Diachronic multimodality research – a mini-review

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This *mini-review* gives an overview of *diachronic* multimodality research, an approach that multimodality scholars have pursued only rarely so far. Acknowledging the comparably large share of case studies in this line of research, this paper sets out by surveying empirical contributions. Many of them also provide discussions of selected theoretical and methodological aspects, which are subsequently collated and complemented with concepts from a number of more extensive theoretical proposals. Identifying main developments in diachronic multimodality studies and avenues for future work, this review seeks to support its growth into a mature research strand with a solid theoretical basis, a versatile methodological toolbox, and a broad range of research objects.

Introduction

Multimodality research has so far mainly been *synchronic* in nature (van Leeuwen, 2005), p. 26. The *development* of multimodal artefacts and interactions *over time* has received comparably little attention (Hiippala and Tseng, 2017; Stöckl, 2017, p. 263). At the same time, scholars have stressed the potential of adopting a *diachronic* perspective to gain a deeper understanding of the historical situatedness of multimodal communication (van Leeuwen, 2005, p. 142; Stöckl, 2009; Waller, 2012, p. 241; Bednarek and Caple, 2014, p. 150; Bateman et al., 2014, p. 10). This *mini-review* surveys existing empirical research with a diachronic angle and synthesizes previous theoretical and methodological proposals. It thereby seeks to contribute to the further growth of diachronic multimodality studies into a mature research strand.

Previous empirical research

While *diachronic* multimodality research is generally scarce, a number of studies have appeared over the past 25 years that show a keen interest in the developments of multimodal communication and the factors that initiate and shape such processes (see contributions to special issues, e.g., Hiippala and Tseng, 2017, to collections, e.g., Hess-Lüttich et al., 1996; Holly, 1998; Schneider and Stöckl, 2011; Evangelista Allori et al., 2014; Hauser et al., 2014; Brock et al., 2019; Stöckl et al., 2019, and many stand-alone journal articles). Although points in time rarely overlap and periods differ in scope, most existing studies focus on *contemporary* multimodal practices and compare them to earlier related data. Perhaps not surprisingly, accounting for *change* (rather than *stability*) has been the most prominent research interest. The subsequent overview spotlights previous empirical contributions, showcases the diversity of approaches, scope of data-sets, and contributions to theory-building.

Print media

A natural consequence, perhaps, of the long history of print media, the majority of diachronic multimodality research has focused on page-based static artefacts. Even before the study of multimodality gains traction in the mid-1990s (see, e.g., Kress and van Leeuwen, 1996; Yates and Orlikowski, 1992) provide a detailed account of the *business memo* and describe how multimodal features change over time. A further study of corporate discourse is Deng and Feng's (2022) work on the photographic representation of academics in 132 annual reports from six major universities in Hong Kong. Analysing materials from 1994/95–2015/16, they identify a development from context-rich group depictions to individual portraits that feature direct gaze.

Shifting the focus to mass-media journalism in the early 1990s, Bucher (1996, p. 35–41) and Bucher (1998, p. 70–94) describes an increase in the use of photographs and diagrams in German newspapers. The attested functional redistribution across modes is supported by a more modular page layout, which provides entry points to browsing readers (Bucher, 1996, p. 41–48). Durrani's (2020) study of 840 language-image combinations in *Time Asia* (1981–2010) describes a similar shift towards an *image-centric* news discourse. This development can equally be tracked in *National Geographic*, where feature articles (as published in 1915, 1965, and 2015) experience a reorganisation of the page space, with an increase in spreads that contain nothing but a large photograph and a short caption (Pflaeging, 2017a, 2017b). Spurred by changes in how captions are rhetorically tied to photographs, the double-page image-caption cluster develops into a key generic pattern that offers entry points, supports narrative interpretations across a longer feature article (Pflaeging, 2017a) and, over time, splits off into a stand-alone genre (Pflaeging, 2020a, p. 110–114). Stöckl's (2017) longitudinal study of the genre profiles, image types and language-image relations in the *MIT Technology Review* illustrates how changes at the genre-level are inextribably linked to higher-level developments, e.g., in genre profiles and in wider social domains (Stöckl, 2017, p. 273). Müller-Lancé's (2016, 2019) work on 400 French and German action-sports magazines (since the 1970s) identifies economic pressures as a main driving force of change.

Bateman (2008, p. 229–248; Bateman, et al. 2004, 2007 and Bateman, 2014a, p. 246–254) offers a diachronic account of expository discourse by the example of ornithological field guides (1924, 1972, 1994, 1996). Applying his *Genre-and-Multimodality* (GeM) framework, he tracks a shift towards increasingly complex layout structures (Bateman, 2008, p. 230–235) and a redistribution of content elements across a broader variety of semiotic modes (Bateman, 2008, p. 235–240). Focusing equally on educational materials, Bezemer and Kress (2009, 2016) study a corpus of 240 pages from 23 school textbooks (1930s, 1980s, 2000s). Reminiscent of Bateman's (2008) findings, they describe a trend towards a more extensive and complex use of page-based modes such as layout or typography (Bezemer and Kress, 2009, p. 256–260). The deployment of pictorial modes undergoes a shift from mainly photography (1930s, 1980s) to mostly drawings in the 2000s (Bezemer and Kress, 2009, p. 254). A recent contribution to this line of study is Keles and Yazan's (2021) critical discourse analysis of gender representations in a series of five school textbooks (1993–2019). Results shows that, rather than mitigating gender inequities, learning materials continue to consolidate heteronormative representational practices (Keles and Yazan, 2021, p. 138).

Scholars have also turned to the development of comics media. Cohn et al. (2017, p. 19), for instance, conducted a large-scale corpus analysis of American superhero comics (1940s–2010s) with a view to multimodal interactions, attentional framing, and semantic relationships between panels. Results suggest a trend towards more complex visual narrative structures and a reduced functional load carried by verbal elements (Cohn et al., 2017, p. 30, 34). Bateman et al. (2019, p. 216) investigate a similar data-set (1,260 pages from American superhero comics, 1940s–2000s), but place a more specific focus on page composition. Combining corpus-linguistic and multimodal methods, they offer a highly systematic medium-specific description of individual layout changes and correlations between them (Bateman et al., 2019, p. 216–223).

Hiippala's (2015) study applies the *GeM*-framework to a large set of tourist brochures and describes, for instance, a more elaborate use of layout after the advent of desktop-publishing. Turning to questions of genre ancestry, Molnar (2019) identifies the herbal, the trade card, and the private letter as predecessors of print-ad genres of the Enlightenment era. Further empirical work on advertisements offers theoretical remarks on why accelerated change is preferred in persuasive discourse to meet audience expectations (Cook, 2006, p. 224; Stöckl, 2010, 2014).

Digital media

One of the earliest longitudinal studies of digital media is Zhang and O'Halloran's (2013) research on university homepages. Their work, informed by critical discourse analysis and social semiotics, reveals that education is increasingly framed as a lifestyle and that target audiences have shifted from national to global communities. Based on a corpus of 100 blogs, Schildhauer's (2016, Ch. 6) history of the *personal weblog* sheds light on the genre's development regarding layout, image types, and language-image links in response to technological advancements and emerging genre contraints. Pflaeging (2020b) and Dynel (2022) turn to viral online communication, studying soft-news items (listicles) and memes, respectively. While Dynel (2022, p. 73) finds that memes remained largely stable over 12 months, Pflaeging's (2020a, p. 240–242) data from 2014 and 2017 suggests that generic patterns may just as well bend quickly in order to persuade users to share a listicle with their social networks. Finally, Stamenković (2022) studies the stylistic development of video-game screens from the *Football Manager* series. He finds that, over time, screens feature less language and more pictorial elements and show a growing diversity of sub-canvases.

Audio-Visual Media

While diachronic research on audio-visual media is comparably rare, Luginbühl (2014, 2019) provides a comprehensive, culture-contrastive account of TV news programs in the U.S. and Switzerland. Analysing 76 programs broadcast between 1949 and 2005, Luginbühl tracks changes in individual genres and the genre profile, and makes important contributions to a theory of genre development as well (Luginbühl, 2014, Ch. 9, 10; Luginbühl, 2015a; Luginbühl, 2019, p. 133–136). Brock (2019) pursues a similar interest in theory-building and describes various "genre-constitutive acts" of contemporary TV sitcoms (Brock, 2019, p. 123). Graakjær (2019), in

turn, investigates a corpus of 475 McDonald's TV commercials (2003–2018) focusing on the sonic logo. Inherent to musical practice, his study makes particularly clear that alteration and adaptation are an integral part of generic development (Graakjær, 2019, p. 580).

As suggested above, the vast majority of publications in diachronic multimodality research are empirical case studies, applying frameworks and concepts from social semiotics (e.g., Molnar 2019; Durrani, 2020; Deng and Feng, 2022), critical multimodal discourse analysis (e.g., Zhang and O'Halloran, 2013; Keles and Yazan, 2021; Dynel, 2022), empirically-oriented multimodal discourse analysis (as proposed by Bateman, Wildfeuer, and Hiippala, see e.g., Hiippala, 2015; Stamenković, 2022), and media/text linguistics (e.g., Bucher, 1996; Luginbühl, 2014; Schildhauer, 2016; Stöckl, 2017; Brock, 2019). Based on these empirical accounts, however, a number of theoretical assumptions can be deduced and synthesized with existing proposals.

Theoretical aspects

Genre as a focal point

For its strength in explaining the dynamics of stability and change of multimodal practices, many works in diachronic multimodality research have placed an emphasis on *genre*, usually with reference to paradigms such as "genre as social action" (Miller, 1984) or "genre as social semiotic" (Martin and Rose, 2008). Both traditions see communication as driven by social needs that arise from socio-historical contexts. As contexts change, participants explore new multimodal choices but naturally also rely on familiar patterns in text production and reception (Luginbühl, 2019, p. 132; also Eckkrammer, 2011, p. 196). Thus, while genres and patterns are "repurposed, redesigned and re-deployed" (Bateman et al., 2014, p. 10), the connection to genre ancestors is never lost (Lemke, 1999; also Molnar 2019; Sommer 2019). When genres *migrate* to new medial environments especially, established features are often initially retained for purposes of consolidation and orientation (Schildhauer, 2016; also Eckkrammer, 2011, p. 193–195).

Developments are stratified across various levels of abstraction (Bateman, 2008, p. 229; Luginbühl, 2014, 2019; Stöckl, 2017; Pflaeging, 2019, 2020a). At *pattern*-level, single (multi)modal choices (e.g., a layout pattern) may be perpetuated (*pattern stability*) or used more/less frequently over time (*pattern change* through *strengthening* or *weakening*), may be *internalised* through borrowing from other genres, or are novel creations (Pflaeging, 2017a, p. 259; Pflaeging, 2019, p. 77). Such individual developments were found to cluster and correlate at *genre*-level (see Cohn et al. 2017; Bateman et al., 2019; Deng and Feng, 2022). If the distribution of genre-typical patterns becomes increasingly untypical (Lemke, 1999), there is a strong indication of *genre change* (Luginbühl, 2014, p. 336), e.g., in the form of *standardisation* or *hybridisation* (Luginbühl, 2019, p. 136). When bundles of semiotic choices diverge noticeably from established use (Bhatia, 2014, p. 92), scholars speak of *genre split* (Lemke, 1999; Luginbühl, 2014, p. 335; Brock, 2015, p. 207; Schildhauer, 2016, p. 41; see Pflaeging, 2017a, p. 77–78). Developments like these, in turn, may result in changes at the *genre profile*-level (Luginbühl, 2015a, 2019, p. 133–134). By describing the *genre repertoire, genre frequencies* and *genre networks* typical of a given medium, statements can be made about a community's multimodal genre space (Bateman, 2008, p. 225–229).

Factors that influence diachronic developments

Both empirical and theoretical works draw attention to the *factors* that shape the development of multimodal practices. Below, such factors will be discussed invidually, although they are tightly intertwined (Pflaeging, 2017a,b; Cohn et al. 2017, p. 32; Stöckl, 2017; Graakjær, 2019, p. 573).

Among the most central driving forces is communicative function (Brock, 2019, p. 120; also Eckkrammer, 2011, p. 196; Stöckl, 2017, p. 273), which is most apparent when *genre* is attributed a key role in the description of communicative practice. In advertising (Cook, 2006; Molnar, 2019) and viral online discourse especially (Pflaeging, 2020a), where texts are meant to persuade to buy or click, this may result in accelerated change. Brock (2019) makes a similar argument for humour, where textual patterns quickly fail to evoke humourous interpretations. The functional range of a genre may also shift or become more diverse over time, which equally has repercussions on the text design (Brock, 2019, p. 120).

Genre expectations are another factor of influence (Hiippala and Tseng, 2017; Pflaeging, 2017a; Molnar 2019, p. 31). As socio-cognitive entities, genres are "devices for sense-making" (Lomborg, 2014, p. 45) and serve as frames of reference for the interpretation of multimodal artefacts and interactions (see also Cohn et al. 2017, p. 33). This creates the need for *perpetuating* established textual patterns to some extent (Luginbühl, 2019, p. 130, in ref. to Schildhauer, 2016, p. 259–261), especially in mass-media journalism. Here, participants experience a *disjunction of place and time* between text production and reception (Pflaeging, 2017a, p. 257–258), audiences remain imaginary and feedback is naturally "delayed" (Bell, 1984, 1991a, 1991b). While journalistic practice is equally subject to innovation, diachronic studies have revealed tendencies towards *standardisation* (Pflaeging, 2017b, p. 198; Luginbühl, 2019, p. 135; Pflaeging, 2020a, p. Fn. 7), using corporate-design manuals and templates. Advertisements, viral soft-news items, comics or sitcoms, on the other hand, can be *expected* to exploit the potential for creativity more. Finally, developments may also be shaped by recipients' awareness of communicative trends in the media landscape more generally, e.g., the rise of Japanese mangas on the American market (Cohn et al. 2017, p. 24), or a growing *visualisation* (Bucher, 1996; Caple, 2013, p. 7; also Krotz, 2015), *clusterisation* (Bucher, 1996), or *atomization* (Knox, 2007, p. 48) in journalism.

In advertising (Stöckl, 2010, p. 150), humourous discourse (Brock, 2019, p. 122), journalism (Pflaeging, 2017b, p. 201–202), and even more so in comics (Cohn et al. 2017, p. 32) and social media discourse (Dynel, 2022), change in multimodal practices may be spurred by an individual's creative ways of breaking with conventions, which may be deliberate or entirely coincidental (Pflaeging, 2017b, p. 201–202; Brock, 2019, p. 123). Change and stability may also result from developments in participant constellations more generally. Cohn et al. (2017, p. 32), for instance, assume that a revaluation of the role of the penciler may have led to the rise of *visual* storytelling in comics. In a similar vein, entire production teams may undergo processes of expansion and professionalisation, e.g., at *National Geographic* (Pflaeging, 2017b, p. 197–198; also Stöckl, 2017, p. 263). Developments may equally be fueled by changes in audiences, which may grow, diversify (Pflaeging, 2017a, p. 197–198), or experience new degrees of

involvement (see Brock, 2019, p. 114; Sommer 2019, p. 246; see also Meier and Marx 2019).

Medium-related advancements are also known to drive the development of multimodal practices, although they never *determine* them (Luginbühl, 2015b, p. 14; Pflaeging, 2017b, p. 192; Stöckl, 2017, p. 263; Luginbühl, 2019, p. 136; Brock, 2019, p. 120). Affordances of a given medium (and its material, technological and infrastructural qualities, Pflaeging, 2017b, p. 202; Stöckl, 2017, p. 273) may limit communicative choices, but participants are often seen to overcome supposed restrictions (Luginbühl, 2015b, p. 14–15). Shifting the focus further to the sociological dimension of media, practices may be influenced by a growing *mediatization* of social spheres (Androutsopoulos, 2014), incl. Journalism (Kammer, 2013) where multimodal practices have become reminiscent of a so-called *media logic* (Altheide and Snow, 1992; Stöckl, 2017, p. 272–273).

Such developments are closely tied to socio-economic factors as well (Eckkrammer, 2011, p. 191). Müller-Lancé (2016, p. 596) study of action-sports magazines, for instance, illustrates how tight budgets (due to changing sales figures and sponsorships) may result in an outsourcing of journalistic tasks to guest contributors and even audience members. Likewise, early journalistic practice at *National Geographic* was shaped by limited funds for photographic reproduction and staff. A steep rise in circulation numbers soon led to a much healthier financial situation, more editorial staff, more advanced production techniques, and, ultimately, changes at the discourse-level (Pflaeging, 2017b). Though cause-effect relations seem less immediate, communicative developments can also be impacted by the socio-political dynamics in a given cultural and historical context (Brock, 2019, p. 121; Luginbühl, 2019). Factors such as the rise of *neoliberalism* and the *marketisation* and *commodification* of higher-education are typically identified within critical multimodal discourse analysis, where systemic-functional-linguistic approaches allow for constructing a connection between texts and socio-cultural contexts (Zhang and O'Halloran, 2013; Deng and Feng, 2022).

Data collection and methodological aspects

Data collection and corpus compilation

Diachronic multimodality research requires data from at least two different points in time, although choosing them is far from trivial. To cover a longer phase of continuous journalistic output, Luginbühl (2014) and Pflaeging (2017b, 2019) sample from (evenly distributed) points in time, with smaller and larger gaps in between (also Stöckl, 2017; Sommer 2019; Pflaeging, 2020b; Stamenković, 2022). Their approaches differ, however, in that Luginbühl's collection was guided by news events, whereas Pflaeging accounted for a phase of genre consolidation after moments of editorial reorientation. Stöckl (2017, p. 274) and Brock (2019), in turn, propose to focus on texts that capturemoments of innovation in a genre's or medium's history. Yet other studies seek to reflect more closely the amount of available data, e.g., by sampling from densely-distributed points in time (Molnar 2019; Dynel, 2022) or by selecting (nearly) all data available for a given period, medium, or genre (e.g., Hiippala, 2015; Graakjær, 2019; Keles and Yazan, 2021; Deng and Feng, 2022). Studies on web-based genres have used the *Internet Archive*

(Schildhauer, 2016, p. 218) and web-scraping techniques for data collection (Dynel, 2022).

As results are to be related or relatable to map a development, diachronic data-sets need to show similarities in cultural contexts (e.g., Luginbühl, 2014; Sommer 2019), medium (e.g., Luginbühl, 2014; Keles and Yazan, 2021; Deng and Feng, 2022), genre (e.g., Schildhauer, 2016; Pflaeging, 2020a, 2020b; Dynel, 2022; Stamenković, 2022) or, at least, a strong similarity in textual function (Eckkrammer, 2011, p. 203), topic (Stöckl, 2017, p. 263), or mode (Graakjær, 2019; Bateman et al., 2019; Deng and Feng, 2022). Some studies have explored an ethno-categorical approach to genre in order to ensure comparability (Luginbühl, 2014; Schildhauer, 2016; Pflaeging, 2019; Sommer 2019) and to avoid circularity in sampling (Thomas, 2019, p. 86). When diachronic corpora are meant to cover extensive periods of time, their compilation can be challenging due to a limited avalability of materials or semiotically authentic, objective accounts (e.g., only a written report of a dynamic theatrical performance), or an insufficient preservation of historical materials that requires time-intensive digitalisation. Also, adding rich meta-data that is true to a given socio-historical context is not always straightforward (e.g., allocating genre categories, authorship, dates of publication) and working with historical materials generally requires a change of perspective.

Accounting for different socio-historical contexts

Pragmatics- and discourse-oriented approaches to multimodal analysis (Bateman, 2014b, Ch. 11–12) emphasise the sensitivity of discourse interpretations to contexts of use. The analysis of multimodal texts from sometimes distant points in time thus requires an awareness and careful reconstruction of socio-historical contexts (see, e.g., Bateman, 2008, p. 237; Luginbühl, 2014; Schildhauer, 2016; Pflaeging, 2017b; Molnar 2019; Brock, 2019; Cohn et al. 2017, p. 33–34). Striking a balance between detailed, context-sensitive descriptions of qualitative differences and the aim to chart general developments remains a challenge in diachronic multimodality research.

Analysing large(r) corpora and open research data

Empirical multimodality research has recently begun to turn to larger-scale data-sets (Pflaeging et al., 2021, p. 13) and research objects of considerable modal complexity (Bateman, 2021, p. 35). With diachronic corpora potentially multiplying the data under study, the issue of feasibility (Hiippala, 2017, p. 277, also in ref. to Thomas, 2009, p. 245) has become pressing. To scale-up, scholars explore new ways of annotating data using computational (Hiippala, 2016) and crowd-sourcing methods (Hiippala, 2023), and to implement statistics (Hiippala, 2015; Cohn et al. 2017; Bateman et al., 2019; also Bateman et al., 2017, Ch. 6; Bateman and Hiippala, 2020) and AI (Semedo and Magalhães, 2019).

The increasing scale of available data-sets is not least due to recent efforts in the spirit of the open-research-data paradigm (see the FAIR guidelines, Wilkinson et al., 2016 as well as an adapted version for cultural heritage objects, Koster and Woutersen-Windhouwer, 2018). Although this trend poses challenges to scholars seeking to compile historical corpora (e.g., due to time-intensive digitalisation for it to

be machine-readable and a careful consideration of copyrights), such efforts are necessary to make diachronic data-sets available to various communities of researchers.

Discussion and outlook

Despite its scarcity, previous diachronic multimodality research has shown that our understanding of communicative practices today and our predictions of the future benefit from a close consideration of the past. Advances in theory-building suggest that developments in multimodal artefacts and interactions are driven by a broad range of interrelated factors and play out at various levels of the discourse. Solid theoretical frameworks are now in place (e.g., Bateman, 2008; Bateman et al., 2017; Wildfeuer et al., 2020) to systematically trace phenomena of stability and change across extensive periods of time. Future research will likely intensify the use of (semi-) automated and statistical methods to process large-scale multimodal corpora, compute correlations between changing patterns, and output significant factors of influence. The rise of digital archives and web-scraping methods opens up whole new worlds of multimodal data yet to be explored. All of these aspects make *diachronic* multimodality research a promising and timely endeavour: as with multimodality research in general, "there are more open questions than there are answers" (Bateman et al., 2017, p. 123) and "remember, there is always the 'next' paper :-)" (Bateman, 2020, pers. correspondence).

Author contributions

JP: Writing – original draft, Writing – review & editing.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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