



# Temporal affordances in the news

Journalism

1–19

© The Author(s) 2017

Reprints and permissions:

[sagepub.co.uk/journalsPermissions.nav](http://sagepub.co.uk/journalsPermissions.nav)

DOI: 10.1177/1464884916689152

[journals.sagepub.com/home/jou](http://journals.sagepub.com/home/jou)



**Keren Tenenboim-Weinblatt**

The Hebrew University of Jerusalem, Israel

**Motti Neiger**

Netanya Academic College, Israel

## Abstract

This article develops the concept of temporal affordances as a framework for understanding and evaluating the relationship between news technologies and journalistic storytelling practices. Accordingly, temporal affordances are defined as the potential ways in which the time-related possibilities and constraints associated with the material conditions and technological aspects of news production are manifested in the temporal characteristics of news narratives. After identifying six such affordances – immediacy, liveness, preparation time, transience, fixation in time, and extended retrievability – we examine manifestations of temporal affordances in different journalistic cultures over time, based on a content analysis of Israeli and US news narratives in different technological eras (from 1950 to 2013). The findings point to a consistent pattern of inter-media differences, in accordance with the distinct affordances of print and online news, alongside cross-cultural and cross-organizational variations in the use of these affordances. In addition, we detect complex patterns of stability and change in the use of temporal affordances in print media over time. Implications and directions for future research are discussed.

## Keywords

Media and time, affordances, print versus online news, stability and change in journalism

## Introduction

Temporality, as suggested by this special issue and other contemporary scholarship (e.g. Barnhurst, 2011; Zelizer, 2017), is paramount to understanding what journalism is and

---

### Corresponding author:

Keren Tenenboim-Weinblatt, The Hebrew University of Jerusalem, Mount Scopus, 91905 Jerusalem, Israel.

Email: [keren.tw@mail.huji.ac.il](mailto:keren.tw@mail.huji.ac.il)

could be in a changing media landscape. This article proceeds from the assumption that disentangling the complex relationships between the material and textual dimensions of time in news production is key to developing this understanding. The need for a textual–material approach to studying communication processes has been highlighted in recent communication theory (Katriel, 2015; Siles and Boczkowski, 2012), as well as in our own studies of news temporalities, which have underscored the importance of looking at both the temporal conditions of news production and the representation of time in news narratives (Neiger and Tenenboim-Weinblatt, 2016; Tenenboim-Weinblatt and Neiger, 2015). The purpose of this article is to conceptualize and empirically investigate how different temporal affordances of news technologies constrain and facilitate the representation of past, present, and future in the news, and consequently, the roles played by different news media in relation to public time. In developing the concept of temporal affordances, we draw on affordance theory, which reconciles realist with constructivist approaches to technology (Hutchby, 2001), thus providing a useful foundation for understanding the relationship between media content and communication technologies (Lievrouw, 2014; Siles and Boczkowski, 2012). While our primary aim is to use this framework to shed new light on the intricate relationships between journalism and time, in so doing we also hope to provide a new perspective on the sprawling yet fuzzy notion of affordances (see Nagy and Neff, 2015).

The article proceeds in three main steps: First, following a general discussion of the affordances framework, we introduce a definition of the concept of temporal affordances. Next, we map six such affordances, based on an integration of existing research and interviews with senior news editors. In the third step, we examine the manifestations of temporal affordances in different journalistic cultures over time, based on findings from a content analysis of Israeli and US news narratives in different technological eras (from 1950 to 2013).

## **Contours of the concept of temporal affordances**

The concept of affordances was first introduced by ecological psychologist James Gibson (1977, [1979] 2015), who defined affordances as properties of the environment that present specific possibilities for action for different organisms. The medium of air, for instance, affords respiration and visual perception, whereas water affords drinking, washing, bathing, and swimming for humans, while its surface affords support only for other species (Gibson, [1979] 2015). Sociologist Ian Hutchby developed the framework of affordances for the study of technologies as an approach that avoids the traps of both technological determinism and strong social constructivism (Hutchby, 2001). It views technology as framing rather than determining possibilities for action, and as such, this approach ‘needs to be grounded in the conception of the constraining, as well as enabling, materiality of the technology as a worldly object’ (Hutchby, 2001: 444). Thus, while this approach underscores the importance of specific characteristics of different technologies (in line with medium theory; see Meyrowitz 1994), it can also encompass the cultural and social forces that shape the actual uses of these technologies, as well as their design (see Williams, [1974] 2003). Its ability to bridge between the two perspectives has contributed

to the ubiquity of the concept of affordances within communication technology studies (Shaw, 2015).

The idea of affordances has become particularly salient in work on the possibilities embedded in the digital environment. For the purposes of this study, several general trends in this scholarship are noteworthy: First, this strand of research tends to focus on the possibilities opened for users by new forms of media that emerged in the digital age, in particular social media (e.g. Boyd, 2011; Treem and Leonardi, 2012). Less attention has been paid to affordances in relation to more traditional media settings and content producers (such as journalists in mainstream news organizations). Second, the great interest in social networks, as well as the broader view of networks as a central property of the digital environment, has led to a focus on space-oriented affordances. These spatial affordances link between possibilities for connectivity opened by the new technologies and new forms of ‘networked’ selves (Papacharissi, 2011; Wellman et al., 2003) or collective action and deliberation (e.g. Halpern and Gibbs, 2013; Tufekci and Wilson, 2012). Temporal aspects were not completely overlooked (see, for instance, Boyd’s (2011) discussion of the affordance of ‘persistence’), but they have remained relatively marginal and subsumed under the spatial metaphor of the network. Third, since much of the work on affordances originates from technology studies, the focus tends to remain on affordances of technologies and not on the broader ecological system and material conditions in which users operate (see Anderson, 2013). Furthermore, although the notion of affordances is well suited to address the link between materiality and content (Siles and Boczkowski, 2012), engagement with content tends to be limited within the technological framework.

In our conceptualization of temporal affordances in the news, we place the spotlight on time in both its material and narrative dimensions, while shifting the gaze from social media to the news media, from ‘ordinary’ users to journalists, and from technology per se to the broader material conditions in which journalists work. Drawing on affordances theory and scholarship on journalism and time, we define temporal affordances in the news as *the potential ways in which the time-related possibilities and constraints associated with the material conditions and technological aspects of news production and dissemination are manifested in the temporal characteristics of news narratives*.

This definition thus brings together two strands of scholarship on journalism and time: on one hand, scholarship that focuses on the temporal conditions of news production, based primarily on newsroom ethnographies. From Gaye Tuchman’s (1978) canonic study to recent studies of news production in the digital age (e.g. Boczkowski, 2010; Boyer, 2013; Usher, 2014), this scholarship has shed light on the ways in which temporal values, pressures, and constraints shape journalistic work within specific material and technological contexts. The other strand of scholarship focuses on the temporal dimensions of news content and has revealed the complex ways in which past, present, and future are used, represented, and constructed in news stories (e.g. Edy, 1999; Neiger, 2007; Zelizer and Tenenboim-Weinblatt, 2014). Our definition of temporal affordances suggests that the objects of study of these two strands of research are interrelated. That is, the representation of various layers of past, present, and future in news narratives is facilitated and constrained by the temporal features of news

technologies and of journalists' work conditions. Thus, diverse types of news media can have different temporal affordances that support specific activities and limit others.

Evidence for this relationship was found in our earlier study of dominant temporal orientations in print and online news stories published on the front pages and homepages of leading Israeli news outlets (Tenenboim-Weinblatt and Neiger, 2015). The results of the content analysis showed that a recent-past orientation was more prevalent in news websites, which tended to assume the more commonly recognized journalistic role of informing the public on recent-past events. In contrast, a future temporal orientation was more prevalent in print media, which assumed the role of projecting upcoming events, analyzing potential outcomes, and shaping collective expectations. This division of labor corresponds to the temporal possibilities and constraints of news production in the various types of news media, in particular the capacity to disseminate information in close proximity to the actual events in online media versus the temporal 'inferiority' of print media in this respect. Add to this the demand to produce constant news updates for news websites, in comparison with the greater time that can be invested in writing stories for print editions. The latter facilitates a consideration of the broader future-oriented implications of the depicted events. The study also established that the relationship between medium and temporal orientation exists independently of other content characteristics of stories in the two media, such as a greater focus in print media on public affairs. In other words, the temporal orientation of news narratives is shaped not only by topical characteristics of the stories but also by factors related to the medium in which the story is published – whether by its inherent properties or the working environment surrounding it.

## Types of temporal affordances

There are various ways in which temporal conditions of news production can be associated with temporal content characteristics and the diverse roles played by journalism in relation to public time. Based on a review and integration of existing scholarship, we identified six main temporal affordances: *immediacy*, *liveness*, *preparation time*, *transience*, *fixation in time*, and *extended retrievability*. In the presentation of the six affordances below, we combine the relevant literature with evidence from interviews we conducted with senior Israeli news editors.<sup>1</sup>

### *Immediacy*

The immediacy affordance enables journalists to report on recent newsworthy events in close proximity to their occurrence. It thus involves the capacity to immediately disseminate information, which is greater in online and broadcast media in relation to print media, and the representation of the near past in the resulting news narratives (with 'breaking news' as the most paradigmatic news category in this context). Indeed, the very term 'news' carries with it an element of immediacy (i.e. an emphasis on the report of new information). However, in the digital era, immediacy has become, as suggested by Usher's (2014) ethnography of *The New York Times*, a 'core value' of news production, particularly in online journalism. The Israeli news editors we interviewed also agreed on the significance of immediacy in their work, describing the role of reporting

on recent events as close as possible to their date of occurrence as the ‘bread and butter’ of online journalism and as an important ‘service to readers and citizens’. This role was presented as inextricably interwoven with the opportunities introduced by new technologies, with these opportunities sometimes stretched to their very limits. For instance, in describing the use of push notifications to mobile phones as a means of alerting readers to breaking news, a news-desk editor described how

the push notification precedes even the news flash [on the website]. It will be sent to the user before the story is online. Because the technology has a delay of about a minute or two on some [mobile] devices, hopefully by the time the reader gets the notification, the story will already be up.<sup>2</sup>

In our study of temporal layers in news narratives (Neiger and Tenenboim-Weinblatt, 2016), we distinguished between the ‘immediate past’, which refers to events in the last few hours (in relation to the time of dissemination), and the ‘recent past’, which refers to events in the last 48 hours. The layer of the recent past was prevalent in both print and online news stories, while the category of the immediate past, as expected, was almost exclusively the domain of online news (31.8% of news stories in the online sample dealt with this temporal layer). Defined as such, the immediate past is thus largely outside the reach of print media within the contemporary printing cycle (since daily newspapers only publish morning editions), although it should also be emphasized that immediacy is a relative notion: ‘What counts as immediacy varies from one medium to the next’ (Zelizer and Allan, 2010: 56).

The affordance of immediacy can also backfire when it leads to inaccurate depictions of the immediate past disseminated to the public as a result of the interplay between technological capacity and competition with other news outlets (Craig, 2015; Rosenberg and Feldman, 2008). Among the Israeli editors we interviewed, only one emphasized the need to not use the affordance of immediacy to its fullest extent: ‘This extra moment, extra check, is necessary for doing a reliable job. I’d rather delay three or four stories by twenty, sometimes even forty, minutes – depending on the story – than go wrong with one [in terms of accuracy]’.

## *Liveness*

The liveness affordance enables journalists to report events simultaneously with their occurrence. It requires synchronous means of communication and allows a representation of the present as it is unfolding. Liveness has been thoroughly investigated as one of the unique qualities of broadcast media, television in particular (Marriott, 2007; Scannell, 2014). Whether in the context of preplanned ‘media events’ (Dayan and Katz, 1992) or unexpected disruptive events (Scannell, 2004), live television broadcasts have been viewed as facilitating a collective experience of time and a shared sense of history-in-the-making. However, live news coverage is no longer solely the domain of television news organizations, nor is it limited to major events. Facilitated by new digital video technologies and encouraged by favorable audience responses, live coverage has been deeply incorporated into online news, either within the news website itself or on social

media platforms (e.g. using the live streaming feature on the news outlet's Facebook page). As explained by a home page editor we interviewed:

In the past, sending live equipment was a hassle. Today a live kit is just 20 cm long. I think that today we have live coverage in a large percentage of the news items. And it doesn't necessarily deal with the most important things in the world: it could be the first day of the school year, and then we stand near schools and film the event.

Such practices contribute to the organization of public time on a more mundane level than big media events. Another editor explained that audiences' substantial attraction to such live coverage (as measured by number of clicks) is derived from their desire to be 'a fly on the wall ... people occasionally want to be part of the event without being part of the event'. For this purpose, he further explained, journalistic voice-over is unnecessary: 'People often watch us [the live coverage] in mute mode ... they don't want the commentary. It irritates them'. The affordance of liveness in the world of digital news is thus not necessarily associated with values of newsworthiness and sense making, but with a sense of community, witnessing, and authenticity.

Indeed, in Israeli news outlets that are less popular in nature and are based on in-depth reporting and analysis, it seems that audiovisual liveness is not a priority. As a chief website editor explained when interviewed:

We are not investing in video. I'm in favor of investing in one's comparative advantage, and video is not our advantage. You could build a whole video infrastructure here, and I'm still certain we wouldn't do it as well as TV channels, who have been doing it for twenty years.

However, these websites do use new semi-live practices, such as 'live blogging' and 'live tweeting' (Thurman and Walters, 2013), which further erase the boundaries between live broadcasting and written reports on recent events.

### *Preparation time*

The preparation-time affordance refers to the amount of time journalists are able to invest in developing a news story, including the temporal extension of news narratives. This would include going backwards in time for contextual information and forward in time to evaluate possible implications of current events, or working on stories that go beyond the most recent events (e.g. investigative stories, analysis of social trends). While close deadlines and intense time pressures have always been part and parcel of the journalistic profession (Schlesinger, 1977; Schudson, 1986), research suggests that the era of digital news, characterized by greater volume and frequency of news, has led to increased time pressures on journalists (Boczkowski, 2010), who now operate in a 'fast time' mode (Boyer, 2010). Still, the average amount of preparation time for news stories varies by the type of story (e.g. hard versus soft news; Boczkowski, 2010; Tuchman, 1978) and the type of news media (Boczkowski, 2010; Reich and Godler, 2014; Usher, 2014).

Regarding the type of news media, preparation time is closely associated with the position of the various news outlets in the news cycle and the related affordance of immediacy. For instance, the 24/7 cycle of online news constrains the amount of time

that can be invested in each story. In our interviews, online editors frequently lamented the lack of temporal resources for fulfilling what they perceived as the important journalistic roles of background/context provision (deeper past), analysis of implications (future), and coverage of social processes and trends (extended present). One way of circumventing this temporal constraint is through preparation of materials and analyses prior to preplanned events (a common practice that came up in the interviews, as well as in Usher's (2014) *New York Times* ethnography). Other ways include efforts to divert resources from the ongoing news cycle to more in-depth tasks and the addition of more contextual information after initial publication (see discussion of the 'transience' affordance below).

In relative terms, the stories that are written once a day for the print version can be more developed: Looking to provide added value in relation to the continuous online updates, they tend to provide a fuller consideration of the context and consequences of the day's events (Neiger and Tenenboim-Weinblatt, 2016; Usher, 2014). The ability to properly develop stories and consider them in relation to other stories of the day facilitates what one of the chief editors defined as

perhaps the most important role of print today – to take from the endless train of information the things that are most significant and tell people: 'wait a minute, A, B, C and D are the important things, in this and that hierarchy, and here we need to provide analysis, here we need to add background, and here is an infographic that simplifies all of this mess'.

Importantly, along the life cycle of digital news stories as well, different stages and technological platforms support different levels of development, ranging from initial brief micro-texts (e.g. twitter updates, news flashes, push notifications), which update on a recent development, to the fully developed stories at the end of the daily or weekly news cycle, which cover a broader temporal range.

### *Transience versus fixation in time*

Two contrasting affordances, each offering incentives for a different set of journalistic practices, are transience and fixation in time. Transience, particularly in online news, allows for incremental storytelling and therefore gradual temporal layering, including the constant updating of news stories to account for the most recent developments, as well as the addition of contextual information and links to past stories (Bødker, 2016; Usher, 2014). It also supports the value of immediacy, since it lowers the stakes of mistakes. As one online editor said, 'This is our strength, which print does not have: we can constantly update, constantly correct, add pictures, add quotes ... If there are resources, someone can also rebuild the story, provide the larger context, compare to other past events'.

In contrast, print news technology does not allow for changes after a story is printed. The story as it is told in the print version of newspapers is thus a relatively fixed record. The material nature of these stories may put them in a better position to serve as vehicles of collective memory (Gilewicz, 2015; Zelizer, 2014). In addition, a fixation of news stories over time can encourage the creation of tighter stand-alone stories, with a more

complete temporal arc. Thus, while digital stories may have a patchy, layered structure of temporalities (Bødker, 2016), we have found that the concise narrative told by the headlines and leads of print news stories tends to encompass a larger part of the temporal spectrum than that told in the headlines and lead of online news (Neiger and Tenenboim-Weinblatt, 2016).

To some extent, these distinctions are in tension with the idea of persistence as an affordance of digital media (Boyd, 2011) and Harold Innis' ([1951] 2008) categorization of print media as space-biased: easily portable but not durable. However, within the context of news production, the question of duration relates more to the stability of the text itself over time than to the longevity of material or storage. Furthermore, these distinctions are related not only to inherent features of the technologies but also to how they are perceived by journalists. For instance, as Usher (2014) documented, in *The New York Times*, in 2010, the print version was still perceived as the final, stable product that sets the record and reflects the paper's judgment and level of professionalism. These distinctions and views were also reflected in our interviews with Israeli editors. As a chief editor responsible for both online and print editions told us:

The work on the website, naturally but also absurdly, demands less of my resources and energy, despite the fact that the number of eyes watching this information is many times greater. This is mainly due to the distinct natures of the two products. One is printed, final, sealed. I can't afford errors there. Here [in online news], in the worst case, if there's a mistake, it's not fun, but one can change it in motion ... Every day that I sit in the front-page meeting I ask myself: 'Why do I waste my time on this, when most of our readers are consuming the information from the website'. But there's nothing to do about it.

This quote also demonstrates how an affordance can be both a strength and a burden, depending on the larger environment.

### *Extended retrievability*

The extended-retrievability affordance enables journalists to easily access large amounts of data and texts from different points in time and use them in the construction of current news narratives. This affordance, which characterizes the digital information environment and the era of big data, can be used by journalists for richer and more systematic representations of the past, present, and future in news coverage.

With regard to the past, digital archives can be used for retrieving contextual information, as well as for commemorative purposes and for enhancing journalism's memory work (Zelizer and Tenenboim-Weinblatt, 2014). Moreover, extensive datasets and archives can also be used for assessing and representing ongoing trends (i.e. the extended present, which started in the past and continues into the future), for assessing future implications of current events based on similar past events, and even for making informed predictions based on big data and computational procedures (Maycotte, 2015). This new set of affordances may thus turn journalists from 'media oracles' (Neiger, 2007) to semi-expert analysts, potentially creating a new form of 'predictive journalism' (Maycotte, 2015), which constitutes another branch of the evolving field of data/computational



journalism (Coddington, 2015). At the same time, it supports and potentially enhances long-established forms that go beyond event-centered journalism, such as the interrelated notions of ‘contextual journalism’ (Fink and Schudson, 2014), ‘interpretive journalism’ (Salgado and Strömbäck, 2012) and ‘the new long journalism’ (Barnhurst and Mutz, 1997), as well as ‘commemorative journalism’ (Kitch, 2000).

While the extended-retrievability affordance is relevant for journalists in all types of media, since all news media are operating within the new information environment, it opens unique opportunities for online journalism. As a result of the networked nature of the online environment, and in particular the ability to directly link to previous stories and other types of data and texts, the online environment supports a rich temporal structure based on the connectivity and interrelationships between various textual elements (Bødker, 2016). In addition, the combination of extended retrievability and the affordance of interactivity facilitates the production of interactive infographics, which allow readers to explore longitudinal trends, as well as to simulate different future scenarios (e.g. simulating during the primary season in the United States the different ways in which the Republican and Democratic nominating contests can unfold; Aisch et al., 2016).

In summary, different technologies and material conditions create temporal constraints and possibilities, which in turn support different temporal characteristics of the news content. Importantly, the ‘effects’ of technology and materiality on content are not deterministic, since affordances are, in essence, ‘opportunities for or invitations to action that things present to actors’ (Lievrouw, 2014: 48). For instance, some journalists and news outlets, as demonstrated above, resist some technological opportunities when they come at the expense of other journalistic values. Furthermore, affordances are relational and contextual (Hutchby, 2001): They can vary from species to species and from context to context. Thus, the degree to which media actors leverage or downplay temporal affordances of the various media may change over time, based on the changing characteristics of the media environment, role perceptions, audiences’ expectations, or other pressures and incentives. In addition, they may vary across journalistic cultures, which in a sense constitute different species of journalism (Hanitzsch, 2007). Thus, in the following section, we examine the manifestation of temporal affordances in different journalistic cultures and time periods.

## **News temporalities across cultures and time**

### *Method*

To examine cross-cultural and longitudinal differences in news temporalities, we conducted a content analysis of print and online news stories in Israel and the United States. The two countries represent distinct journalistic cultures within a joint professional framework (see Hanitzsch et al., 2011; Neiger and Tenenboim-Weinblatt, 2016). In a similar vein, print and online media have different affordances, but their largely equivalent form (e.g. headlines, length) allows systematic comparison of news narratives. For the print news stories, we examined four points in time – 1950, 1976, 1996, and 2013 – which represent diverse news cycles and technological compositions of the information environment. While the histories of US and Israeli media systems are not fully equivalent, we

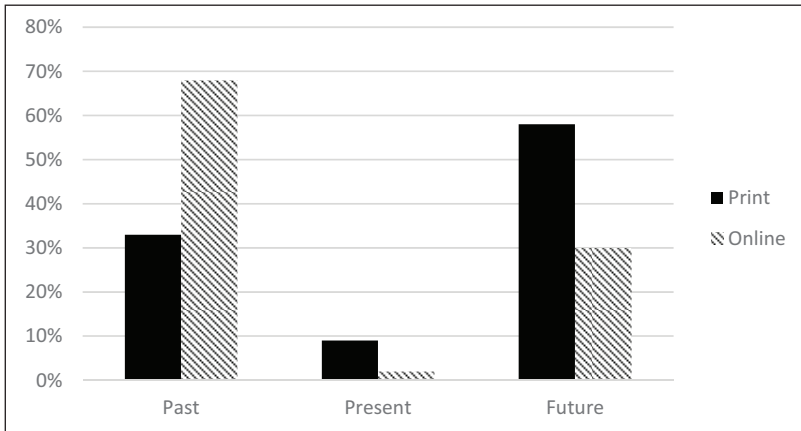
attempted to choose points in time when existing news media technologies were well established in both countries, but the new wave of technologies had not yet materialized. This allowed us to examine whether print newspapers have undergone processes of adaptation vis-à-vis temporal affordances in response to changes in the broader news environment. We focused on the year 2013 in comparing online news stories with print news stories.

The sample consisted of comparable news outlets from the United States and Israel: the printed versions of two national elite newspapers (*The New York Times* in the United States and *Haaretz* in Israel) and the most visited digital native news site in each country (Huffington Post in the United States and Walla! in Israel). To construct the sample of news stories, we randomly selected one day from each month in a year and sampled news items from those days in each year under study (unless the randomly selected day fell on a Saturday in Israel, when no newspapers are published, or on major holidays, when coverage may not represent routine news. In these cases, we sampled the following relevant day). For each of the sampled days (48 total), we collected the five leading stories on the front pages of the two print newspapers, and for 2013, we also collected the five leading stories on the home pages of the two online sites (at 1:30 p.m. on the selected days). The news stories were retrieved using a combination of microfilms and digital archives. Overall, the sample included 120 online stories (all from 2013) and 477 print items (from 1950, 1976, 1996, and 2013).

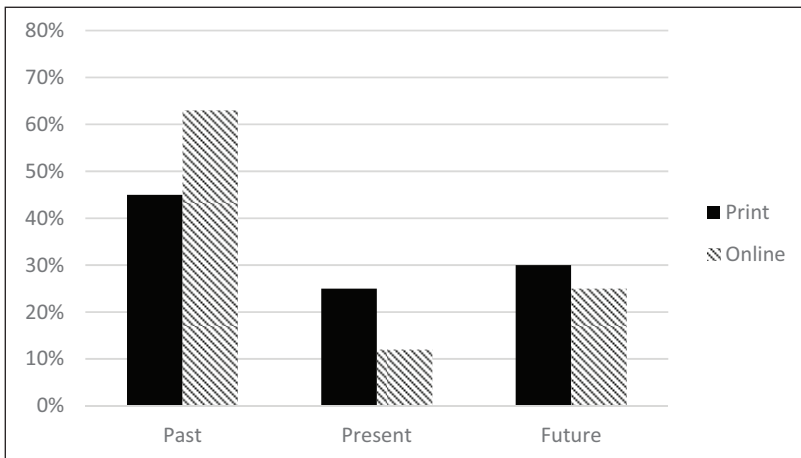
The coding of the news stories was based on an adaptation of the coding scheme developed by the authors (see details in Neiger and Tenenboim-Weinblatt, 2016; Tenenboim-Weinblatt and Neiger, 2015). In addition to general characteristics of the news item (placement, topic, episodic versus thematic coverage), coders (two graduate students) were asked to determine its dominant temporal orientation (past, present or future; see Tenenboim-Weinblatt and Neiger, 2015) and to indicate whether different layers of past and future – from the distant to the immediate past, and from the immediate to the distant future – were present (Neiger and Tenenboim-Weinblatt, 2016). Inter-coder reliability for the temporal questions, based on double coding of 80 news items from different time periods in both Hebrew and English, was between 0.82 and 0.89 (Cohen's Kappa).

## Findings

With respect to differences in temporal orientations between print and online news, we found in Israeli and US news stories in 2013 the same pattern we had found in Israel in 2012 (Tenenboim-Weinblatt and Neiger, 2015): future orientation as more prevalent in print news and past orientation as more prevalent in online news. However, the gap between the two types of media was significantly more pronounced in Israel than in the United States (see Figures 1 and 2). In Israel, the share of past-oriented news stories among online news stories was more than twice their share in print news (68% versus 33%), while in the United States, the share was less than one-and-a-half more (63% versus 45%). With regard to the future, there was only a 5% gap in the share of future-oriented news in print and online news in the United States, while in Israel the share of future-oriented news stories among print news stories was almost twice their share in



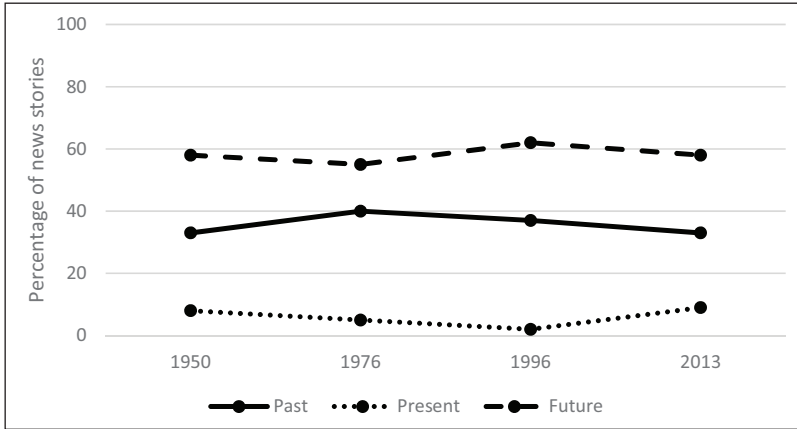
**Figure 1.** Dominant temporal orientations in print and online news in Israel (2013).



**Figure 2.** Dominant temporal orientations in print and online news in the United States (2013).

online news (58% versus 30%). The smaller difference found in the United States may be partly explained by the nature of the online news outlet we looked at (The Huffington Post), which may include higher doses of political analysis than other news sites. Notably, however, a future orientation was generally more prevalent in the Israeli news media (in both media), a finding that may be explained by the journalistic culture (the Israeli news culture as more interventionist; see Hanitzsch et al., 2011) and the national-political context (greater uncertainty regarding the future in Israeli culture).

These findings thus seem to suggest that while there are temporal inter-media differences that cut across the two countries and are in accordance with the different affordances



**Figure 3.** Dominant temporal orientations in *Haaretz* (1950–2013).

of the various types of media, their extent varies across national and journalistic cultures. However, an important question that remains open is whether a process of adaptation has occurred, one in which print news has become more future-oriented to sustain itself in the new media environment. That is, did print newspapers downplay affordances that were more applicable to other media (such as immediacy) and foreground other available affordances?

An examination of the changes over the years in the dominant temporal orientation in print news stories reveals some unexpected patterns. In *Haaretz*, contrary to the adaptation hypothesis, the hierarchy and prevalence of the various temporal orientations remained relatively stable over the years (see Figure 3). In particular, it seems that a future temporal orientation has always been central in Israeli print newspapers: in both 1950 and 2013, 58% of print news stories in our sample had a future orientation. In other words, the future has not entered news coverage as an adaptation to the digital environment. This finding may also suggest that in emphasizing the recent-past orientation, online news sites did not simply take over the traditional roles of print news, but exploited their own capacity for immediacy to further foreground this journalistic function in contemporary news culture.

In the printed *New York Times*, there was even a decrease in future orientation over the years and a marked increase in present orientation (see Figure 4). However, a closer examination suggests that the decrease in future orientation was primarily in relation to event-centered, episodic coverage of planned events, whereas the increase in present orientation was toward the extended/continuous present, which focuses on broader trends, processes, and narratives that extend from the past to the present and continue into the future. Thus, 80% of the present-oriented stories in *The New York Times* in 2013 were thematic rather than episodic (Iyengar, 1991). Their headlines emphasized a continuous process or states-of-affairs, such as ‘Immigrants Are Transforming a New York Town’ (6 May 2013), ‘Police Agencies Are Assembling Records of DNA’ (13 June 2013), and ‘Accidental Shooting Deaths Are Widely Undercounted’ (29 September 2013). This

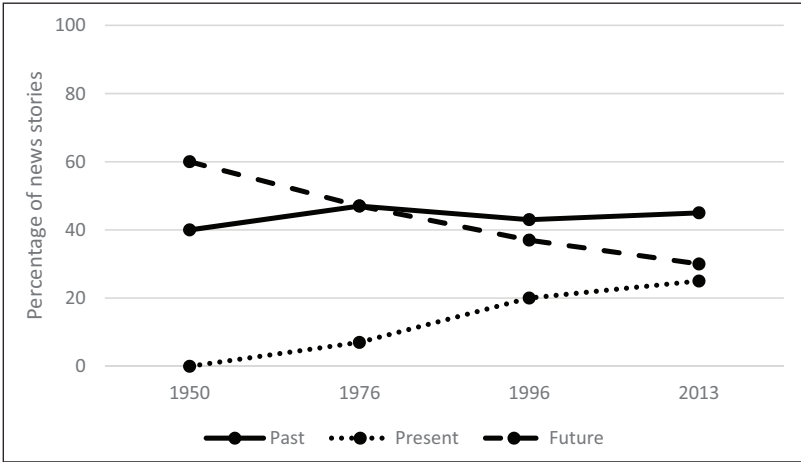


Figure 4. Dominant temporal orientations in *The New York Times* (1950–2013).

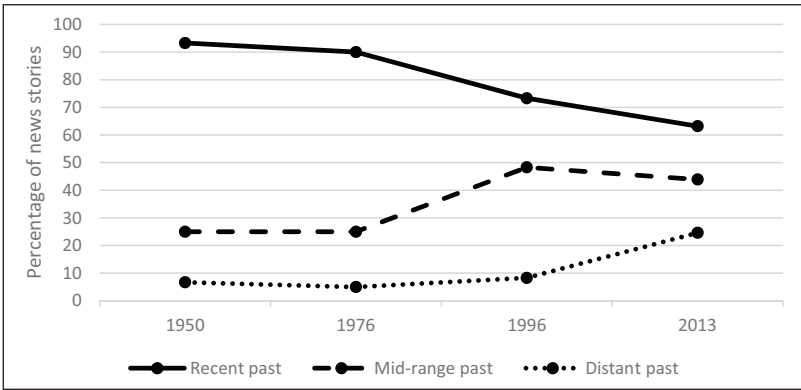
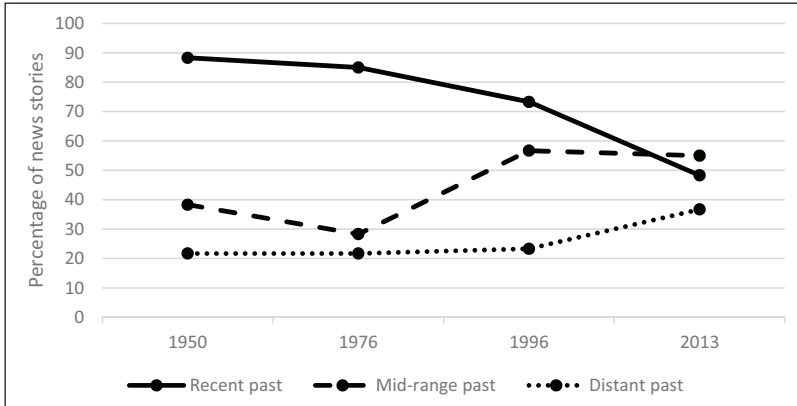


Figure 5. Presence of past layers in *Haaretz* (1950–2013).

extended present, which aligns with the decline in event-centered news (Barnhurst, 2011; Barnhurst and Mutz, 1997; Fink and Schudson, 2014), as well as with the preparation-time and extended-retrievability affordances, was also responsible for the greater present orientation in print news (in relation to online news) in both Israel and the United States (see Figures 1 and 2).

A similar trend can be detected by looking at the various layers of the past in print news stories over the years. While the share of a dominant past orientation remains relatively stable over the years in both *Haaretz* and *The New York Times* (see Figures 3 and 4), we do find changes in the presence of the various layers of the past within print stories (see Figures 5 and 6). As expected, over the years there has been a marked decrease in the presence of the recent-past layer in both *Haaretz* and *The New York Times*, and an



**Figure 6.** Presence of past layers in *The New York Times* (1950–2013).

increase in the mid-range and distant past layers. The greater presence of these layers reflects the trend of contextual news (Fink and Schudson, 2014), as well as the possibly greater role played by journalism in relation to collective memory (Zelizer and Tenenboim-Weinblatt, 2014).

Notably, however, the levels of mid-range and distant past in print news in 2013 are similar to those in online news in the same year, perhaps reflecting the affordance of extended retrievability that is more readily available to journalists in all types of media within a data-saturated environment. Yet, unlike print news, in online news, these layers are mostly within episodic, event-centered coverage (in our sample, 83% of all online news stories in the Huffington Post, and 85% of the stories in Walla! are episodic; in past-oriented coverage the numbers go up to 92% and 95%, respectively). That is, in online news, the additional past layers link audiences to the previous events in the unfolding news story (see Baden, forthcoming), but the focus tends to remain on the most recent events (rather than the broader narrative) and the layering is more incremental than a coherent whole (see Bødker, 2016). As suggested above, incremental temporal layering can be viewed as connected to transient coverage, whereas temporal wholeness is related to fixation in time. Both seem to be facilitated by the conditions of the contemporary information environment, albeit in different ways.

## Conclusion

News is both constituted by and constitutive of time. On the one hand, time is one of the major factors that shape and constrain the production of news. On the other hand, news narratives, in their representation and construction of societies' past, present, and future, contribute to the shaping of public time. In this article, we have developed and examined the notion of temporal affordances as a link between the material-technological and narrative-symbolic dimensions in news production (Siles and Boczkowski, 2012), and as a counterpoint to the spatial metaphors that have come to dominate journalism scholarship (Reese, 2016). We have identified six such affordances – immediacy, liveness,

preparation time, transience, fixation in time, and extended retrievability – and examined their uses by Israeli journalists and their manifestations over time in Israel and the United States, focusing in particular on print versus online media.

Medium theory, as explained by Meyrowitz (1994: 50), asks, ‘What are the relatively fixed features of each means of communicating and how do these features make the medium physically, psychologically, and socially different from other media and from face-to-face interaction?’ The idea of temporal affordances underscores the importance of also addressing the temporal features embodied in the various media, both as constitutive features and as a link between physical and social features. To some extent, this perspective thus goes back to Innis’ ([1951] 2008) emphasis on time in his early version of medium theory, although unlike medium theory (at least in its common interpretations), the notion of affordances emphasizes the non-deterministic nature of technology. In this view, temporal affordances provide opportunities and constraints, but the final form of news content is based on an interplay between these possibilities and other types of considerations, such as journalists’ role conceptions, professional and cultural norms, commercial considerations, political orientations, and perceptions about audiences (Hanitzsch and Mellado, 2011; Tenenboim-Weinblatt, 2014). Within these various levels of influence that shape media content, technology is ‘a multi-scalar phenomenon, not easily located at any one level’ (Reese, 2016: 6). Furthermore, temporal affordances in news production are not stable over time: new affordances emerge and the use of existing affordances may change as a result of changes in professional norms and priorities, prompted not least by changes in the larger media ecology.

In line with this framework, evidence from the comparison of print and online media in Israel and the United States and from interviews with Israeli editors points to cross-cultural and cross-organizational variations in the use of temporal affordances, alongside a shared pattern of inter-media differences that is consistent with the distinct affordances of print and online media. In addition, analysis of news temporalities in print media over time reveals a complex pattern of stability and change. However, the conclusions drawn from the empirical analysis are limited by the small number of interviews and news outlets, as well as by the focus on solely print media in the over-time analysis. Furthermore, the focus on print versus online news obscures relevant distinctions between different online formats (from social media news content and push notification to fully developed online news stories), which we have only hinted at in the descriptions of the six affordances. We hope that the framework presented in this article can guide further systematic empirical investigations of the uses and dynamics of temporal affordances in news production over time and in different journalistic cultures.

As the idea of temporal affordances connects production and content, such investigations can greatly benefit from a combination of content analysis and ethnographic or interview-based research. Content analysis alone can only make assumptions about the conditions that facilitate and constrain the production of the news texts, whereas journalists’ own accounts of their work may not reveal the complexity and richness of news temporalities, particularly with regard to temporal dimensions that do not align with journalists’ self-image. Journalism’s memory work is one such dimension (Zelizer, 2008), as may be journalists’ future-oriented work. While our content analyses consistently showed the prevalence of a future orientation in news narratives (most notably in

print stories, but to a substantial degree in online news as well), and while both the constraints of the news cycle and the new opportunities opened by the big-data environment support future projections, the editors we interviewed seemed to dismiss or play down this temporal dimension of news. Untangling the interplay of affordances, content manifestations and journalists' role perceptions through the prism of time can provide valuable insight into the challenges and prospects of journalism as we move forward in time.

### Acknowledgements

The authors are thankful to Naama Weiss and Nir Noon Nave for their research assistance.

### Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The study was funded by the Israel Science Foundation (grant no. 465/13).

### Notes

1. The interviews were conducted with five senior editors at four Israeli news outlets: a newsdesk editor, homepage editor, and chief website editor at three leading news sites and two chief editors responsible for both online and print editions at two influential news outlets (one general and one financial). Four of the editors were men and one was a woman; their professional journalistic experience ranged from 8 to 22 years. In the first part of the interview, we asked the editors about the importance they attach in their work to various time-related roles, from reporting on recent events to future projections. In the second part, we discussed with them their decision-making and views in relation to specific examples from recent coverage in their news outlet. The average length of the interviews was 80 minutes. All interviews were fully transcribed and analyzed using an inductive, qualitative approach.
2. The original quotes are in Hebrew. All translations are our own.

### References

- Aisch G, Katz J and Lai KKR (2016) How the rest of the delegate race could unfold. *The New York Times*. Available at: <http://www.nytimes.com/>
- Anderson CW (2013) *Rebuilding the News: Metropolitan Journalism in the Digital Age*. Philadelphia, PA: Temple University.
- Baden C (forthcoming) Doing news framing analysis in networked news discourse: Reconstructing the latent meanings of frames from their intertextual context. In: D'Angelo P (ed.) *Doing News Framing Analysis 2: Empirical and Theoretical Perspectives*. New York: Routledge.
- Barnhurst KG (2011) The problem of modern time in American journalism. *KronoScope* 11(1–2): 98–123.
- Barnhurst KG and Mutz DC (1997) American journalism and the decline in event-centered reporting. *Journal of Communication* 47(4): 27–53.
- Boczkowski P (2010) *News at Work: Imitation in an Age of Information Abundance*. Chicago, IL: University of Chicago Press.
- Bødker H (2016) The time(s) of news websites. In: Franklin B and Eldridge S (eds) *The Routledge Companion to Digital Journalism Studies*. New York: Routledge, pp. 55–63.
- Boyd D (2011) Social network sites as networked publics: Affordances, dynamics, and implications. In: Papacharissi Z (ed.) *Networked Self: Identity, Community, and Culture on Social Network Sites*. New York: Routledge, pp. 39–58.



- Boyer D (2010) Making (sense of) news in the era of digital information. In: Bird SE (ed.) *The anthropology of news & journalism: Global perspectives*. Bloomington: Indiana University Press, pp. 241–256.
- Boyer D (2013) *The Life Informatic: Newsmaking in the Digital Era*. Ithaca, NY; London: Cornell University Press.
- Coddington M (2015) Clarifying journalism's quantitative turn: A typology for evaluating data journalism, computational journalism, and computer-assisted reporting. *Digital Journalism* 3(3): 331–348.
- Craig G (2015) Reclaiming slowness in journalism: Critique, complexity and difference. *Journalism Practice* 10: 461–475.
- Dayan D and Katz E (1992) *Media Events: The Live Broadcasting of History*. Cambridge, MA: Harvard University Press.
- Edy JA (1999) Journalistic uses of collective memory. *Journal of Communication* 49(2): 71–85.
- Fink K and Schudson M (2014) The rise of contextual journalism, 1950s–2000s. *Journalism* 15(1): 3–20.
- Gibson JJ (1977) The theory of affordances. In: Shaw RE and Bransford J (eds) *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*. Hillsdale, NJ: Erlbaum, pp. 67–82.
- Gibson JJ ([1979] (2015)) *The Ecological Approach to Visual Perception*. New York: Psychology Press.
- Gilewicz N (2015) To embody and to embalm: The uses of collective memory in the final editions of failed newspapers. *Journalism* 16(5): 672–687.
- Halpern D and Gibbs J (2013) Social media as a catalyst for online deliberation? Exploring the affordances of Facebook and YouTube for political expression. *Computers in Human Behavior* 29(3): 1159–1168.
- Hanitzsch T (2007) Deconstructing journalism culture: Toward a universal theory. *Communication Theory* 17(4): 367–385.
- Hanitzsch T and Mellado C (2011) What shapes the news around the world? How journalists in eighteen countries perceive influences on their work. *International Journal of Press/Politics* 16(3): 404–426.
- Hanitzsch T, Hanusch F, Mellado C, et al. (2011) Mapping journalism cultures across nations: A comparative study of 18 countries. *Journalism Studies* 12: 273–293.
- Hutchby I (2001) Technologies, texts and affordances. *Sociology* 35(2): 441–456.
- Innis H ([1951] 2008) *The Bias of Communication*, 2nd edn. Toronto, ON, Canada: University of Toronto Press.
- Iyengar S (1991) *Is Anyone Responsible? How Television Frames Political Issues*. Chicago, IL: University of Chicago Press.
- Katriel T (2015) Expanding ethnography of communication research: Toward ethnographies of encoding. *Communication Theory* 25(4): 454–459.
- Kitch C (2000) 'A news of feeling as well as fact': Mourning and memorial in American news-magazines. *Journalism* 1(2): 171–195.
- Lievrouw L (2014) Materiality and media in communication and technology studies: An unfinished project. In: Gillespie T, Boczkowski PJ and Foot KA (eds) *Media Technologies: Essays on Communication, Materiality, and Society*. Cambridge, MA: MIT Press, pp. 21–51.
- Marriott S (2007) *Live Television: Time, Space and the Broadcast Event*. London: SAGE.
- Maycotte HO (2015) Big data triggers predictive journalism. Nieman Lab. Available at: <http://www.niemanlab.org/2015/12/big-data-triggers-predictive-journalism/>
- Meyrowitz J (1994) Medium theory. In: Crowley D and Mitchell D (eds) *Communication Theory Today*. Stanford, CA: Stanford University Press, pp. 50–77.

- Nagy P and Neff G (2015) Imagined affordance: Reconstructing a keyword for communication theory. *Social Media + Society* 1(2): 87–105.
- Neiger M (2007) Media oracles: The political import and cultural significance of news referring to the future. *Journalism: Theory, Practice & Criticism* 8(3): 326–338.
- Neiger M and Tenenboim-Weinblatt K (2016) Understanding journalism through a nuanced deconstruction of temporal layers in news narratives. *Journal of Communication* 66(1): 139–160.
- Papacharissi Z (2011) Conclusion: A networked self. In: Papacharissi Z (ed.) *Networked Self: Identity, Community, and Culture on Social Network Sites*. New York: Routledge, pp. 304–318.
- Reese SD (2016) The new geography of journalism research: Levels and spaces. *Digital Journalism* 4: 816–826.
- Reich Z and Godler Y (2014) A time of uncertainty: The effects of reporters' time schedule on their work. *Journalism Studies* 15(5): 607–618.
- Rosenberg H and Feldman CS (2008) *No Time to Think: The Menace of Media Speed and the 24-Hour News Cycle*. New York: Continuum International Publishing Group.
- Salgado S and Strömbäck J (2012) Interpretive journalism: A review of concepts, operationalizations and key findings. *Journalism* 13(2): 144–161.
- Scannell P (2004) What reality has misfortune? *Media, Culture & Society* 26(4): 573–584.
- Scannell P (2014) *Television and the Meaning of 'Live': An Enquiry into the Human Situation*. Cambridge: Polity Press.
- Schlesinger P (1977) Newsmen and their time-machine. *British Journal of Sociology* 28(3): 336–350.
- Schudson M (1986) When: Deadlines, datelines, and history. In: Manoff RK and Schudson M (eds) *Reading the News*. New York: Pantheon Books, pp. 79–108.
- Shaw A (2015) Dialectics of affordances: Stuart Hall and the future of new media studies. Culture digitally. Available at: <http://culturedigitally.org/2015/06/dialectics-of-affordances-stuart-hall-and-the-future-of-new-media-studies/>
- Siles I and Boczkowski P (2012) At the intersection of content and materiality: A text-material perspective on the use of media technologies. *Communication Theory* 22(3): 227–249.
- Tenenboim-Weinblatt K (2014) Producing protest news: An inquiry into journalists' narratives. *International Journal of Press/Politics* 19(4): 410–429.
- Tenenboim-Weinblatt K and Neiger M (2015) Print is future, online is past: Cross-media analysis of temporal orientations in the news. *Communication Research* 42(8): 1047–1067.
- Thurman N and Walters A (2013) Live blogging – Digital journalism's pivotal platform? A case study of the production, consumption, and form of live blogs at Guardian.co.uk. *Digital Journalism* 1(1): 82–101.
- Treem JW and Leonardi PM (2012) Social media use in organizations: Exploring the affordances of visibility, editability, persistence, and association. *Communication Yearbook* 36: 143–189.
- Tuchman G (1978) *Making News: A Study in the Social Construction of Reality*. London: The Free Press.
- Tufekci Z and Wilson C (2012) Social media and the decision to participate in political protest: Observations from Tahrir Square. *Journal of Communication* 62(2): 363–379.
- Usher N (2014) *Making News at The New York Times*. Ann Arbor, MI: University of Michigan Press.
- Wellman B, Quan-Haase A, Boase J, et al. (2003) The social affordances of the Internet for networked individualism. *Journal of Computer-Mediated Communication* 8(3). DOI: 10.1111/j.1083-6101.2003.tb00216.x.
- Williams R ([1974] 2003) *Television: Technology and Cultural Form*. London: Routledge.

- Zelizer B (2008) Why memory's work on journalism does not reflect journalism's work on memory. *Memory Studies* 1: 79–87.
- Zelizer B (2014) Memory as foreground, journalism as background. In: Zelizer B and Tenneboim-Weinblatt K (eds) *Journalism and Memory*. London: Palgrave Macmillan, pp. 32–49.
- Zelizer B (2017) *What Journalism Could Be*. Cambridge: Polity Press.
- Zelizer B and Allan S (2010) *Keywords in News and Journalism Studies*. New York: McGraw-Hill Education.
- Zelizer B and Tenneboim-Weinblatt K (eds) (2014) *Journalism and Memory*. London: Palgrave Macmillan.

### **Author biographies**

**Keren Tenenboim-Weinblatt** is a senior lecturer at the Department of Communication and Journalism at The Hebrew University of Jerusalem. Her research focuses on cultural and political dimensions of journalism from a comparative perspective, media and conflict, and the various intersections of news and time.

**Motti Neiger** is the dean of the School of Communication at Netanya Academic College, Israel. His academic interests include mediated collective memory, news and time, journalism during conflicts, and popular culture.