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Technology, translation

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Critical engagement with the role of technologies in translation has been slow in emerging within translation studies but has been gathering pace since the second decade of this century. As translation becomes more fully understood as social practice and is increasingly studied through sociological lenses, the materials and tools involved in that practice are also beginning to come to the fore. The practice of translating, like writing, has always involved technologies, and those technologies have emerged and evolved over time in relation to a society’s cultural and socioeconomic needs. Gabrial (2008) traces the development of manual, mechanical and electric/electronic writing technologies, from stone inscriptions to ink quills on parchment, from printing presses to typewriters, from Morse code to desktop publishing. Many of these developments depended, in turn, on other technologies, including paper production, universal postal systems, the personal computer and the internet. Much of the history of translation technologies could be narrated along similar lines. However, when translation technologies are discussed by translation scholars, the focus tends to be limited to digital technologies and, even more specifically, to translation memory (TM) and machine translation (MT) software. For instance, Chan’s (2015) overview of the history of translation technology starts in 1967. Other narratives typically begin in the 1950s, with the development of machine translation systems (Hutchins 2015). A notable exception is Cronin’s (2013) Translation in the Digital Age, one of the few examples of scholarship that engages profoundly with notions of technology and translation through their long histories, into present-day contexts and beyond.

Research themes and findings

Recent research contributions on questions pertaining to digital technology and translation offer a range of specific areas of foci, broadly organized here as uses, emotions, ergonomics, interfaces, construction and power. Empirical studies employ a range of methods, including surveys, interviews, screen recording, video recording, eye tracking and discourse analysis, to study translation in both real-life and experimental settings. Scholars draw explanatory concepts and frameworks principally from cognitive science, usability studies, ergonomics, social constructivism, science and technology studies, actor-network theory, post-Marxist critical theory and posthumanism.
Early research into the use of digital technologies by translators (Lommel 2002, 2004; Fulford and Granell-Zafrı 2005; Lagoudaki 2006; Dillon and Fraser 2006) employs survey methods, typically to elicit information about which tools are used by respondents and how they use them, often combined with questions about attitudes to technology. Even when populations of translators are being surveyed for other purposes, questions about technologies tend to feature prominently. One such survey, the UK Translator Survey, conducted jointly by the European Commission Representation in the UK, the Chartered Institute of Linguists and the Institute of Translation and Interpreting (2017), focuses on tools or technology in more than half of the questions posed. In addition to finding out what the most widely used tools are, the survey also asks translators how important specific tools were for their work, whether they thought technology gave them a competitive edge and whether they predicted that technology would make human translators less important in the future. Offering a snapshot of tool use and potentially some indicators of attitudes to technology, surveys of this kind may also give some insight into developments over time, notwithstanding variations in survey design and question formulations.

Persistent circulation of untested assumptions about translators’ aversions to technology prompt Koskinen and Ruokonen (2017) to research emotional responses to technology using a method adopted from usability studies, as an alternative to surveys. They analyse 106 love letters or break-up letters written by translators to a tool of their choice. Although participants had a choice as to what tool they would focus on, 70% of letters written are directed at translation technology, principally to search tools and databases rather than TM or MT. For the authors this highlights the centrality of translation technologies in the working lives of the translators. Noting that positive comments slightly outweigh the negative ones, they conclude that translators are not “anti-technology” (ibid.:15). Mapping translators’ comments on to widely used dimensions of usability – learnability, efficiency, memorability, errors and satisfaction – Koskinen and Ruokonen observe that positive affect is linked to either efficiency or user satisfaction, while negative affect is also linked to efficiency (i.e. lack of it) but more strongly to system errors. The analysis of translators’ narratives provides an example of how this method can be fruitfully employed to gain insights into technology usability but also to focus on the generally neglected dimension of affect or emotional response.

The UK Translator Survey asks respondents whether they have been affected by any computer-related health problems, and a quarter of those surveyed reply that they have suffered from a range of aches, pains and strains. This question directs attention to one aspect of ergonomics, an area of study that is establishing itself in translation research and is closely related to technology. Drawing on the International Ergonomics Association’s definition of ergonomics as the “physical, cognitive, social, organizational and environmental and other relevant factors of work”, Ehrensberger-Dow and O’Brien (2015:99) and Ehrensberger-Dow et al. (2016) use surveys to research the physical, cognitive and organizational aspects of translation workplaces. Their analyses focus on the notion of cognitive friction, i.e. “the resistance encountered by a human intellect when it engages with a complex system of rules that change as the problem changes” (Cooper 2004:19, cited in Ehrensberger-Dow and O’Brien 2015:102). The authors argue that raising awareness of the potential for cognitive friction among translators may encourage adjustments that are relatively easy to make, for example, switching to a dual-monitor set-up. In further
investigations of the ergonomics of translators’ workplaces, Ehrensberger-Dow and Hunziker Heeb (2016) combine screen and video recordings, interviews and ergonomic assessments to analyse how disturbances such as incoming emails can disrupt a translator’s work and reduce efficiency. They also observe that the translator does not use available display settings to minimize eye strain, or fine-tune TM settings to make the tool’s suggestions more relevant. They conclude that translators probably become very good at devising routines and workarounds for workflows that are not ergonomically optimized but that optimized systems could free up those cognitive resources to deal with more novel or complex problems in the translation process (ibid.:85).

Ehrensberger-Dow and Hunziker Heeb (2016:76) highlight how occupational therapy research classifications might underspecify translation work as work with a computer; they find that a more granular approach is essential if we are to account for the complexities of the translation workplace, translation tasks and the use of translation memory tools. While ergonomic concerns extend beyond translation technology to many other aspects of the workplace, some research focuses specifically on the computer’s user interface (UI) and the needs of users in relation to the UI. Moorkens and O'Brien (2013, 2017), for example, survey post-editors to find out what they would like to see in their ideal user interface. One of their findings was that most of the features that post-editors deemed desirable were not related specifically to the post-editing process but to the translation environment more generally – for example, a clean, uncluttered and customizable user interface, concordancing features, global find-and-replace functions and interoperable quality assurance tools. For the authors this indicates that translation UIs have many shortcomings to be addressed, even before the post-editing user interface is considered (2013:24). A theme underlying or emerging from many of the studies mentioned thus far is that input or feedback from end-users of translation technologies is not elicited or used, or carries little weight, in product design. This lack of user-centred design is the impetus for Moorkens and O’Brien’s longer-term aim to create user-focused specifications for editing interfaces that will provide better support for the post-editing task. With that aim in mind, they follow up on their survey by interviewing experienced post-editors (Moorkens and O’Brien 2017) to elicit more user input to inform future UI design. A major source of frustration among post-editors, for example, is the need to make the same changes, again and again, to a segment of MT output. To alleviate this, MT and UI developers would need to focus on implementing on the fly improvements to MT output. Another key point for post-editors is knowing the provenance of data; this would require tracing and retention of metadata for TM and MT, which is technically challenging. These research projects highlight the importance of end-user input in the design of translation tools; an example of how this is being achieved in the development of a terminology tool is described in García-Aragón and López-Rodríguez (2017). Moreover, Moorkens and O’Brien (2017) conclude that input from experts in human-computer interaction is also needed to address long-standing issues with current TM interfaces.

The issue of user input into product design, particularly for leading commercial software products for the global market, raises important questions that expand the horizons of our studies of technology beyond the user interface and the workplaces or other settings in which the technology is deployed. It also invites engagement with other disciplines for which the relationships between technology and society are centre-stage. For researchers in
science and technology studies (STS), the place of science and technology in the world has been the focus of attention for several decades. STS developed in the second half of the twentieth century, with seminal contributions including Merton’s (1973) sociology of science and Latour’s actor-network theory (ANT) (Latour 1987, 2005). A significant contribution was the development of the approach known as social constructivism of technology (SCOT). Led by Bijker and colleagues (Bijker et al. 1987; Bijker 1995; Bijker et al. 2012), SCOT offers a rebuff to technological determinism, arguing that the meaning of a technology does not reside in the technology itself but is rather acquired and shaped in social interaction. Through case studies, SCOT researchers identify the “relevant social groups” who describe and attribute meanings to a technological artefact (Bijker 2010:68). The range of meanings circulating are indicative of the “interpretive flexibility” of the artefact, and this interpretive flexibility diminishes as some artefacts gain dominance over others and meanings converge (ibid.). The process whereby the meaning of a technology is thus constructed and stabilized is explained in terms of the understandings, knowledge, practices and values of the relevant social groups.

Olohan (2017) proposes this framework for studies in which questions are raised about where, how and by whom decisions are taken about the design of translation technologies, who the relevant social groups are, what the competing interests are, how groups come to have dominance, and whether their decision-making is exposed or obscured behind illusions of technological obligation. While these questions direct our attention to the technology developers, a SCOT analysis also casts light on the take-up of technologies by relevant social groups, bringing into focus the discourses and practices of translators and translation service providers but also actors such as translator associations, industry think tanks, translation researchers, trainers and educators.

LeBlanc (2017) examines how the availability of TMs has prompted translation service providers to change their business and administrative practices. Using ethnographic methods he studies the reactions of translators to these changes, focusing on the establishing of productivity requirements and the enforced recycling of translations. Reflecting on changes experienced over time, the translators almost unanimously bemoan a loss of autonomy, the industrialization of translation and the threat to their professional status. A similar loss of control is reported by Marshman (2012). Although not using a SCOT framework, LeBlanc’s study highlights the importance of studying the perceived meanings and purposes of technologies among relevant social groups, as decisions are made and technologies are implemented in the workplace.

Drawing on actor-network theory rather than SCOT, O’Hagan’s (2017) case study of Facebook’s translation crowdsourcing also addresses questions about translator autonomy and trust in such a technology-mediated translation network. As in Ehrenberger-Dow and Hunziker Heeb (2016), translators continually adapt themselves to technology rather than the other way around, and O’Hagan argues that this limits translator autonomy. Her ANT analysis identifies actors and the relationships that emerge between them in Facebook’s crowdsourced translation network, and highlights how translator autonomy, projected through the establishment of the crowdsourcing network, is only an illusion because network members have no control over the governing and constraining technology, i.e. the translation module set up by Facebook and its algorithmic approach to quality control. With
little possibility of interaction between the network of translators and the Facebook team, the crowdsourcing model emerges as a “one-way, top-down structure, not unlike proprietary CAT environments” (ibid.:39). Trust is damaged by a lack of reciprocity, and O’Hagan concludes that this one-sided approach to technology puts translators at risk of becoming “passive automata” under instruction to use a particular tool (ibid.:40). O’Hagan calls for translators to be more actively involved in shaping technology and for technology developers to take account of how human translators work with technology (ibid.).

SCOT studies are sometimes criticized for their focus on local interactions and negotiations of meaning; it is argued that they thereby neglect the macro-institutional perspectives that can account for relations of production and distributions of power (Leonardi and Barley 2010). Feenberg’s (1992, 1999) critical theory of technology adds an analytical layer that considers the power structures and struggles in which technology is implicated. Hegemonic values are inscribed in the development and selection of technological artefacts; in other words, power is exercised by dominant social groups who use technology to reproduce their own hegemonic status. This technological hegemony is a form of control without coercion that is “so deeply rooted in social life that it seems natural to those it dominates” (Feenborg 1992:309). It is all the more successful because the dominated are promised continued technological and economic growth, and because of an assumption that technologies are morally and politically neutral or innocent (Hornborg 2014).

Critical theory encourages us to examine the cultural-political horizons of technology design and expose hegemonic values. Drawing on this approach, Olohan (2017) calls for the study of the discursive choices and practices of the full range of actors in translation, including those who dominate, in order to gain a deeper understanding of such power dynamics. This approach requires analysis of the socio-economic and political conditions and configurations that bring about the technologies and normalize them. An understanding of how technologies are inscribed with hegemonic values also opens up the possibility of inscribing them with new values. A pertinent example is offered by O’Thomas (2017), who uses the Global Voices network to argue that technology and translation, as facilitators of global capitalism, can also be manipulated to challenge traditional power structures and hegemonic forces. Questions of technology and power pervade Cronin’s (2013) work, and critical approaches to technology or materiality are also in evidence in other contributions, in addition to those already mentioned, including Garcia (2007), Kenny (2011, 2017), Olohan (2011), O’Brien (2012), O’Hagan (2016), Littau (2016) and Moorkens et al. (2016).

Future directions

When the translators in Koskinen and Ruokonen’s study make reference to technological developments over time, they generally consider present conditions as superior to past ones and are “mildly optimistic” about the future (2017:16). Ehrensberger-Dow and O’Brien (2015) also optimistically posit that using speech as input for translating and for postediting MT may help to ease physical discomfort and reduce cognitive friction. This suggestion reflects the general move in computing to what is called a natural user interface (NUI), as an alternative to the graphical user interface (GUI) made ubiquitous by the personal computer and Microsoft Windows. Users now interact with smartphones, tablets and other touchscreen or voice-controlled devices using gesture, touch and voice. This ‘natural’ approach
gives an illusion of control and direct manipulation of data. However, as McCorkle (2017) argues, NUI users are removed yet further away from the underlying computer code, and thus from control. NUI, like all technological design, is inscribed with ideological values. Its prescriptiveness, for example, constrains users to gesture or enunciate in particular ways, thus excluding and marginalizing human behaviours and bodies that fall outside of the norm. NUIs for translation technologies are being developed, for example, in a mobile MT post-editing app (Torres-Hostench et al. 2017). Such developments will necessitate more attention to the relationship between translation technologies and the body.

Finally, the futures of translation and translation technology are inevitably intertwined with current and future developments in artificial intelligence. It is realistic to expect that AI will continue to facilitate certain translation and translation-related tasks, as already evidenced by some machine translation and business automation applications. O’Thomas (2017) pushes our thinking yet further, into a transhuman and biotech age in which translation will be carried out by machines and software applications that are themselves embodied. Following Braidotti’s posthumanism (2013), he posits that we will need then a redefinition of translation, just as we will need a redefinition of the human subject. In the meantime, it remains imperative that translation scholars investigate the interests, motivations and decisions relating to the design and implementation of translation technology, in order to contribute to a critical, socio-technical understanding of translation contexts. At the same time, translation is just one of many areas of professional activity to be affected by AI and related developments. Our scholarship may therefore benefit from closer alignment and collaboration with disciplines that are concerned with the changing nature of work and organizations, the socio-cultural and ethical implications of automation, the evolving needs of education and competence development, and the empowerment of professionals to deal with these emerging challenges.

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