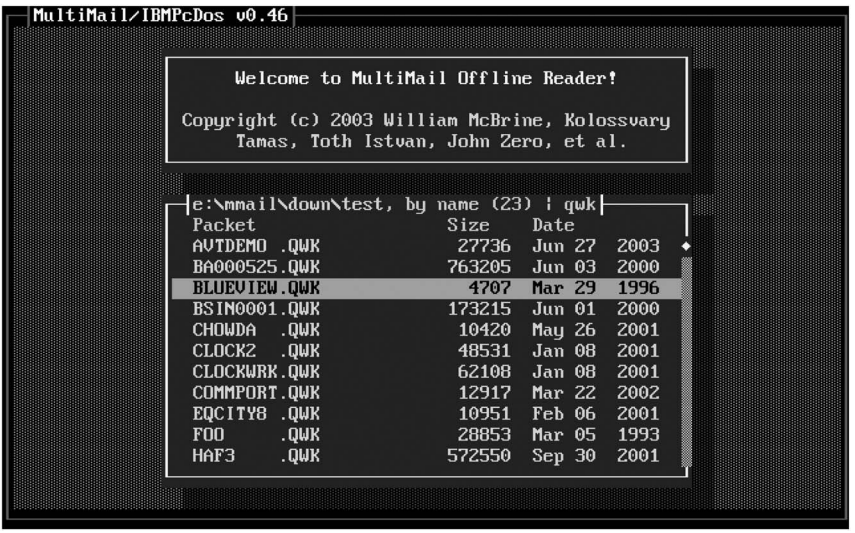

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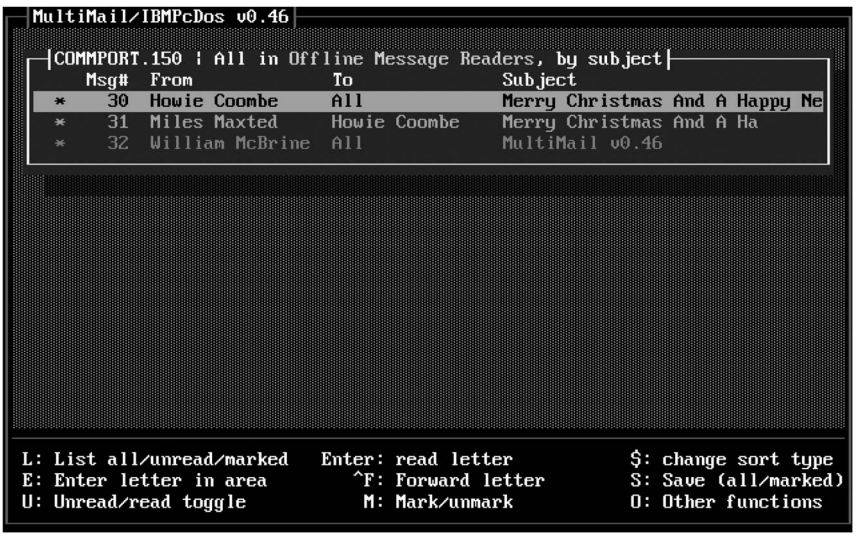
Illustration 7: How the contents of a correspondence package appear when opened



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