Culture and Communication in Digital Worlds

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A scoping review of literature from the Third Age of internet studies

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INTRODUCTION & BACKGROUND

What can research and theory tell us about culture and communication in digital spaces? What happens when people from different cultural backgrounds try to communicate using digital technologies? What challenges do they face? How do the special challenges of **intercultural communication** in digital environments affect teaching and learning? Which theories of culture or of communication can help us understand communication dynamics in digital spaces? How might digital environments (and especially digital learning environments), be better designed to facilitate human communications? How is global digital communication driving social, political and cultural change? Do digital communication technologies represent opportunities or threats to human cultures?

This review offers a roadmap and thematic analysis of literature from 2003-2023 presented at https://digitalcultures.ca. In it, we consider what research is telling us about whether digital communication technologies represent new opportunities, new threats, or both, for human cultures.

Image created using ChatGPT 5.1, November 29, 2025

What we found in 2004: 'Culture and communication in cyberspace'

In the early 2000s, in the midst of the ***Second Age*** of internet evolution and research (see for example Wellman, 2011), we sought to address these questions. In our 2004 work *Communicating across cultures in cyberspace: A bibliographical review of online intercultural communication* (Macfadyen et al., 2004)[1] we surveyed available literature that explored issues of culture and communication in online environments ('cyberspace'), and we tried to delineate the extent and boundaries of this newly emerging field. We reviewed research and theory from multiple disciplines (cultural studies, intercultural studies, linguistics, sociology, education, human-computer interaction, distance learning, learning technologies, philosophy and others). Employing a grounded approach (Braun & Clarke, 2012) we distilled six core themes out of the original **corpus**:

- The culture(s) of the internet
- The language of cyberspace
- Intercultural communication on the internet
- Identity and community in cyberspace
- Culture and education in cyberspace
- The impact of the internet on culture(s)

Using the language and terminology of the era, we wrote about culture in **cyberspace**, cyberlanguage, **cybercultures**, and even cybereducation, to signify identities and practices shaped by digital, networked interactions and to capture the sense of novel futuristic, digital and virtual meanings.

We concluded that while important early contributions had been made to the development of theory and to empirical investigation, it was evident that further study was needed in at least four major areas:

- The development of appropriate theories of culture
- The development of useful theories of intercultural communication
- Continued investigation of the impact of language and culture on online intercultural communication
- Continued development and testing of inclusive online (and online learning) environments.

A particular ongoing challenge was perceived to be the lack of an adequate theory of culture that would allow analysis of the complexities of virtual cultures and virtual communities (Ess, 1998; Roche, 2001), and that could guide more 'culturally appropriate' technology and interface design.

We therefore suggested that it would be critical to continue to pursue detailed studies of the discourses and practices generated around/by technology and the new forms of social reality created by technology, and to employ ethnographic approaches to investigate cyberculture practices, cultural foundations shaping new technologies [and] the **political economy** of cyberculture (Escobar, 1994).

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1 To smooth the reading experience, we have elected to minimize the frequency with which we cite this original 2004 study. Readers should note that throughout, any narrative mention of our 2004 study refers to this Macfadyen et al. (2004) work.

Culture and communication in contemporary digital worlds (2003-2023)

Twenty years later, much has changed. The emergence of the ***Third Age*** of the internet (Wellman, 2011), including Web 2.0 and social media, means that the digital is now woven through everyday life and work. Indeed, the term ***digital revolution*** is now sometimes used to mark a significant historical period, specifically the early 2000s, which ushered in a **post-industrial digital age** (Ochoa et al., 2020). As of October 2025, 6 billion people around the world had access to the internet–some 74% of the global population (Statista, 2025). Moreover, more than half of these users are in Asia, highlighting a shift away from the dominant Anglo-Western audience/user population (Duarte, 2025). With the rise of **participatory platforms** like blogs, social media, wikis, and user-generated video, the internet has ceased to be a place we "visit" and has instead become a space we inhabit. This is a shift towards "technologies of life"–whereby "a single technology or a group of technologies becomes an infrastructure to sustain (and therefore shape) a wide range of quotidian activities" (Gómez Cruz, 2022). The past two decades have seen the pluralization of voices in digital spaces, with users from across the globe contributing content, shaping culture, and building communities. Building on our 2004 conclusions, and recognizing the new **sociotechnical reality**, we wondered whether research and theory had emerged in the intervening twenty years that might offer new insights.

To discover the current state of research and theory in the field, we undertook a scoping review (Peters et al., 2020) as described below. Rather than attempting to develop a definitive review of our materials, our intention is to provide a high-level thematic overview that traces themes and trends. This review and associated online resource offers interested researchers a jumping off point for more focussed and detailed investigation.

This scoping review asks:

- How has the language of this interdisciplinary field changed over time?
- Have new definitions, enumerations, and observations of 'culture' arisen that may now allow us to effectively examine and make predictions about the complex interactions between culture and technology?
- Do we now have adequate theories of intercultural or transcultural communication in digital spaces?
- Which new trends and themes have arisen in the research literature as cultures and technologies have continued to co-evolve?

Finally, we close by situating these trajectories in what we call a ***Fourth Age*** of **model-mediated communication**.

SCOPING REVIEW DESIGN AND METHODS

We conducted a scoping review of literature published between 2003 and 2023, with the goal of uncovering and making sense of emergent knowledge and approaches around cultures and communication in digital worlds since our last review. We opted for this approach because it offers a systematic approach to mapping the existing literature on a specific topic, identifying key concepts, gaps, and the breadth of evidence available. This type of review is particularly useful for exploratory research questions, and its iterative nature enabled us to refine our focus as we progressed, making it adaptable to evolving research landscapes (Mak & Thomas, 2022). A scoping review offers a broad overview of the literature, helping to identify gaps and areas for future research (Pollock et al., 2024) rather than attempting to achieve a complete and reproducible method to collect all studies that have explored these issues (Fink, 2019; Okoli, 2015). We quickly realized that it was impossible to capture and properly process such a volume of information, which initially consisted of tens of thousands of results. Instead, we collected and analyzed documents until we reached saturation–we stopped when we found repetition around the same topics, approaches, and contexts. We understand saturation in line with Low (2019), who argues that it is impossible to reach saturation to a level where new information is not emergent–there is always something new and elusive that has failed to be captured. Rather, we see saturation as a cartographic effort, where we seek to map the landscape of cultures and communication in digital worlds while knowing that the map will never fully translate into the complex terrain of studies around culture and communication in digital worlds.

Search strategy

Our iterative search process comprised three stages:

i. Stage 1: Database searches

First, we searched the following academic databases for relevant work:

- ERIC
- APA PsycInfo
- Education Source
- Communication & Mass Media Complete
- Library, Information Science & Technology Abstracts

We relied on the following search pattern:

transcultural AND (media OR technology OR Digital) AND (Keyword)*

In this pattern, AND/OR function as Boolean operators and * is a wildcard, where results of the search will include any group of characters that might follow that word. We focussed our initial search on the term "transcultural*," as it provided an accessible entry point into the literature. This approach was necessary because broader terms such as "cultur*" yielded tens of thousands of results and were therefore impractical for a systematic review. However, in the following steps of data collection (steps ii. and iii., described below), we complemented this initial focus by integrating additional perspectives, including, but not limited to, inter- and cross-cultural studies. Additionally, a series of keywords were included in this search, drawing from the categories of the previous book and some emergent themes, including:

- Identity OR Community (188 results)
- Education OR learning OR teaching (368 results)
- Literacy OR literacies (61 results)
- Games (11 results)
- Intercultural (143 results)
- Language (158 results)
- Communication (245 results)

Following PRISMA guidelines (Peters et al., 2020), our initial search identified 1,174 records across all seven themes. We then conducted a multi-stage screening process. During the title and abstract screening, we excluded works that were not topically relevant to our objectives, particularly those that did not directly address intersections of culture, communication, and technology. At the full-text stage, we further excluded entries that were not readily accessible or that did not contribute novel insights beyond what was already represented in our emerging sample. This screening process was carried out cyclically alongside steps ii. and iii. (described below), allowing us to refine and expand our sample iteratively.

ii. Stage 2: Citation tracing

Based on materials compiled in our first-stage sample, we then undertook **bi-directional citation tracing** (Hinde & Spackman, 2015). We first reviewed the reference section of each publication, looking for titles that could indicate a study of interest to this book and reviewing the abstract of each possibly relevant publication. If the abstract indicated a topic of interest that responded to our inclusion/exclusion criteria, we included it in our sample. We then made use of Google Scholar to discover later publications that had cited work in our sample corpus–repeating the process of identifying titles, reviewing the abstracts and including them in the sample if applicable.

iii. Stage 3: Expert recommendations

A third and final stage of compiling relevant literature for this book consisted of soliciting recommendations from scholars in areas related to technology, communication, education, and culture (for example, by reaching out to colleagues previously affiliated with the *Cultural Attitudes Towards Technology and Communication* (CATaC) conference series. As in previous stages, we only included articles or chapters that successfully met our inclusion/exclusion criteria.

Details of the corpus

Our final 2025 **corpus** comprises 163 articles and book chapters.

For each article or book chapter we also recorded, where available:

- Author-generated keywords (where keywords were not given, we manually developed a set of keywords to assist with future searchability)
- Year of publication
- Full APA-formatted reference
- The abstract or opening paragraph.
- Whether the work describes an **empirical study** (85 works, or 52%) or not (78 works, 48%)
- The global location(s) of users investigated in an empirical study
- Method, and nature of study sample

Theme identification

To identify common themes in the corpus, we undertook two independent coding processes.

i. Topic coding from abstracts

One of us undertook a simple coding process by reading paper abstracts or introductions and recording regularly appearing topics, informed by knowledge of key topics in the literature we reviewed in 2004, and alert to novel topics. This generated a set of 48 topical codes, which have been implemented as a filter in our online collection.

ii. Thematic analysis with AI support

In parallel, one of us adapted the method described by Kriukow (2024) and made use of ChatGPT 4.5[1] to assist in a process of supervised thematic coding. Following this method, a round of initial coding required ChatGPT to identify up to 20 initial codes for each work, and for each suggested code to give a direct illustrative quotation from the work in question. These initial(and their illustrative quotations) were compiled in a spreadsheet, and a fraction of outputs were manually spot-checked to check on possible **hallucinations** (none were identified; had any been identified, human judgment would always have taken precedence). In a second round, ChatGPT assisted with development of focussed codes by sorting and combining clusters of related initial codes. Some focussed codes were also decided on manually. Finally, six major themes were identified entirely manually using sense-making processes based on knowledge of the field, with each theme grouping together sets of focussed codes. Side-by-side comparison of topic codes (described above) with the focussed codes and themes generated in this AI-assisted process gave us confidence.

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[1] OpenAI. (2025). ChatGPT 4.5 (April 2 version) [Large language model]. https://chat.openai.com/

Terminology trend analyses

We made use of the *Dimensions*[2] integrated research discovery and analytics platform to investigate usage trends of selected terms in English-language academic literature over time (Figures 2 and 3) , and we explored terminology usage frequencies in the wider English-language literature using Google Books Ngram Viewer[3] (Figure 1). Later, we made use of the *SciSpace*[4] AI-powered research assistant platform to locate a sample of very recent academic publications investigating **generative AI** and culture, and to group these publications by theme (Figure 4). (These counts and trends should be read as indicative rather than exhaustive, given coverage biases across publishers, language, and time, and the fact that database curation and indexing practices can shift what is, and is not, represented.)

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[2] Dimensions, https://www.dimensions.ai/

[3] Google Books Ngram Viewer, https://books.google.com/ngrams/

[4] SciSpace, https://scispace.com/

Creating rich summaries

We also made use of *SciSpace* to generate richer details for each bibliographic entry in our online collection. These include a bullet-point 'Summary', a bullet-pointed 'Problem Statement', a summary of 'Methods used', and a statement of 'Practical Implications'. (Because large-language-model outputs can omit details, misattribute, or over-generalize, we treated these summaries as prompts for human checking and triangulated them with the original texts before inclusion.)

Writing and editing with AI support

In later stages of the project, we also used a large language model (ChatGPT 5[5]) as a language tool to support preparation of this review. Specifically, we asked the model to (a) suggest alternative phrasing for our own draft sentences and paragraphs, (b) condense sections that had become overly long or repetitive, and (c) flag potential inconsistencies in tone, structure, or formatting. In a small number of cases, we additionally prompted the model to propose draft formulations of linking sentences or short paragraphs within sub-themes that we had already identified and conceptually framed. In all instances, these suggestions were treated as provisional text: the authors revised, expanded, or discarded model outputs in light of their own reading of the corpus and disciplinary voice, and no passage was included without careful human editing.

Generative AI was *not* used to select studies, formulate research questions, or determine interpretations; rather, it served as an auxiliary tool for surfacing patterns in an already curated corpus and for refining wording in draft sections.

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[5] OpenAI. (2025). ChatGPT 5 (October 5 version) [Large language model]. https://chat.openai.com/

Reflections on AI-assisted methods: Opportunities and limitations

i. AI-assisted thematic analysis

In addition to conventional reading and coding, we made exploratory use of large language models (LLMs) to support sense-making across our relatively large and heterogeneous corpus, as described above. Our intention was not to automate thematic analysis, but to use AI tools as heuristic devices that could surface potential patterns and contrasts for subsequent critical examination. As noted, we experimented with two LLM-based tools (ChatGPT 4.5 and SciSpace) to assist in generating and clustering candidate codes. In all cases, final thematic decisions were based on human interpretation of the source texts, with LLM outputs functioning as supplementary, not determinative, inputs.

AI assistance proved useful in two main ways. First, it helped us to scan for recurring topical combinations across the corpus, reducing the risk that isolated but thematically similar articles would be overlooked. Second, AI-suggested coding occasionally functioned as productive "provocations," prompting us to revisit and refine our interpretive decisions.

LLMs are known, however, to produce hallucinated or over-generalized claims. To mitigate this, we did not accept any AI-generated description, code, or thematic label at face value. All candidate codes and clusters were cross-checked against the text of the respective articles, and no article was coded solely on the basis of model output.

Because commercial LLMs are trained on uneven and often opaque datasets, their suggestions may over-privilege Anglo-American terminology and framings. In this project the model's scope was constrained to our pre-selected corpus, and it therefore did not determine which works were included or how "important" they were. Nonetheless, we remained alert to the possibility that AI-suggested code clusters might foreground familiar English-language labels or frameworks at the expense of regionally specific conceptualizations. Where this appeared to occur, we prioritized local terminology in our final thematic labels.

A further limitation is the tendency of LLMs to compress complex arguments into tidy topical categories. Given our interest in contested, processual understandings of culture, we treated AI-generated summaries and labels as heuristic starting points only. Instances where model outputs seemed to smooth over tensions or contradictions in the source texts were flagged for closer human reading, and we deliberately retained ambiguity in cases where the underlying literature was itself unsettled.

Because LLM outputs are non-deterministic and dependent on model version, the precise wording of AI-suggested codes cannot be reproduced identically. To enhance transparency, we archived the main prompts and a sample of model outputs as analytic memos. Our results, however, do not depend on any single AI generation: themes were derived from repeated human engagement with the corpus, and could be reconstructed independently of the specific model suggestions.

Finally, we restricted AI inputs to published bibliographic data and article text. No confidential or personally identifiable data were processed by the models, and our use of LLMs is consistent with emerging institutional guidelines on AI-assisted research workflows.

Our use of AI assistance is thus both pragmatic and reflexive. Working with LLMs during analysis made tangible several dynamics we later discuss in relation to the *Fourth Age* of model-mediated communication, including the salience of **model defaults**, tendencies toward stylistic normalization, and the risk that uneven training data may re-centre dom-

inant discourses. By explicitly foregrounding these opportunities and limitations in our methods, we aim to model a critically engaged, accountable approach to AI-assisted scholarship.

ii. AI-assisted writing

The use of generative AI in writing raises related, but distinct, concerns from its use in analysis. First, there is a risk that model-suggested formulations may normalize style and **epistemic stance**, flattening voice, discipline-specific nuance, or critical edge. We therefore treated AI-assisted editing as a way to surface potential alternatives rather than as a stylistic template, and we deliberately re-introduced nuance, detail, authorial voice, or disciplinary terminology as needed. Second, while LLMs can sometimes suggest plausible but inaccurate claims or citations, we restricted prompts to our own draft text and did not ask the model to "fill in" literature or factual content. All empirical claims, references, and interpretations of sources derive from our review of the underlying works and were checked against the original texts. Responsibility for the arguments and wording in the final manuscript rests fully with the human authors.

Development of a searchable open resource

In 2004, our only publication option for our bibliographic review was static book form. Now in 2025, our goal is to make our review available as an online open academic resource, and to share the corpus of materials we discovered as a dynamic searchable online resource that will grow as interested users contribute relevant work over time. We have therefore compiled the rich summaries of each work into an institutionally hosted online resource: *Culture and Communication in Digital Worlds*[6].

This open online resource is hosted using a WordPress instance implemented by The University of British Columbia[7] in Vancouver, Canada. The FacetWP[8] plugin was employed to offer users advanced searching and filtering of entries using multiple categories, including keywords, topics, focussed codes and major themes. Users are also invited to submit new entries to this collection, with the goal of sustaining and growing it as a dynamic and collaboratively developed resource.

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[6] *Culture and Communication in Digital Worlds*, https://digitalcultures.ca

[7] The University of British Columbia, https://www.ubc.ca/

[8] Facet WP, https://facetwp.com/

OVERVIEW: INVESTIGATING THIRD AGE INTERNET RESEARCH

Echoing our 2004 assessment, the 2003-2023 corpus now shows where gaps have narrowed and where new themes have emerged.

Our new scoping review has identified 163 works charting the evolution of ideas, theories, methods, and practices in this field. Below we assess the extent to which subsequent research and theory development address the gaps we identified in 2004.

Dominant themes

Box 1 summarizes the six major themes that emerged from our analysis of this new corpus, and which we feel most meaningfully reflect the actual preoccupations of scholars in this field from 2003 to 2023. Each major theme brings together several related minor themes that we identified in the literature. We also noted that these themes map well to topics identified independently from abstracts, giving us confidence in the reliability of our overall thematic analysis. Original counts of number of studies per theme or sub-theme as of April 2025 (and before user submissions of additional studies) are given in brackets.

Box 1. Major themes in the 2003-2023 literature

Theme 1: Theoretical and methodological foundations (101)

- Journalism (9)
- Media studies (19)
- Theory, terminology, definitions, methodologies (63)

Theme 2: Digital cultures as social and cultural constructs (124)

- Digital culture(s) (32)
- Identity and belonging (54)
- Social and community dynamics (67)

Theme 3: Language and expression in digital spaces (105)

- Creative cultural expression and innovation (26)
- Intercultural communication practices (31)
- Multilingualism and translingualism (17)
- Multimodal communication in digital spaces (45)

Theme 4: Education and learning (111)

- Intercultural and cross-cultural learning (61)
- Intercultural communication in digital learning spaces (44)
- Language and literacy education (38)
- Media and digital literacies (15)
- Social-emotional learning and well-being (15)

Theme 5: Power, ethics, and global perspectives (111)

- Globalization, power and digital culture (53)
- Intercultural digital ethics (14)
- Sociocultural and political impacts (59)

Theme 6: Digital infrastructures and design (48)

- Design for cultural and linguistic diversity (8)
- Localization of digital technologies (17)
- Technical and infrastructural challenges (18)

Descriptive language and terminology have shifted, and we discuss this throughout. Areas of emphasis have altered. For example, we observed that debates around **digital culture** and the impacts of digital technologies are much less polarized, and that fewer writers are focussed on presenting utopian or dystopian predictions and arguments. Moving away from discussing the novelty of virtual life, work from these decades clearly understands digital technologies as woven into everyday life in many different settings.

Synthesis: Cross-cutting trajectories across the six themes

Taken together, the six themes highlight a field that has both broadened and deepened since our 2004 review, while continuing to wrestle with recurring questions about how culture, communication, and technology are best conceptualized. Across **Theme 1 (Theoretical and methodological foundations)** and **Theme 2 (Digital cultures as social and cultural constructs)** in particular, the corpus shows some movement away from static, nation-bound notions of culture towards more dynamic, relational, and practice-oriented understandings. At the same time, these **constructivist framings** coexist uneasily with inherited essentialist vocabularies, especially where digital environments are framed as spaces in which "national cultures" encounter one another. This tension between culture as container and culture as emergent practice runs through the themes and remains a defining characteristic of *Third Age* scholarship.

A second cross-cutting pattern concerns **localization** and **language/identity work**, most visible in **Theme 3 (Language and expression in digital spaces)** but also in **Theme 4 (Education and learning)** and **Theme 2**. Research on digital cultures, online expression, and educational practice consistently portrays **digital platforms** as sites where language choice, **multimodal resources**, **platform vernaculars**, and interactional norms are actively negotiated. Rather than treating technologies as neutral channels, the literature foregrounds how users adapt, remix, and resist **platform affordances** in locally meaningful ways–through **translanguaging practices**, **hybrid genres**, and creative repurposing of tools. This **localization work** is closely tied to identity: across contexts, digital communication becomes a means of performing, contesting, and reconfiguring cultural affiliations, often in ways that unsettle neat distinctions between "home" and "host," "online" and "offline," or "majority" and "minority" cultures.

Third, the themes collectively underscore the centrality of **power, ethics, and inequality**, most explicitly in **Theme 5 (Power, ethics, and global perspectives)** and **Theme 6 (Digital infrastructures and design)** but also woven through studies of digital cultures and education. Work on platforms, infrastructures, and policy debates draws attention to how design decisions, business models, and governance arrangements privilege some users, languages, and epistemologies over others. Research on ethics, surveillance, and **datafication** likewise highlights the uneven distribution of risks and benefits, particularly for migrants, marginalized communities, and speakers of less-resourced languages. Even where culture is framed in relatively neutral terms, the empirical material reveals persistent asymmetries in who builds and owns infrastructures, whose communicative practices are legible to systems, and whose voices are amplified or silenced. These dynamics complicate any straightforward narrative of digital technologies as simply enabling intercultural dialogue.

A fourth set of threads concerns **methodological and pedagogical orientations**, linking **Theme 1** and **Theme 4**. The corpus is marked by a strong qualitative and interpretive tradition, often grounded in ethnographic sensibilities, discourse and interaction analysis, and case-based studies of particular communities or platforms. At the same time, there is growing interest in **longitudinal** designs, mixed methods, and comparative work that can better capture change over time and across sites. Within educational settings, researchers increasingly position learners and educators not as passive recipients of technology, but as designers, critics, and co-creators of digital practices. This methodological and pedagogical shift reflects a broader preoccupation with agency and with the conditions under which digital environments can foster more equitable, reflective, and culturally responsive forms of participation.

Finally, these cross-cutting trajectories collectively **prepare the ground for the *Fourth Age* discussion** that follows. Concerns about localization, language, and identity across Themes 2-4 intersect directly with questions about whose data train contemporary **generative AI** systems, which languages and genres are most legible to them, and how **model defaults** shape what comes to count as "normal" or "standard" communication. Likewise, the attention to infrastructure, governance, and power in Themes 5 and 6 offers conceptual tools for interrogating the **political economy** of genera-

tive AI and model-mediated communication. In short, the patterns traced across the six themes do not merely describe a completed phase of "digital culture" research; they also illuminate the continuities and ruptures that characterize emerging AI-saturated environments and thus point directly towards the questions taken up in the *Fourth Age* coda.

In the following chapters, we explore each of the major themes we identified in greater detail, with reference to materials in this new collection, and discussing key examples and implications.

THEME 1: THEORETICAL AND METHODOLOGICAL FOUNDATIONS

This theme synthesizes the field's conceptual and methodological grounding. It traces shifts in terminology (from **cyber-culture** to **digital culture**), frames (intercultural to transcultural; superdiversity), and methods–drawing on media and journalism studies–and closes by showing how theory/method choices shape what becomes visible.

Shifts in language and terminology

i. From cyberculture to digital culture

A high level first pass over our compiled works revealed some key shifts in the language researchers are using to described digital technologies and the virtual worlds and identities they support. Work we reviewed earlier (Macfadyen et al., 2004) made extensive use of the *cyber* prefix that was then in common use in both popular and academic discourse. Atay (2021) traces the origins of *cyber* to the mid 20th century, and the work of Norbert Wiener (1954). Originally associated with concepts relating to automation and computing, it was eventually embraced by those trying to describe the emerging digital landscapes of the internet. Terms like *cyberspace* and *cyberculture* gained prominence, as scholars tried to capture the essence of a new, virtual realm that was distinct from the physical world. This usage was heavily influenced by science fiction and academic discourse, which often framed the internet as a transformative and revolutionary space (Shires & Smeets, 2016). In the academic literature, *cyber* was central to the study of digital culture, identity, and communication. Scholars like Pierre Lévy (2001b) and Sherry Turkle (1995) explored the implications of *cyberspace* and *cyberculture*, framing them as new frontiers for human interaction and identity formation (Teixeira et al., 2017). **By the early 2000s, however, usage of the *cyber-* prefix began to decline**. Some argued that it had lost meaning through overuse (Shires & Smeets, 2016). More significantly, as the internet became more integrated into everyday life, the term ***digital* began to replace *cyber***. The shift reflected a move away from the futuristic and abstract connotations of *cyber* toward a more practical and descriptive language (Quet & Dahdah, 2020), though some argue that the concept of *cyberculture* remains relevant in studies of online identity and digital communities (Teixeira et al., 2017). This decline of popular usage of the term *cyberculture* in digitized English books in recent years is demonstrated in Figure 1.

Figure 1. Usage frequency of cyberculture in English-language books over time

Instead, **the broader notion of *digital culture* is highlighted** as an area of research that requires greater understanding. This also includes the idea of diverse global digital cultures which are influenced by global networks and transnational communication giants, yet are also deeply rooted in specific cultural, social, and political settings (Goggin, 2016).

Similarly, a comparative analysis of usage of the terms *cyberculture* and *digital culture* in academic literature reveals the scale of the explosion of usage of *digital culture* terminology in the past decade (Figure 2).

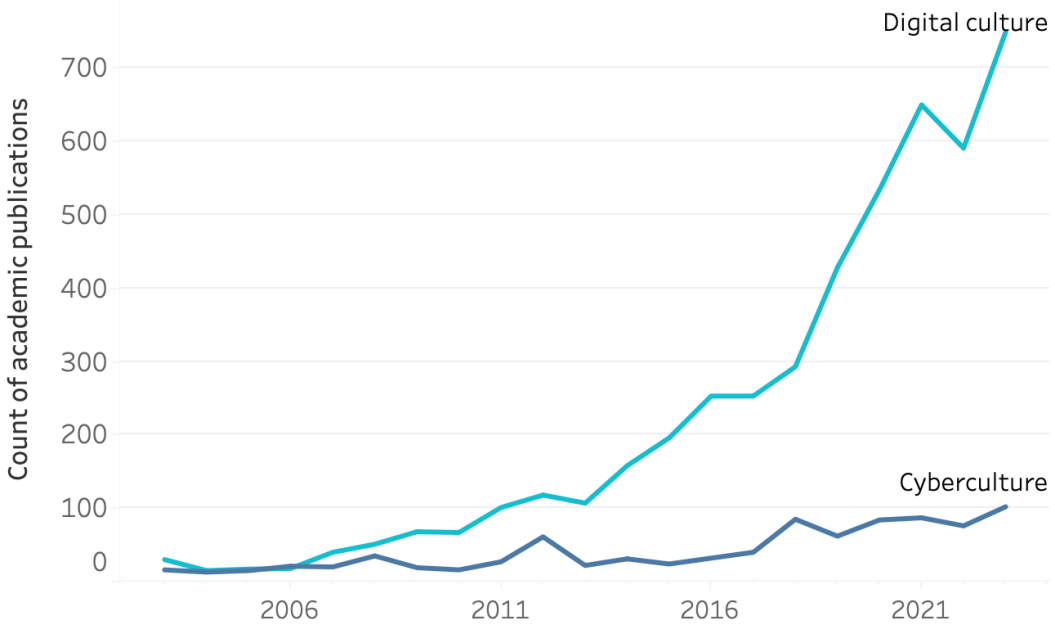

Figure 2. Count of publications using the terms cyberculture and digital culture in English-language academic literature, 2003-2023

It is notable that only five works (3%) compiled in our 2025 corpus make use of the term *cyberculture*, and none more recently than 2014 (see for example: Fabrício, 2014; Köhl & Götzenbrucker, 2014), whereas 16 works (10%) employed *digital culture* (see for example: Christofi, 2020; Valtysson, 2020).

ii. From cyberspace to digital worlds

Similarly, academic and public discussions have moved toward naming specific technologies or concepts rather than relying on broader, less precise (Shires & Smeets, 2016) terms like *cyberspace*. Only thirty articles (18%) in our new corpus make use of *cyberspace* (see for example: Ess, 2008; Mulinge, 2022), while 128 (79%) discuss *digital technologies*, 102 (63%) discuss *virtual spaces*, 149 (91%) make use of *online* as the relevant descriptor, and 50 (31%) use *networked* to represent digitally-supported venues.

To some extent the term ***computer-mediated communication* (CMC) may also seem dated** and may not fully capture the complexities of contemporary communications, which increasingly encompass diverse technologies and processes beyond traditional computer interfaces. Indeed only 16 (10%) of our compiled works invoke this term, most published before 2018. Some may argue, however that the term *computer-mediated communication* (CMC) is evolving and remains relevant, with application and understanding shifting towards broader concepts of mediation rather than being strictly tied to computers (Carr, 2020).

In parallel, we investigated usage of the term ***Information and Communication Technologies* (ICT)**. First used in 1997 (Deeson, 1999), it gained particular traction in educational settings and has been viewed as a broader term than IT,

encompassing various technologies that facilitate communication and information management. Some 31 (19%) of our collected works make use of this term, especially in works relating to education (see for example: Eutsler & Perez, 2022; Winschiers-Theophilus et al., 2021).

iii. New tools and technologies

In 2004, we reported that the ***World Wide Web* (WWW)** was regular terminology used to refer to the global network and its resources, and that ***hypertext/hypermedia*** was routinely used in literature of the time to describe non-linear digital texts with interconnected nodes, highlighting what were then new forms of reading and writing.

Unsurprisingly, our 2025 corpus employs a range of newer terminologies when referring to digital technology and related concepts, reflecting its multifaceted nature in contemporary society. ***Digital media* and *digital communication*** are frequently used to describe the organic elements of a complex economic, social, and cultural reality (Koutsogiannis, 2015). ***Digital technologies*** are recognized for their role in intensifying global flows of people, discourses, and **semiotic resources**, often described as offering 'shortcuts to globalization' (Solmaz, 2020). ***Digital literacies*** are mentioned as a focus of studies, particularly concerning children's literacy practices (Koutsogiannis, 2015). ***Digital games*** are discussed in relation to their usage in technology-assisted language learning (Park & Wen, 2016). ***Digital platforms*** are identified as sites for 'text making' and for materializing meaning in non-linear configurations. They also serve as a means for users to access information related to a particular digital technology (Domingo, 2014).

Theoretical perspectives on culture and communication

i. Theories of culture

Are we any closer to identifying perspectives on culture that might offer more illuminating analysis of the complexities of digital cultures and digital communities, or that might more usefully guide technology and interface design for use by diverse global populations?

As we noted in the introduction to our 2004 review¸ addressing issues of culture in the age of pervasive and ubiquitous technology is to deal with one of the most complicated words in the English language, representing distinct and important concepts across various intellectual disciplines and systems of thought (Williams, 2015). We suggest that this is in fact a reality not limited to the English language. Moreover, as time progresses and we experience continuing cultural, social, political, and technological evolution, culture is harder to define than ever before, though the need is no less pressing. As Ess (2017) argues, **discussions of culture in relation to communication and technology have moved far beyond academic conversations** of interest only to scholars in an obscure field of research. Instead, such conversations have gone mainstream, driven by "the inescapable confrontations with cultural differences brought about by internet-based communications themselves, most especially as a result of the dramatic expansion of internet access via mobile devices in developing countries" (p. 44).

We previously found that work published before 2004 made heavy use of theories or models of culture put forward by writers such as Hall (1976), Hofstede (1991), and Walzer (1994), even as critics of these frameworks flagged their static and essentializing nature (see for example: Macfadyen, 2010). Others nonetheless made attempts to elaborate more dynamic and nuanced perspectives. Some defined culture as a dynamic mix of variables–national/geographic, organizational, professional, or disciplinary–that are constantly interacting. Others focussed on ideas of culture as a shared value system or a system of shared meaning, implying that such shared symbolic and meaning delineation contributes to group identity and that language plays a primary role as an expressive and interpretive resource in constructing shared meaning. Another perspective offered a reciprocal relationship between culture and technology, suggesting that each defines and redefines the other.

Works in our 2025 corpus also employ **a variety of definitions of culture**, continuing to reflect its complexity and the different perspectives from which it can be understood. These definitions range from **traditional views linking culture to inherited traits and group characteristics**, to more **dynamic interpretations emphasizing its constructed and evolving nature** .

Traditional and descriptive definitions present culture as something a group 'has' or inherits, often characterized by shared elements. Dominant theories for understanding culture in the literature continue to draw on those of Hall (1976) and Hofstede (1991)–these suggest that people from a certain country tend to share characteristics, implying a "collective programming of the mind" that distinguishes them from other groups. These frameworks, however, are often seen as providing only a crude set of tools for analyzing culture, offering only a few dimensions compared to the many elements identified by anthropologists. The field of International Intercultural Education scholarship, in particular, has been criticized for relying on such rigid or simplistic understandings of culture, which are not always well-explained (Ess & Sudweeks, 2006; Lennerfors & Murata, 2021).

Uzuner (2009) notes that traditionalists continue to connect the idea of culture to nationality and ethnic origin, and

define culture as acquired behaviours, perspectives, and values that are characteristic of a particular group or community. Similarly, Shih (2013) reports that culture is generally regarded as a set of knowledge, behaviours, attitudes, ideas, and traditions formed within, owned, and shared by a group of people and passed down from generation to generation. Dahl (2014) offers Norwegian social anthropologist Arne Martin Klausen's description of culture as ideas, values, rules, norms, codes, and symbols that a person receives from the previous generation and transmits–usually slightly transformed–to the next generation.

In more recent work, however, a number of scholars promote **constructivist views** in which culture is not something people 'have,' but rather something they 'do' or 'construct' in specific human encounters, where **mutual relations and power are part of the context**. These writers assert that **meanings are shared, interpreted, created and re-created through communication** (Dahl, 2014; Hua et al., 2022; Lennerfors & Murata, 2021). They understood **culture to be a fluid phenomenon** that transcends ethnic and national boundaries, encompassing "the patterns shaped by ethnicity, religion, socio-economic status, geography, profession, ideology, gender, and lifestyle" (Branch, 2009, p. 7). This perspective suggests that every person and human group is both cultural and multicultural (Uzuner, 2009). Work in this lineage urges scholars to focus not on defining what culture is, but on what people do with culture and how they do it.

(Revisiting the notion of *cyberculture* or *internet culture*, Couldry and Hepp (2019) offer the idea of **media culture**, defined as any culture whose primary resources of meaning are provided by technologies of media communication. This definition emphasizes the role of media technologies in shaping cultural experiences and interactions, illustrating how digital environments influence the construction of meaning within various cultural contexts.)

Broadly, we see that the question of what culture *is* remains unsettled, and that the tension between essentializing and dynamic understandings of culture persists. Articles compiled in this new collection continue to elaborate that culture is a complex term with a long and intricate history of definitions, ranging from stable, inherited traits to dynamic, constructed realities that adapt to various contexts, including online environments and media interactions (Ess & Sudweeks, 2006; Uzuner, 2009) .

ii. Theories of culture and communication

Important to our investigations are the models that researchers embrace to help them think about 'what happens' when individuals or groups from different cultural backgrounds have contact in digital spaces. Understanding culture and communication in digital spaces requires a re-orientation of existing theories and frameworks, as these spaces are dynamic, unbounded, and superdiverse (characterized by many, intersecting dimensions of difference–language, migration histories, class, religion, digital repertoires). Twenty years ago, Goodfellow and Hewling (2005) referred to such spaces as the "**virtual intercultural interface**", which they imagined as a space of **critical cultural construction and negotiation processes**. The diversity of languages, cultures, and communities online creates unprecedented opportunities for intercultural and **transcultural communication**. Virtual spaces are seen as 'superdiverse space par excellence,' offering endless possibilities for self-expression and community formation (Baker & Sangiamchit, 2019).

Several theoretical perspectives are proposed as particularly useful for this endeavour (Goggin, 2016). ***Sociolinguistics,*** the study of language in social context, offers a range of theoretical lenses that are proposed as foundational for studying practices in digitally diverse spaces, especially when illustrating the digital practices of international speakers within contexts of **superdiversity** (Solmaz, 2020). Croucher (2011) also offers a theoretical model for the influence of social networking on cultural adaptation.

Meanwhile, the notions of intercultural and transcultural communication represent different approaches to understanding cultural interactions. ***Intercultural communication*** continues to hold a prominent position as a conceptual

framework in this field, perhaps unsurprisingly so given its origins in the 1950s, its enduring legacy, and its deep integration into practical domains such as professional development and training (Leeds-Hurwitz, 1990). This framework focusses on the exchange between (what are imagined to be) distinct cultures, and 89 (55%) of the works in this new collection still make use of the term *intercultural*. The implicit **spatial metaphor invoked by the 'inter' prefix is sometimes considered no longer adequate**, although some contemporary critical approaches to intercultural communication do address more emergent and fluid links between culture and language. In digitally mediated settings, however, **communicators are rarely 'between' two cultures; they negotiate meaning across layered networks** and practices, making the 'inter' in intercultural an unstable–and sometimes misleading–assumption (Baker, 2022; Baker & Sangiamchit, 2019; Ess & Sudweeks, 2006).

However, a noticeable shift is underway, as current scholarship increasingly introduces the notion of ***transcultural communication*** in an attempt to better capture communicative practices where cultural and linguistic boundaries are **not simply crossed but transcended and transformed**. 88 (54%) of the papers in this corpus make use of this concept. (Note that counts are non-exclusive: some studies use both *intercultural* and *transcultural*, so totals can exceed the number of works). In this view, discrete languages and cultures are not taken for granted, and borders become blurred. Some contemporary scholars argue that this term is more accurate and meaningful than intercultural communication, especially in the digital context, and their work seeks to elucidate the development and implications of transcultural communication (Baker, 2022; Baker & Sangiamchit, 2019).

It is worth cautioning, however, that in some cases *transcultural* concepts are treated as synonyms of the more binary model of interculturality, rather than understanding the original conception of **transculturalization as cultural *process***. We follow Lösch's 2003 explanation that **transcultural competence** is the ability to manage various cultural processes in what have been described as states of **transdifference –states of parallel and different conceptual and cultural systems**, not limited to the mere juxtaposition of static conceptual, cultural or linguistic systems. It a significant finding here that transdifference and other dynamic approaches to culture are almost completely absent from work located for this scoping review. Hepp (2009) is an exception as he advances transculturality as a lens for media-culture research, capturing flows and hybridities beyond national-cultural containers.

A noteworthy development in the literature of this field, on the other hand, is the **deliberate move to incorporate African, Asian and Latin American** (Averbeck-Lietz, 2011; Goggin, 2016; Petrus, 2016) **theories of communication and media** over the past two decades. Such efforts are central to the processes of de-Westernizing, decolonizing, and internationalizing communication and media studies. For example, Goggin (2016) argues we must now revisit both grand (meta) theories and canonical theories of culture, communication, and media when working in Asian contexts.

Ultimately, it seems likely that **understanding culture and communication within digital environments demands a multifaceted theoretical approach** to adequately address the complex, global, and superdiverse character of interactions in online spaces.

Contributions from media studies

> In 2004, we found that some classical theories and theorists from the field of **media studies** were applied by scholars seeking to understand the interplay of culture and technology, alongside cultural and communication theories, with the goal of understanding digital spaces. Marshall McLuhan's (1962) ideas, in particular, were invoked when considering the notion of a digital "global village".

In more recent work, **media studies have provided rich conceptual and theoretical frameworks** for understanding the cultural complexity that arises from today's **mediascapes**. These approaches offer tools for interpreting media phenomena and for understanding the dynamics of media systems and their societal impact (Couldry & Hepp, 2019; Valtysson, 2020). By foregrounding how culture flows through, shapes, and is shaped by **digital media**, we can better grasp how different cultural groups interact with and interpret media content (Averbeck-Lietz, 2011; Koponen, 2020). Indeed, **media theory illuminates how media technologies facilitate communication across dispersed communities** (such as **diaspora**s) in ways that resonate with Bhabha's notion of the "**Third Space**" (2004)–capturing the **hybrid cultural forms** and transcultural exchanges enabled by digital platforms (Koponen, 2020).

Concurrently, recent media studies scholarship underscores pressing **challenges in our digitized cultural landscape**. For instance, media studies centres issues such as the **digital divide**, stressing how grappling with and addressing uneven and unjust access to media technologies and communicative entitlements can ensure better diverse cultural representation in the **digital age** (Couldry & Hepp, 2019). Media studies also provide conceptual tools to critique how media platforms such as YouTube influence cultural representation through their **algorithmic logic** and global ownership structures–a critique essential for understanding the consequences of media technologies on cultural diversity and representation (Valtysson, 2020). More broadly, **media studies equips researchers with a critical lens** to examine the **power structures and ideological influences** embedded within media infrastructures, content and practices–which are essential for uncovering biases and understanding the socio-political implications of media representations (Godler & Reich, 2017; Seto & Martin, 2019).

Overall, media studies efforts bring to the centre an effort to contextualize media uses, content and infrastructures within cultural settings, considering how technologies and content are produced, distributed, and consumed across various contexts, thereby revealing the global and local dimensions of media influence (Willems, 2014). In this way, media theory also **challenges the traditional 'container theory' of media cultures as being bound by national territories**, focussing instead on the complex dynamics and flows of media across and beyond borders (Couldry & Hepp, 2019; Godler & Reich, 2017). These flows can be easily illustrated with work that foregrounds how technologies contribute to the spread of **popular nationalism** and consumer nationalism, particularly in countries like China, influencing cultural and national identities (Couldry & Hepp, 2019; Mihelj & Jiménez-Martínez, 2021),

Consequently, this body of work both **enriches and problematizes our understanding of knowledge production**. Indeed, authors such as Godler and Reich (2017) outline concepts like '**epistemic cultures**' (the patterned ways communities produce and legitimate knowledge) to examine how media technologies shape the processes of knowledge creation and validation, highlighting tensions in our understanding of truth across our **mediatized cultural landscape**. In this way, media studies offers **tools for interpreting media phenomena** and for **analyzing how media systems operate and shape society**. This perspective underscores the need to consider both local and global media cultures when explaining how media technologies shape everyday practices and perceptions (Driessens, 2014). Among these perspectives, Jenkins' (2014) work stands out as essential for understanding the role of media technologies in fostering new forms of cultural participation that reshape our epistemic landscape. Indeed, **participatory culture** influences cultural identity and self-expression by affording individuals to explore their transcultural media experiences, linking personal and collective cultural identities through media practices.

Contributions from journalism studies

In 2004, our search for work on culture, communication and technology failed to discover any relevant publications in the subfield of **journalism studies**. Now in 2025, it has become apparent that **journalism studies is a more recent and valuable contributor** to this interdisciplinary field. Work from this area explores how journalistic practices are shaped by and, in turn, influence cultural values, the evolving nature of news dissemination, and the impact of digital platforms. We located nine relatively recent papers that offer analyses of news cultures, communication flows, and the transformative informative influence of digital technologies (Bielsa, 2016; Brantner & Herczeg, 2013; Godler & Reich, 2017; Herold, 2011; Leggett & King-Reilly, 2020; Mulinge, 2022; Podkalicka, 2011; Vujović & Obradović, 2017; Zhong & Newhagen, 2009).

First, work in this field has significantly advanced the concept of '**news cultures**,' focussing on how journalists across different contexts conceive of facts, knowledge, and the societal values embedded within news. Recent scholarship proposes shifting towards the idea of '**epistemic cultures**' (Godler & Reich, 2017) to better analyze **how journalism constructs and validates knowledge**, especially in the context of factual controversies. After all, journalists play a central role in **shaping cultural narratives** by defining notions of self and society within news content (Zhong & Newhagen, 2009). Their framing of stories often reflects and reinforces societal values–such as peace, tolerance, and social coexistence–demonstrating journalism's influence on public understanding of politics and collective identity (Brantner & Herczeg, 2013). Comparative analyses of news content reveal both the diversity and convergence of cultural values across different national and transcultural media contexts.

Research in journalism studies has also illuminated the **quantitative imbalances in global news and entertainment flows**, with industrialized Western nations typically exporting more media content than developing regions. This uneven distribution contributes to the homogenization of media culture, often **privileging Western perspectives**. Print media, now widely accessible in digital forms, further accelerates this process by circulating dominant cultural narratives on a global scale (Godler & Reich, 2017; Mulinge, 2022). Journalism studies emphasize the **media's function as a site for constructing social meaning**, whether anchored in local, national, or deterritorialized cultural contexts. Especially in transcultural ethnic media, young journalists are attentive to the integrative potential of journalism, seeking to foster societal cohesion and dialogue across diverse communities (Brantner & Herczeg, 2013).

In parallel, emerging **digital technologies are also shaping journalistic culture and practices**, introducing new models of content creation and audience engagement. Journalism studies chart this evolution, documenting the coexistence of centralized, traditional news production with user-generated content and interactive, participatory media forms. The expansion of digital platforms has not only broadened the reach of journalistic content but also contributed to new dynamics of cultural exchange and participation (Podkalicka, 2011).

We observe, then, that journalism studies is now making an essential contribution to the study of culture and communication, providing critical tools for understanding how news production, content, and technologies shape cultural identities, global media flows, and the everyday experiences of audiences. By foregrounding both the power and the challenges of journalism in a digital, interconnected world, this field continues to offer invaluable insights for researchers investigating the intersections of media, culture, and technology.

Research methods and study populations

Investigating culture and communication in digital spaces is challenging due to their dynamic, unbounded, and super-diverse nature (Solmaz, 2020). Of the 85 empirical studies we collected, **11 (13%)** addressed this **superdiversity** directly, investigating **diverse user populations in digital spaces**. Studies of Western populations continued to dominate, with **20 (24%) focussing on Anglo-North American** users (2 countries), and **31 (36) examining users from Europe** (16 countries). However, we observe an increasing number of studies considering digital user populations beyond the West, including **5 (6%) from Latin America** (five countries)**, 13 (15%) from East Asia** (four countries), **7 (8%) from Southeast Asia** (four countries)**, 4 (5%) from the Middle East** (three countries)**, 3 (4%) from Africa, 2 (2%) from South Asia, and 1 (1%) each from Central Asia and Australia.** (Note that the total number of populations reported exceeds 85, because some studies explicitly examined or compared users from more than one global location.)

Studies of this kind therefore often make use of a wide range of methods and methodologies, reflecting the complex and dynamic nature of online interactions. We classified 85 (52%) of the works included in the current collection as 'empirical'. Table 1 indicates the array of methods employed in these qualitative, quantitative, and mixed methods studies.

Table 1. Summary of research methods employed in this collection

	Qualitative studies	Mixed methods studies	Quantitative studies	Total count of studies per method
Case study	18			18
Content analysis	14	1	1	16
Interviews	13	2		15
Ethnography	10	1		11
Survey	5	3	1	9
Discourse analysis	5	2		7
Questionnaire	3	2		5
Observational	2	1		3
Focus group	3			3
Statistical analysis of survey data	2	2		
Narrative inquiry	2			2
Design-based research	1	1		2
Action research	2			2
Academic testing	2		2	
Vignettes	1			1
Task design	1		1	
Storytelling	1			1
Story exchanges	1			1
Qualitative comparative analysis	1			1
Phenomenology	1			1
Participatory design	1			1
Narrative research	1			1
Mediagraphy	1			1
Interpretation of digital media productions	1			1
Focus groups	1		1	
Design research	1			1
Analytics			1	1
Analytical play	1			1
Total count of studies per approach	**75**	**8**	**4**	**87**

i. Qualitative studies

Several papers in this collection offer **reviews of literature** in different areas of this field of study. Abdelnour-Nocera and Densmore (2017), Avgousti (2018), Banerjee and Firtell (2017a), Chun (2017), Heggernes (2021), Uzuner (2009), Shadiev and Sintawati (2020), Thorne et al. (2015), and Young and Asino (2020) variously summarize arrays of largely qualitative

and descriptive studies that have been employed by others to investigate aspects of communication and culture in digital spaces. Such qualitative studies focus on in-depth understanding and typically involve non-numerical data.

Like these reviewers, we also found that a majority of studies in our corpus are qualitative in approach. Many have taken the form of **case studies** (Black, 2006; Cohen & Bekerman, 2022; Dubreil, 2012; Ersoy & Kumtepe, 2021; Han, 2017; Lam, 2009; Lynch, 2022; Misra, 2022; Prieto-Arranz et al., 2013; Rendell, 2021; Ribeiro, 2016; Shadiev & Sintawati, 2020; Shih, 2013; Stratton, 2019; Winschiers-Theophilus et al., 2022; Winschiers-Theophilus et al., 2019) and other kinds of **observational study** (Jiménez & Kressner, 2021; Koutsogiannis, 2015; Žuvela-Bušnja et al., 2008). **Ethnographic studies** are also common (Baker & Sangiamchit, 2019; Black, 2009; Domingo, 2012, 2014; Hepp et al., 2012; Kim, 2016; Koutsogiannis, 2015; Shrodes, 2021; Wagner, 2019). Many investigators employed **interviews** with users to gather insights (Ersoy & Kumtepe, 2021; Jurkova & Guo, 2021; Kim et al., 2009; Koutsogiannis, 2015; Kumi-Yeboah et al., 2022; Lim & Pham, 2016; Lynch, 2022; Pathak-Shelat & Bhatia, 2019; Sandel, 2014; Seto & Martin, 2019; Shadiev & Sintawati, 2020; Solmaz, 2020; Sung, 2014; Yau et al., 2019); **focus groups** or group interviews were also used (Cornillie et al., 2021; Ju et al., 2021; Lim & Pham, 2016; Park & Wen, 2016; Rohn, 2013)

Some investigators **analyzed transcripts** or **associated discourses** of user interactions in virtual spaces (often with the goal of analyzing communicative effectiveness or investigating sociocultural competence). Analytic methods employed include **discourse analysis** (Baker & Sangiamchit, 2019; Hepp et al., 2012; Koutsogiannis, 2015; Liebermann, 2021; Liu & You, 2019; Sandel et al., 2019) or **content analysis** (Brantner & Herczeg, 2013; Fabrício, 2014; Frost, 2013; Funes & Mackness, 2018; Halstead, 2021; Jeon, 2021; Kumi-Yeboah et al., 2022; Perumal et al., 2021; Rutten, 2014; Shadiev & Huang, 2016; Yadlin-Segal, 2017; Žuvela-Bušnja et al., 2008).

Other qualitative methods reported include **action research** (Glimäng, 2022; Koponen, 2020)**, design-based research** (Eutsler & Perez, 2022; Hull & Stornaiuolo, 2014), **analytical play** (Blume, 2021), **design research** (Hull et al., 2013), **mediagraphy** (Schofield & Carvajal, 2022), **narrative research** (Mertala, 2020; Toscano, 2011), **participatory research** (Winschiers-Theophilus et al., 2021), **phenomenology** (Magro, 2019), **use of vignettes** (Aldridge et al., 2014), **story exchanges** (Sánchez & Ensor, 2021) and **story-telling** (Hull et al., 2021). Several studies deliberately employed several complementary qualitative methods (Brownell & Wargo, 2017; Kumi-Yeboah et al., 2022; Lindner & Méndez Garcia, 2014)

ii. Quantitative studies

These involve numerical data and statistical analysis, and are much less common, both in our own corpus and in reviews completed by others. Avgousti (2018) uncovered only a single quantitative study, for example. Similarly, we only identified one true **experimental study** in our corpus (Zhong & Newhagen, 2009) and one **quasi-experimental study** (Roche & Todorova, 2010).

In our collection, some studies did make use of **surveys** as data collection instruments (Godler & Reich, 2017; Grieve et al., 2022; Hepp et al., 2012; Hu et al., 2017; Koutsogiannis, 2015; Lai, 2019; Ochs, 2017; Rudnev et al., 2018). A few studies made use of **questionnaires** (Ju et al., 2021; Roche & Todorova, 2010; Shadiev & Huang, 2016). Two studies report on **statistical analysis of large sets of survey data** (Godler & Reich, 2017; Rudnev et al., 2018). A final quantitative study (Goodfellow & Hewling, 2005) also offered some early cross-over with the field of learning analytics, offering some simple comparative analysis of participation patterns in two different online courses.

iii. Mixed methods studies

These combine both qualitative and quantitative approaches for data collection and analysis. Several authors of literature reviews included in our corpus note that a significant number of studies they reviewed had adopted mixed methods, often incorporating qualitative data collection like interviews or questionnaires (Avgousti, 2018; Shadiev & Sintawati, 2020; Uzuner, 2009).

In our collection, only eight studies (5%) appear to deliberately take a mixed methods approach. Of these, only two make use of comprehensively designed mixed methods: Hauck (2019) combined **task design** with **questionnaire data**. Hull and Stornaiuolo (2014) combined online **participation analytics** with **ethnography**. The 'principled mixed methodological design' employed by Sydorenko et al. (2021)is described as **a discourse analysis approach** whose output is then analyzed quantitatively. Roche and Todorova (2010) include quantitative data in their study in the form of learner grades (and analysis of these). The remaining four studies include survey data as the quantitative element of their work, combined with a selection of qualitative approaches. We might be wise, however, to heed Uzuner's 2009 caution that while a number of studies employ a survey methodology, some fail to follow rigorous survey research design; data drawn from survey-informed studies might best be approached with care.

Overall, methods employed in the studies included in our collection lean heavily towards qualitative, descriptive, and interpretive approaches, often grounded in sociolinguistic and sociocultural theories, to explore the complex interplay of culture, identity, and communication in diverse digital environments. How we theorize and measure digital culture determines what we can see, compare, and legitimately claim–so studies should make those choices explicit and align methods to them.

THEME 2: DIGITAL CULTURES AS SOCIAL AND CULTURAL CONSTRUCTS

This theme examines how digital cultures form, persist, and change. It foregrounds how **platform affordances** and norms organize participation, how online-offline ties co-produce community life, and how identities and belonging are negotiated–then synthesizes emerging directions (fluid interaction, civic engagement, fandom, and games).

In 2004 (Macfadyen et al.) we found that work published in preceding decades had begun exploring the nature and characteristics of so-called *cyberculture* and understood it to be an emergent and continually evolving phenomenon. Scholars described digital culture as a distinct cultural order shaped by advances in computer, information, and biological technologies. Contrary to the notion of technological neutrality, digital spaces were recognized as hosting their own sets of cultural norms and practices, sometimes resulting in gaps between individuals and the broader dominant online culture. This challenged any assumption that the internet might be inherently culture-free. The pre-2004 literature further underscored the paradoxical character of the internet, which was seen as universalizing yet non-totalizing, liberating yet dominating, and both empowering and fragmenting. Debates around internet culture were often sharply divided, with some interpreting its rise as a utopian development and others viewing it through a more dystopian lens. Finally, scholars debated whether the internet represented a continuation of modern cultural evolution or marked a radical, postmodern departure from traditional cultural patterns.

In examining the values and power dynamics of pre-2004 online cultures, scholars speculated about whether online cultural norms were simply inherited from existing societies or whether they marked the emergence of a new and distinct digital milieu. Values such as speed, reach, openness, and rapid responsiveness were identified as central to early digital cultures, paralleling the foundational ethos of 'hacker culture' which privileged meritocracy and individual autonomy. However, the rise of 'technopower'–the influence exercised by internet elites–prompted concerns that digital cultures might not transcend existing social and economic hierarchies, but would instead perpetuate American or Western-centric, technomeritocratic norms. A particular concern was the dominance of the English language in digital spaces; while research often focussed on English-speaking practices, a substantial proportion of internet users communicated in other languages, raising important questions about linguistic barriers and the adequacy of considering online English language practices as globally representative. Together, these themes underscored the complex interplay of values, inequality, and language in shaping the contested terrain of digital culture(s).

Contemporary perspectives on digital cultures

We have now investigated key themes in more recent work, focussing on the formation, characteristics, and implications of digital cultures.

i. The formation and nature of digital cultures

Online spaces are fostering the creation and nurturing of entirely **new digital cultures** (see for example Driessens, 2014; Jin, 2021; Kim et al., 2009; Mihelj & Jiménez-Martínez, 2021). These environments serve as primary **settings for construction and curation of identity** through textual and multimodal expression (Pennington, 2017; Thorne et al., 2015). Mahiri and Kim (2016) further argue that identity markers are shifting, as new digital cultures continue to emerge. Cultural practices and perspectives reflect distinct personal identities and elective group affinities, indicating **a shift away from traditional core identifications like race and ethnicity**. Continuing exploration of cultural formations in **virtual learning environments**, Kumi-Yeboah et al. (2022) report that online learning environments can contain '**hidden cultures**' that are not immediately apparent to their members, influenced by regional differences, upbringing, and age.

Authors of the post-2004 literature seem to have been less driven to try to detail specific values of digital culture (though see Rudnev et al., 2018), but they do offer insights into the conceptual structure, development goals, and desired outcomes associated with digital cultures. These perspectives often highlight the potential for digital culture to foster certain societal values and address ethical concerns related to technology (Ess, 2020). Some have argued that digital environments could lead to a **postmodern network of diverse and non-hierarchical cultures**, moving away from formerly agreed upon high culture standards. Pennington (2017), for example, makes the case that digital affordances both 'level' access and 'delevel' by spawning new hybrid forms (here, we use *affordances* to mean the action possibilities structured by platform design, social norms, and algorithms, rather than fixed 'features'). Similarly, Žuvela-Bušnja et al. (2008) emphasize their belief that digital culture influences changes in traditional cultural patterns, fields, and communication, embodying a '**horizontal and simultaneous form of transmission**' implying values of adaptation and integration of historical context within new digital forms.

ii. Persistent paradoxes and tensions

Counterbalancing the opportunities outlined above, recent work also surfaces tensions and harms that accompany everyday digital participation (Barendregt, 2012). Digital culture is presented as **demanding contradictory roles** from users, for example, making them individually and collectively responsible for both including and excluding others from the network. This occurs not necessarily through explicit intention, but through their participation and the language they validate, which aligns with their chosen ideology (Funes & Mackness, 2018). Fabrício (2014) notes that digital spaces continue to offer platforms where individuals may engage in **retaliatory criticism**. In other words: greater contact and awareness does not necessarily lead to constructive engagement. Moreover, **stereotypes** and **biased representations** continue to be scripted into digital environments, highlighting the reality that although 'open', digital spaces and cultures retain the potential to reinforce, amplify and perpetuate negative cultural perceptions rather than dismantle them (Barendregt, 2012; Fabrício, 2014).

iii. Cultural content and digital transformation

Online cultures or cultures online? Offering an alternate perspective on digital cultures, Žuvela-Bušnja et al. (2008) investigate representations of culture in digital spaces. They define culture as encompassing the output of the **public cultural sector**, **civil society** initiatives, and creative industries, including **symbolic goods** like books, films, music, and the activities of cultural institutions such as museums, libraries, and archives. Optimistically making the case that digital transformation is necessary for cultural development and global engagement, they argue that digitization is a critical precursor to authentic intercultural communication and cooperation.

Scholarship in this area continues to demonstrate that digital cultures are dynamic spaces for identity formation, group affiliation, and the evolution of cultural practices, moving beyond traditional demographic markers. While more recent works tend not to explicitly aim to frame digital cultural values they speculate on the *desired outcomes* and *strategic aims* of digital cultures. These include **fostering cultural democracy, diversity, intercultural communication,** and **contributing to a knowledge society**, often in response to ethical considerations and a recognition of digital culture's transformative power.

Social and community dynamics in digital spaces

Prior to 2004, scholarship on social and community dynamics in digital spaces conceptualized virtual communities as social aggregates formed through ongoing online interactions, characterized by unique language use and the development of 'imagined' or deterritorialized networks, sometimes described as 'compunity' (Jones, 1998). Older studies addressed the social and emotional structuring of communication, explored the ways that social positions influenced linguistic variants online, and debated whether online communities replicated or diverged from offline social forms, with some research indicating that computer-mediated communication sustained existing bonds while also fostering distinct relational and cultural styles. Some of these themes, particularly the relationships between online and offline communities.

i. Relationships between online and offline communities

Some of the work in our new compilation explicitly examines the **connections and interactions between digital and physical spaces**, indicating an ongoing interest in how these two realms intersect. For example Domingo (2012) explores the migration of people, cultural texts, and linguistic identities across both physical and digital communities. Solmaz (2020) makes the case that understanding the actual digital practices and connections between offline and virtual contexts is crucial for comprehending superdiverse societies and how **superdiversity** is indexed in users' digital practices. This author also flags **a need to document the digital practices of individuals experiencing transnational mobility** within online participatory spaces. Already in 2006, Black was reporting that the virtual spaces made possible by new digital technologies transcended traditional cultural, linguistic, and geographic borders, impacting identity development and language socialization. As Solmaz (2020) concludes, digital spaces and networks are described by more recent investigators as **dynamic, unbounded, and superdiverse**, making these fluid movements complex to investigate, with various forms are changed, overlapped, re-purposed, re-contextualized, re-semiotized–that is, signs and meanings are reassigned as content moves across modes, genres, and contexts–and circulated across globalized networks.

ii. Deterritorialization and disembodiment in virtual spaces

Questions of **deterritorialization and disembodiment are much less central** to recent scholarship in this field, although as themes these continue to be reflected in contemporary discussions of transnationalism and digital environments.

On **embodiment/disembodiment**, Ess (2017) notes that "1990s discourse surrounding the Internet emphasized ostensibly sharp contrasts between online and offline experiences–between virtual and real worlds". That dualism, he reports, is "largely dead", as later work increasingly found that online and offline worlds are inextricably inter-connected. However, embodiment persists as a topic of concern in a broad variety of academic fields exploring how embodied properties and perceptual processes directly shape the way humans conceptualize and interact with their environments (see for example: Shapiro & Stolz, 2019; Varela et al., 2017). Research in fields such as cognitive linguistics, **applied cognitive linguistics**, and **cognitive language pedagogy** explores how embodiment is reflected in language, how it determines communication, how and can influence language acquisition, and how it should be taken into consideration in teaching and in learning design (see also Theme 4, section vi.). By contrast, references to this vast body of cognitive research are scarce in the literature uncovered by this scoping review.

Regarding deterritorialization, the proliferation of new digital technologies has enabled the creation of virtual spaces that transcend traditional cultural, linguistic, and geographic boundaries (Black, 2006). Academic literature increasingly examines digital practices through the lens of **transnational experiences**, considering how individuals interact across various nationalities and online contexts (see for example Brüggemann & Wessler, 2014; Couldry & Hepp, 2019; Domingo, 2014; Han, 2017; Retis & Caballero, 2011; Seto & Martin, 2019; Tsagarousianou & Retis, 2019; Winschiers-Theophilus et al., 2022). These fluid movements underscore that the forms and meanings of cultural and linguistic practices are continually transformed, re-contextualized, and circulated within globalized networks. Consequently, digital spaces are now regarded as dynamic, unbounded domains that exemplify deterritorialization and disembodiment (Solmaz, 2020).

Identities and belonging

We now turn to identities and belonging, examining identity-construction practices, national and ethnic markers, and participation in digital settings. In 2004, online identity was a central concern. The literature portrayed identity in digital spaces as dynamic and socially constructed, shaped through deliberate self-presentation and multiple, shifting personae that could diverge from offline selves. This fluidity enabled creativity and experimentation but also raised concerns about authenticity, deception, and harassment–even as many communities developed norms that discouraged irresponsible anonymity. Debates over disembodiment asked whether virtual environments simply extended the "virtualness" inherent in social life or fundamentally disrupted established identity practices. A major strand examined cultural identity and "virtual ethnicity" (Poster, 2001; Zurawski, 2000), questioning whether ethnicity requires embodied ritual and place, or whether online interaction introduces nonvisual criteria by which race and nationality continue to be inferred and negotiated. Scholars also analyzed group identity in virtual communities: some cautioned against assuming online ties could replace face-to-face relationships, while others argued that networked spaces allow previously latent collectives to coalesce. Overall, the period framed online identity as both liberating–opening new possibilities for expression and belonging–and fraught, given its implications for representation, community formation, and the reproduction or reworking of cultural markers.

Research into digital identities in work in our new collection of post-2004 literature highlights several key themes, issues, and areas of continuing study, particularly focussed on how digital spaces influence identity construction and social interaction.

i. Identity-construction practices in digital spaces

Identity construction and enactment remain a core area of interest in contemporary literature. Digital environments provide new opportunities for individuals to discursively **construct and enact 'achieved identities' through discourse and text**, especially where traditional identity markers are absent (see for example Campbell & Haynes, 2020; Dubreil, 2012; Goodfellow & Hewling, 2005; Kearney & Adachi, 2012; Thorne et al., 2015). Researchers have shifted their focus from practices of passive consumption of online media, to the active production practices and circulation of digital identities and cultures. However, the process of identity construction online is acknowledged to involve multiple sources of identification, and some scholars are making use of **post-colonial approaches** to highlight hybrid notions of national identity formation and the challenges users face (Fabrício, 2014; Hepp et al., 2012). Applied linguistics likewise emphasizes the fluid, mobile character of identity in language practices and participation (Pennycook, 2005).

ii. Ethnic and national identities in digital spaces

One particular cluster of studies has continued to explore **formation of ethnic and national identities** in digital spaces (Black, 2009; Kirmayer et al., 2013; Lim & Pham, 2016; Solmaz, 2020; Tsagarousianou & Retis, 2019; Yadlin-Segal, 2017; Yau et al., 2019). In particular, there is recognition that **digital spaces are increasingly utilized by immigrant and diaspora communities** globally to aid in the formulation and sustainment of their ethnic identities and affiliations across geographical borders (Hepp et al., 2012; Herold, 2011; Ju et al., 2021; Lam, 2009; Seto & Martin, 2019). Digital platforms offer forums for sharing experiences, debate, and reaffirmation of identities, such as an immigrant Indian identity, which can exist in various forms transnationally (Black, 2006; Brantner & Herczeg, 2013; Yadlin-Segal, 2017). Others have noted

that online cultural practices can reflect distinctive personal identities and elective group affinities, suggesting **a move away from race and ethnicity as primary identifications** (Mahiri & Kim, 2016). Moreover, Black (2006; 2009) notes that 'virtual spaces' transcend traditional cultural, linguistic, and geographic boundaries, creating **new transnational contexts** for identity development. These deterritorialized online spaces offer users multiple points of social and cultural contact with diverse individuals, aiding in the formulation of their identities. Moreover, online platforms draw users into transnational political and cultural discussions concerning national identities. Some researchers have examined the role of digital media users in political discourse, with social networking sites seen as facilitators of **political change and activism** where offline political opportunities may be limited (Jenkins, 2014; Liebermann, 2021; Shrodes, 2021; Stratton, 2019).

Yet some scholars question whether the internet truly serves as a **virtual resource for resistance**, and express concerns about **political manipulation**. Yadlin-Segal (2017) makes the case that much work is yet to be done to understand transnational political and cultural discussion. How do online platforms engage individual users in transnational political and cultural discussions related to national identities? This author points to a need to bridge the gap between studies focussing on the use of internet-based media for political resistance and literature on identity formation online. More pragmatically, Baker and Sangiamchit (2019) note that while some studies are **longitudinal**, there is a need for more detailed analysis to explore **how transculturality and associated identities develop over time** and in different online settings. This, they argue, would provide a deeper understanding of the dynamic nature of online identity. Extending this, (Jurkova & Guo, 2018)link transculturalism with transnational education, highlighting identity negotiation across institutional and migratory contexts.

iii. Virtual ethnicity

The notion of 'virtual ethnicity' continues to attract attention within digital studies, particularly as scholars examine how **ethnicity and identity are negotiated** in online environments (Macfadyen, 2006). Digital discourses create spaces where individuals from diverse ethnic, social, and political backgrounds interact, making these contexts valuable for investigating how **place, memory, and history** are constructed in relation to digital technologies (Halstead, 2021). Recent research suggests a shift away from traditional markers of race and ethnicity as primary forms of identification, emphasizing instead cultural practices, personal identities, and elective group affinities that emerge in online communities (Mahiri & Kim, 2016). This evolution compels a re-examination of virtual ethnicity as a concept, especially in light of **superdiversity** (Barendregt, 2012; Solmaz, 2020)–a term describing the expanded array of linguistic, religious, ethnic, and cultural resources now present in contemporary societies and digital spaces. Accordingly, investigations into digital diversity increasingly focus on the role of online language practices in these superdiverse contexts, as well as how the availability of **semiotic resources** shapes the ways individuals perform identity in fluid, multifaceted digital settings (Solmaz, 2020).

iv. Identity and participation in digital settings

Issues of identity in digital settings are explored both as a design element in educational practice, and as a function of participation in non-institutional online cultures. Work reviewed by Thorne et al. (2015) explores ways that online environments contribute to **creation and curation of identity**, involving new literacies, communicative genres, hybrid linguistic varieties, group formation processes, and social practices. The reflections offered by Jenkins (2014) meanwhile give greater attention to questions of collective agency and politics in digital spaces, reflecting a significant area of

work whose primary focus is on the ways that digital technologies impact culture and politics. He examines connections between **cultural and political participation**, explores issues related to the use of new media for democratic change, analyzes how institutional power continues to affect culture even as access to cultural production and distribution expands and discusses both the difficulties and possibilities for developing cultural theory within the context of neo-liberal capitalism.

A continuing theme of interest also relates to **how identity is presented or perceived in online intercultural interactions**. Sandel et al. (2019) explore how online communicators may not always conform to their perceived national or cultural stereotypes. They propose that online environments might offer a space where traditional identity markers are less pronounced or are reconfigured.

Post-2004 research on online identities therefore continues to emphasize the transformative role of digital spaces in identity formation, particularly regarding ethnic, national, and personal identities, and their intersection with political and cultural discourse. Key challenges include understanding the complexities of hybrid identities and the political implications of online engagement, with future research needing to bridge existing disciplinary gaps and explore **longitudinal** developments.

Emerging themes

Synthesizing across *Theme* 2, the following emerging directions draw together dynamics outlined above–community interaction, online-offline ties, deterritorialization, and identity work

i. Fluid, dynamic interactions

The proliferation of virtual social spaces has significantly enriched research on intercultural/transcultural communication, particularly with the emergence of English as a multilingual *lingua franca* facilitating interaction across cultural boundaries (Baker & Sangiamchit, 2019). 44 studies (27%) shared in this collection describe empirical studies investigating intercultural/transcultural dynamics in digital spaces. Many highlight that **digital technologies have intensified the fluidity and transformation of forms**, allowing **cultural and linguistic practices to be continually changed, overlapped, re-purposed, re-contextualized, re-semiotized**, and circulated within globalized networks. These digital environments foster interactions among users from diverse ethnic, social, and political backgrounds, enabling them to engage with one another's histories and experiences in innovative ways (Halstead, 2021). While it is noted that physical venues remain crucial for cultivating local scenes, translocal and global communities increasingly find their foundation in dynamic online spaces, underscoring the evolving nature of digital interactions (Rendell, 2021).

ii. Civic/political engagement and self-expression

Civic and political engagement and self-expression within digital contexts are increasingly characterized by emergent practices such as **blogging, vlogging, online activism, and citizen journalism**. Digital tools and spaces give individuals **new avenues for participation** while **preserving personal privacy** and offering flexible **tools for self-performance**. Many of the publications included in this 2025 collection address questions of user engagement in political and civic spheres using digital media (see for example Halstead, 2021; Mihelj & Jiménez-Martínez, 2021; Pathak-Shelat & Bhatia, 2019; Shrodes, 2021; Stratton, 2019). Social media platforms play a crucial role in fostering **transcultural citizenship** by creating online communities in which individuals can share their experiences of oppression, struggles, and solidarity with audiences that span across the globe. Furthermore, the fluidity of digital engagement allows individuals to move seamlessly between online and offline spaces, sustaining their civic participation and continuing their involvement in causes that reflect their personal interests (Pathak-Shelat & Bhatia, 2019, 2020).

iii. Fandom and popular culture

To our surprise, a small but definite new cluster of **studies examining 'fandom' and digital popular culture** communities in digital spaces emerged from our current search process (see for example Black, 2006; Black, 2009; Chin & Morimoto, 2013; Cornillie et al., 2021; Han, 2017; Hyzen & Bulck, 2021; Lynch, 2022; Misra, 2022; Thorne et al., 2015). These spaces, especially those structured around fanfiction and interactive fiction, are described as embodying **a do-it-yourself ethos** that welcomes both professionals and amateurs, fostering **grassroots innovation**, **interdisciplinary collaboration**, and a **spirit of playfulness** through activities such as online challenges and role-playing (Pathak-Shelat & Bhatia, 2019). Digi-

tal communities can also nurture parasocial **relationships between artists and audiences**, offering unique insights into artists' identities and creative processes (Rendell, 2021).

iv. Games as sites of intercultural/transcultural exchange

In 2004, the rare mentions of digital games in the literature that we reviewed were anxious. In his 1993 work *The virtual community. Homesteading on the electronic frontier*, Howard Rheingold's 1993 considered the "fantasy cyberenvironments" of online role-playing games. His primary concern, however, was the question of whether genuine relationships could be established in communities where user identities could be so fluid. Separately, Lévy (2001a) listed addiction to digital games as evidence that the development of digital spaces and cultures did not necessarily generate 'collective intelligence'.

By contrast, at least eight (5%) of the works uncovered in our recent search explore the **intersection of digital games, culture, and learning,** particularly focussing on how digital games can serve as platforms for intercultural and transcultural understanding and communication (Blume, 2021; Cornillie et al., 2021; Lee & Park, 2020; Neville et al., 2009; Park & Wen, 2016; Sydorenko et al., 2021; Thorne, 2008; Toscano, 2011). A central theme is the use of digital games as learning tools, often referred to as Digital Game-Based Learning (DGBL), including the design and evaluation of DGBL games for specific learning objectives, such as language learning (Park & Wen, 2016). Several papers address cross-cultural psychology and the **transcultural nature of digital gaming** (see for example Blume, 2021). They highlight the potential for digital games to create **transcultural spaces** and **new learning cultures, transfer cultural knowledge** and support **development of transcultural communicative competence**, especially in diverse linguistic and cultural settings. Educational use of games is noted for fostering a deeper understanding of diverse identities and cultures, both online and offline, yet the literature cautions that such positive outcomes are not guaranteed and depend on culturally sensitive design and implementation. The effectiveness of Digital Game-Based Learning (DGBL) varies across social and cultural contexts, and there is a risk of disenfranchisement if learners feel their interests are being appropriated (Blume, 2021; Park & Wen, 2016).

In all, we find that the more recent literature presents digital spaces as dynamic arenas that facilitate diverse social interactions, new forms of civic engagement, and unique community building, while also presenting complex research considerations related to power and fluidity. This suggests that future research must consider the political context of participatory communities, paying attention to infrastructural and algorithmic design, and addressing issues of power within all virtual spaces. Sociolinguistics may offer especially rich insights into digital practices in such diverse spaces.

Treating digital cultures as evolving social formations shows that identity, belonging, and participation are co-produced by people, platforms, and place–so analyses and interventions must centre community norms and power. This emphasis on sociality, community norms, and belonging sets up *Theme* 3, where we examine how language and expressive practices enact these dynamics in everyday digital communication.

THEME 3: LANGUAGE AND EXPRESSION IN DIGITAL SPACES

This theme focuses on language as social practice. Work reviewed here traces how digitally mediated interaction has evolved from text-heavy forums and email to multimodal, platformed environments, and examines how people use linguistic and **semiotic resources** to perform identity, manage stance, and coordinate participation.

Pre-2004, research documented distinctive features of computer-mediated interaction–often positioned between oral and written modalities–showing how users discursively constructed identities through text and emergent conventions, with **hypertext** enabling associative navigation (Macfadyen et al., 2004). Alongside these advances, scholars noted concerns: early anxieties about English as an internet l*ingua franca*, inequitable access, and the ambiguities of relatively disembodied interaction.

Contemporary perspectives on the language of digital spaces

Discussion of language use in digital contexts persists as a theme in the literature post-2004, but the emphasis has shifted from simple "English-dominance" anxiety to nuanced multilingual and translingual practice, including uses of English as a multilingual franca (Baker & Sangiamchit, 2019). Work investigating the **impact of digital media and online connectivity on literacy** further illuminates these dynamics (see for example Bloom & Johnston, 2010; Coyle, 2015; Hauck, 2019; Hull & Stornaiuolo, 2014; Kim, 2016; Koponen, 2020; Koutsogiannis, 2015; Lam, 2009). A proliferation of new forms of text, reading, and writing has been widely observed, and shows both a proliferation of forms and a consolidation of genres that can stabilize dominant patterns (Pennington, 2017). Platformed spaces also foster vernaculars that may reproduce power and exclusion (e.g., comment-section toxicity, hate speech) (Vujović & Obradović, 2017).

Research into online communication, particularly in culturally diverse settings, continues to revolve around some familiar themes, largely relating to the complexities introduced by cultural differences and language barriers in digital interactions.

i. Intercultural communication practices in digital spaces (language focus)

Here, we use online **intercultural communication** to mean **interactional language practices** among participants from different cultural and linguistic backgrounds in digital settings (Christofi, 2020). This work foregrounds how context, **platform norms**, and situation shape linguistic choices and identity display; online exchanges can unsettle stereotyped national markers and reconfigure the cues by which identity is read (Sandel et al., 2019).

Across studies, **interactional challenges** are described less as discrete "breakdowns" and more as complexities of language use: aligning **expectations for turn-taking and contribution, negotiating disagreement,** and **managing participation when non-linguistic cues (tone, gesture) are attenuated** (Kumi-Yeboah et al., 2022). These conditions can yield **variable participation patterns** within diverse groups and can make **pragmatic work (stance-taking, mitigation, repair) especially consequential**. Language itself is frequently identified as a barrier for minoritized individuals; suggested mitigations include **translation-tool literacies** and other **multilingual supports** to facilitate interaction (McClure & Cifuentes, 2022).

At the same time, online interaction is also a **resource for understanding difference and co-constructing common ground** (Christofi, 2020; Vujović & Obradović, 2017). Under distinctive conditions–such as the COVID-19 period that catalyzed novel forms of contact–continuous online exchanges both **mirror and transform prior communicative norms**, with adaptation visible in **discourse choices and participation patterns** (Christofi, 2020; Croucher, 2011; Sandel, 2014).

These micro-level language dynamics have direct consequences for pedagogical design in digital learning spaces (task framing, feedback, assessment) and learner support (scaffolding pragmatics, multilingual resources), which we take up in *Theme 4*.

ii. Multilingualism and translingualism

Some of the work we reviewed in 2004 discussed multilingualism and translingualism, particularly in the context of internet communication and its cultural implications. Generally, commentators discussed the reality of a multilingual internet. Some of those older studies examined how linguistic, technological, and social factors shape new forms of communication in various languages, and how code-switching occurred in bilingual or multilingual online interactions. Others explored how different linguistic communities distinguish themselves and how linguistic boundaries often align with cultural ones, as well as the suggestion that a "new pidgin Network English" might be evolving. Generally, work flagged the importance of considering multilingualism is emphasized for designing culturally appropriate interfaces and educational environments.

Work in our new collection gives evidence of a more sustained focus on multilingualism and translingualism in digital spaces, often through the lens of 'trans' theories from applied linguistics (see for example Baker & Sangiamchit, 2019; Cornillie et al., 2021; Domingo, 2014). They highlight key themes, arguments, and areas for future research, particularly emphasizing a shift from traditional views of language and culture.

Various writers offer definitions of some of the core concepts. **Translingualism**, rooted in the concept of **translanguaging**, reconceptualizes language as a dynamic and heterogeneous practice that emerges from the interactions within multilingual networks and societies (Prieto-Arranz et al., 2013). The development of **'trans-metaphor'** in research, drawing upon notions such as 'transnational' and 'translocal,' has advanced critical thinking by shifting away from the notion of static cultures that individuals simply move between. **Transcultural approaches**, integrating these critical perspectives, open up new directions for scholarly inquiry by emphasizing the evolving connections and relationships among languages, cultures, and communities, and by seeking to transcend, transgress, and transform established categories, scales, and boundaries (Baker & Sangiamchit, 2019). Notably, transcultural communication, informed by 'trans' theories from applied linguistics and especially translanguaging, is seen as analogous to the idea of a 'translanguaging space'–a domain forged by and for **translanguaging practices** in which language users actively deconstruct ideological dichotomies such as macro versus micro, societal versus individual, and social versus psychological, through ongoing interaction (Baker, 2022). While translanguaging can be considered a pragmatic approach to efficient multilingual communication (codes, registers, languages) and, possibly, a supporting instrument in language learning and teaching, it has also been criticized for potentially leading to the fossilization of codes and stages in language acquisition and, as a consequence, to exclusion, disempowerment, and disengagement. We suggest that more scholarly attention is needed to these issues with respect to the use of digital media in communication.

A key focus in recent scholarship is the growing emphasis on **fluidity, liminality, and emergent connections in language and cultural practices**, reflecting a shift away from static or fixed categories (Baker & Sangiamchit, 2019). Research demonstrates that multilingualism, especially in digital contexts, not only cultivates creativity and a sense of freedom but also exposes inequalities and the continued influence of monolingual and Anglophone ideologies, particularly those linked to English. The pedagogical implications are significant: educators are encouraged to recognize multilingualism, cultural mediation, and the value of 'contact zones', all of which are closely associated with the concept of transculturation. Furthermore, while a variety of 'trans' terms circulate in the literature–such as transculturality, translanguaging, and transglossic–recent work suggests that these concepts can generate productive synergies through dialogue, rather than requiring scholars to privilege one framework over another. For example, **a transglossic approach may integrate translanguaging, transmodality, and transculturality** to better investigate contemporary linguistic and cultural practices (Baker, 2022) (*Transmodality* refers to meaning moving across modes—text, image, sound, video—within a single communicative activity).

Generally, papers in this category advocate for a dynamic, interconnected understanding of language and culture, moving away from static, bounded notions. They highlight the **liberating potential of multilingual and 'trans' approaches**

while acknowledging existing structural constraints and call for continued research and methodological development in these areas. Baker (2022) notes, however, that transcultural communication and transcultural language education are still evolving concepts, and that further studies are needed to investigate their relevance in diverse settings.

Emerging themes

i. Multimodal communication: Definitions and cultural intersections

Late 20th century digital communications were overwhelmingly communicated using text, and this was reflected in the literature we compiled in 2004. A few studies examined how users employed textual and graphical systems, such as emoticons, within online communications to compensate for the lack of contextual cues present in face-to-face interactions. Others investigated hyperlinks, identifying these as a multimodal element that allowed multiple trajectories through content. Overall, however, opportunities were limited by the technologies of the time.

More than twenty years later, continuing rapid development in digital technologies and in global access to these technologies has allowed true **multimodal communication**s to flourish. Multimodal communication in digital spaces now involves the use of various modes beyond written language, including **voice, visuals, and music**, to articulate ideas. Multimodality extends grammar beyond written language (Domingo, 2012). It posits that social and cultural factors influence how people create signs for digital and diverse purposes, viewing multimodal meanings as lived practices of sharing ideas, thoughts, and texts within the social world (Domingo, 2014).

This concept is closely related to '**transmodality'** (Shipka, 2016), which describes the simultaneous use of a range of modes in social networking sites (SNS) where distinguishing between them is not always useful. Transmodality is not a rejection of multimodality but rather a perspective focussing on **multimodal resources** and transmodal processes. Digital communication and SNS are increasingly integral to daily life and are of significant interest to applied linguistics researchers (Baker & Sangiamchit, 2019; Domingo, 2012). However, communication itself is achieved through diverse semiotic resources, with language being a crucial one, making research into multimodal communication complex (Sauro & Chapelle, 2017).

Multimodal communication **enhances expressive capacity,** transcending the limitations of written language alone. Digital and mobile technologies facilitate engagement with multimodal texts, enabling people to participate in new forms of meaning-making practices. This allows for creative and playful transgression of linguistic, cultural, and modal boundaries in virtual spaces (Hull et al., 2013). The designs and affordances of multimodal communication are frequently socially oriented, empowering creators to **engage specific audiences** and **adapt content strategically** (Domingo, 2012, 2014).

In the realm of second language (L2) or foreign language (FL) learning, multimodality assumes a crucial role by replicating authentic contexts in which meaning is dynamically negotiated (Avgousti, 2018). Furthermore, the digital environment's rich diversity of languages, cultures, and communities engenders unparalleled opportunities for intercultural and transcultural communication, giving rise to "superdiverse spaces" that facilitate self-expression, community formation, and the negotiation of identity across boundaries (Baker & Sangiamchit, 2019). Domingo (2012) describes, for example, how transcultural youth demonstrate intricate multimodal designs in their multilingual exchanges online.

Contemporary scholarship emphasizes that **transcultural communication is a critical contribution to emerging research paradigms**, urging a reconceptualization of intercultural communication that foregrounds hybridity and fluidity as foundational dimensions for inquiry, rather than treating them as exceptional or peripheral phenomena (Baker & Sangiamchit, 2019).

Scholars suggest that further research is needed to fully grasp the evolving complexities of multimodal communication, and the implications for global communication. Specifically, continued investigation into the interplay between technological affordances, social norms, and cultural dynamics in shaping multimodal expressions is crucial. The constraints

imposed by pre-existing social structures and technological limitations on the freedom offered by multimodality also warrant further study. Understanding how these 'superdiverse spaces' continue to evolve and impact communication across cultures remains an ongoing area of inquiry .

ii. Creative cultural expression and innovation

An additional emergent theme connecting some of the work in our new collection concerns the ways that individuals and groups are using digital spaces and media to support cultural expression and innovation. Perhaps Lévy (2001b) foresaw such activity, with his suggestion that digital culture ("*cyberculture*") expressed the rise of "a new universal", fostering new forms of fluid and evolving cultural expressions. Indeed, some early studies also recorded the creative and innovative ways in which individuals and groups used digital spaces for cultural expression, often adapting existing norms to the new technological environment.

Work in our current collection illuminates ways that digital spaces have transformed how various individuals and groups engage in **creative cultural expression, innovation, and exploration, redefining traditional notions of culture, creativity, and literacy** (see for example Brownell & Wargo, 2017; Hu et al., 2017; Rendell, 2021; Rutten, 2014; Schofield & Carvajal, 2022). These virtual environments offer new avenues for interaction, promotion, and the collaborative creation of cultural content.

Recent scholarship also highlights the multifaceted ways digital spaces are utilized by a diverse array of individuals and groups to support cultural expression and innovation. Users of digital technologies increasingly seek updated content and personalized access to cultural products, exemplifying a broader shift toward tailored cultural experiences in digital environments Such digital '**third spaces**' often afford individuals greater latitude to experiment and challenge established societal norms and conventions (Pennington, 2017; Žuvela-Bušnja et al., 2008). Research has also illuminated how sociolinguistic factors shape their expressive practices within 'superdiverse' contexts, further enriching digital cultural landscapes (Solmaz, 2020). In addition, the **public cultural sector, civil society, and creative industries play pivotal roles** in the collaborative development of cultural content for virtual platforms. Associations within the cultural domain tend to employ virtual spaces primarily for web-based identification and self-presentation, rather than for interactive engagement or communication. At the same time, companies within the **creative industries demonstrate increasing interest in virtual presentation**–particularly in fields such as cultural tourism (Žuvela-Bušnja et al., 2008). Notably, digital media have also transformed the **relationship between artists and audiences**, moving beyond traditional parasocial dynamics prevalent in physical venues and offering **new forms of engagement and interaction** (Rendell, 2021).

Digital spaces empower the global promotion of local cultural values and foster innovative forms of interaction, while simultaneously enabling collaborative creation and the development of culturally significant products within interconnected electronic environments (Žuvela-Bušnja et al., 2008). This shift **contrasts with the traditional paradigm of isolated artistic production**, instead encouraging the emergence of highly creative works and intertextual, mixed media products through collective engagement (Pennington, 2017). Moreover, the presentation of cultural products in virtual spaces is redefining cultural tourism and prompting the rise of new profiles of 'postmodern tourists,' further illustrating the transformative potential of digital environments for cultural expression and innovation (Žuvela-Bušnja et al., 2008). Sociolinguistic work likewise shows how 'collectives' and convivial practices on social media coordinate identity display and uptake (Varis & Blommaert, 2015).

As discussed earlier, some studies in our current compilation reporting on digital engagement with **fan fiction and fan culture**–active engagement with existing media and popular culture. Fanfiction involves fans imaginatively extending or altering established plotlines, introducing new characters, and developing relationships between figures within the original source material. Such engagement challenges stereotypes that portray fans as passive consumers and

instead highlights their capacity for creativity, community-building, and the dissemination of diverse perspectives. Black (2006;2009) argues that fanfiction communities **promote pluralism and discussion**, fostering dialogic relationships and social interaction across multiple worlds.

Building on accounts of multimodality and participatory creation, recent scholarship highlights the need to examine how **digital infrastructure**s mediate cultural identity and social interaction. Key priorities include i**dentifying thresholds at which identity-related threats**– signals that one's personal or group identity is devalued, misrecognized, or unsafe on a platform–**on social media erode in-group belonging** and reduce participation; **tracing behavioural responses to identity complications** (e.g., withdrawal, adoption of privacy tools) and **how platform salience shapes subsequent identity work** (here, *platform salience* means the degree to which a platform's norms, affordances, and algorithms are top-of-mind in how people display and read identities; *identity work* refers to the ongoing, interactional construction of self in and through discourse and practice). To move beyond correlational claims, **longitudinal designs are needed** to test causal pathways between platform features, identity threat, coping strategies, and participation (Hu et al., 2017). Collectively, these directions call for nuanced, context-sensitive inquiry into the co-evolution of identity, technology, and cultural engagement in digital environments.

Seeing language as social action clarifies how multilingual practice and multimodality organize participation online, pointing to a need for analysis and pedagogy that consider form, function, and platform conditions together. Future work should specify how platform affordances (e.g., visibility, threading, turn length) condition pragmatic work (stance, mitigation, repair) in intercultural exchanges, and how these conditions vary across languages and scripts.

These dynamics of platform salience and identity work carry direct implications for pedagogy and course design, which we take up in *Theme 4*.

THEME 4: EDUCATION AND LEARNING

This theme turns to pedagogical design and practice. It synthesizes work on online/digital learning, media/digital/transcultural literacies, and L2/FL pedagogy and design, drawing implications for assessment, curriculum, and teacher development; an emerging strand addresses social-emotional learning and well-being alongside critical literacies. We also synthesize design and delivery considerations that influence engagement and learning across culturally diverse cohorts.

While neither our 2004 review (Macfadyen et al., 2004) nor our current survey of literature were focussed on culture and communication in online learning contexts, it is perhaps not surprising that a substantial portion of literature in this field has examined activity online in educational contexts. The educational sector might be considered an early adopter when it comes to online intercultural activity–a phenomenon that is only increasing as demand for digital learning booms, platforms become more sophisticated, and demand for online learning boomed during and after the COVID-19 pandemic (Quality Matters, 2023; Wadhwani, 2023). Academic contexts are also a realm to which researchers have reasonably straightforward access, for purposes of observation and investigation.

Older work regarding culture and communication in online learning environments revealed several key insights and challenges. Early research highlighted the challenges people from different cultural backgrounds face when communicating online, and how special challenges of intercultural communication in online environments affected online teaching and learning. Some studies explored how cultural factors affected the design of digital learning environments, aiming to identify elements that facilitated more successful intercultural communication. Others drew on observations of group discussions in online learning environments to theorize about computer-mediated communications could support community development and communication.

In 2025, we have again discovered that a significant proportion (110 papers, or 68%) of works we identified address learning or personal development in some way, whether in formal or informal digital contexts.

Contemporary perspectives on digital technologies and education

i. Culture and communication in digital learning spaces

Much of the recent work examines formal online learning–often university courses–and **how culture shapes participation and interaction in virtual learning environments** (VLEs) (Banerjee & Firtell, 2017b; Goodfellow & Hewling, 2005; Uzuner, 2009). Research continues to demonstrate that digital spaces are key **sites for linguistic enactments of identity and community** that underpin online communication and learning (Campbell & Haynes, 2020). Lam (2006) synthesizes how globalization reconfigures the culture-learning nexus and sets out research directions that echo these patterns. Culture shapes social behaviour, communication, cognition, and the use of pedagogical technologies; consequently, culturally diverse cohorts bring different worldviews to online study (Kumi-Yeboah et al., 2022). Empirical work documents **cultural disconnection in multicultural courses** and shows culture's **measurable influence on learning behaviours** across national groups (Kumi-Yeboah et al., 2022).

The enduring **influence of colonial ideology in digital learning spaces** is widely discussed, with scholars arguing that prevailing epistemological frameworks tend to privilege Western approaches to knowledge and learning in educational contexts (Eijkman, 2009; Luyt, 2013; Perumal et al., 2021). The concern is that digital learning environments may inadvertently reinforce dominant practices and perspectives, including the implicit prominence of certain languages such as English within academic and online spheres (Kumi-Yeboah et al., 2022). In response, some have called for a critical re-evaluation of the dominant linguistic and cultural frameworks that currently structure digital communication, with the aim of fostering more inclusive and contextually relevant pedagogies and practices (Elf et al., 2020)

Several studies move from general claims to concrete investigations. Goodfellow and Hewling (2005) trace how wider cultural narratives and institutional culture–such as systems for content distribution, grading, and communication among students, tutors, and the university–shape online learning communities. Eliyahu-Levi (2020) examines knowledge building in a collaborative course designed to expose students to different cultural contexts. Kumi-Yeboah et al. (2022) analyze learner-instructor, learner-learner, and learner-content interactions to illuminate course dynamics.

Overall, current literature continues to demonstrate that culture is a multifaceted force in online learning–affecting identities, interactions, and outcomes–and calls for deeper, methodologically reflexive inquiry and more culturally responsive virtual pedagogy (Goodfellow & Hewling, 2005; Banerjee & Firtell, 2017b; Uzuner, 2009; Kumi-Yeboah et al., 2022).

ii. Culturally aware learning design and facilitation

Across the literature in this area, scholars call for **culturally sensitive learning design** and note a continuing scarcity of fine-grained studies of cultural dynamics in online education (Banerjee & Firtell, 2017b; Uzuner, 2009).

Methodologically, Goodfellow and Hewling (2005) caution that researchers' own cultural assumptions and theoretical frames can skew interpretations of online cultural phenomena. They–and Kumi-Yeboah et al. (2022)–**warn against essentialist models** (e.g., simple individualism/collectivism or high/low context dichotomies) and argue for attention to

"**hidden cultures**" within national contexts (regional, generational, or upbringing-related) that may be invisible to participants themselves. Because education entails the transmission of behaviours and ways of thinking, cultural sensitivity is especially salient in online settings (Banerjee & Firtell, 2017b).

In more recent literature, studies consistently report that effective digital learning for diverse learners is shaped by **facilitation that actively supports equitable participation**. Recommendations include educator development to deepen cultural and racial knowledge, explicit framing of tasks that foster critical consciousness and counter-narratives, and the diversification of culturally relevant resources and examples (Kumi-Yeboah et al., 2022; McClure & Cifuentes, 2022).

Practical emphases in **design of digital learning** include structured turn-taking and small-group routines, clear norms for disagreement, and scaffolds that make expectations for contribution visible and safe. Where multilingual cohorts are present, programs should make policy-level decisions about translation/mediation tools (when and how they may be used) and provide guidance so that their use supports–not substitutes for–intercultural learning goals (Kumi-Yeboah et al., 2022; McClure & Cifuentes, 2022).

It is argued that future work should specify how platform-level affordances (e.g., visibility, threading, turn length, analytics prompts) interact with course design and facilitation to shape participation across cultures, and compare these effects across platforms and institutional contexts. Mixed methods designs linking behavioural traces with qualitative evidence of learning and belonging would sharpen claims about what designs work for whom and under what conditions.

iii. Intercultural and cross-cultural learning in digital spaces

By 2004, researchers had recognized that technology-supported environments could be powerful sites for **intercultural or cross-cultural learning**–either through intentional design or as an organic outcome of diverse participants interacting online. Early work explored how to design online spaces to support intercultural communication and reported case studies of technology-supported projects.

Recent studies continue this line of inquiry (see for example Aldridge et al., 2014; Berti, 2021; Blume, 2021; Dasli, 2011; Eliyahu-Levi, 2020; Heggernes, 2021; Lindner & Méndez Garcia, 2014; McClure & Cifuentes, 2022; Shadiev & Huang, 2016; Smilan, 2017). Much of this work examines **designed interventions**. For example, Sandel et al. (2019) link students across Malaysia, China, and the United States in an online exchange, with the goal of exploring cultural issues, family, gender, and race directly with peers from different backgrounds, and moving beyond written texts. Shadiev and Sintawati's 2020 review synthesizes evidence to guide effective designs. Across these studies, technology can enable communication among culturally diverse participants, enhancing **intercultural communicative competence** and satisfaction with both the technological and intercultural experience (Kim, 2016; Sandel et al., 2019; Shadiev & Huang, 2016; Shadiev & Sintawati, 2020). The toolset has evolved: 2004-2014 studies commonly used **discussion boards, text chat, and blogs**; 2014-2019 work more often features **videoconferencing, email, social media,** and increasingly **video recording, podcasts, and microblogging**. This shift coincides with greater attention to **pedagogy–**how to design activities that genuinely facilitate exchange and how to evaluate feasibility and impact. The concept of **transcultural digital literacie**s further argues for pedagogies that treat digital texts as "habitable spaces" for all students—not only those with migration experiences (Kim, 2016; Sandel et al., 2019; Shadiev & Huang, 2016; Shadiev & Sintawati, 2020). Studies also note the need for adequate training, guidance, and communication skills, as well as stimulating contexts, while acknowledging persistent technical and institutional constraints (Grieve et al., 2022).

Alongside designed interventions, other work shows that digital environments can foster **incidental cross-cultural learning**. Kim (2016), for instance, describes young people from varied backgrounds engaging with Korean popular cul-

ture; more generally, everyday tools–discussion boards, chats, and social media– routinely bring people from different linguistic and cultural communities into contact, enabling informal exposure and understanding (Shadiev & Sintawati, 2020). Framed through transcultural digital literacies, readers become "renters" and texts "habitable spaces," highlighting how ordinary engagement with digital content can prompt movement across cultural boundaries (Kim, 2016). Complementing these findings, Croucher (2011) models how social networking sites mediate cultural adaptation in intercultural contexts.

Methodologically, we suggest that the field still needs stronger designs and broader applicability. Some authors call for **longitudinal studies** to track change and clarify causal relations; for experimental and replication studies to support causal inference and generalizability; and for larger, more diversified samples beyond single respondents or self-report (Banerjee & Firtell, 2017a; Hu et al., 2017; Ju et al., 2021; Sandel et al., 2019). As we have argued ourselves, qualitative work would benefit from clearer theoretical grounding (Uzuner, 2009). Given rapid technological change, it is noted that researchers need to examine **less-studied technologies** and keep pace with emerging tools (Avgousti, 2018). Finally, several authors urge deeper engagement with **theories of multicultural learning** and with p**ower and colonial histories in education**, and they underline the value of **further research syntheses** to organize a growing evidence base for practice (Banerjee & Firtell, 2017a; Avgousti, 2018).

iv. Media, digital, and transcultural literacies

Work uncovered in our 2004 review treated "digital literacy" largely through the notions of new/electronic literacies, linking literacy directly to culture, technology, and critical engagement with digital media (Street, 1984; Warschauer, 1999). Early authors argued that the internet, as a new communicative modality, demanded evolving literacies shaped by broader social and cultural change; notably, media literacy did not surface as a distinct theme in that earlier search. From a philosophical perspective, Vlieghe (2016) cautions against reducing 'digital literacy' to training, urging attention to how digitization reshapes education itself.

In the 2025 corpus, scholars differentiate several interrelated literacies:

- **Technological literacy**: more than technical proficiency; a culturally situated phenomenon that includes "literacy events" and practices (Toscano, 2011).
- **Critical media literacy**: the capacity to analyze and produce media while identifying, interrogating, and disrupting dominant ideologies embedded in media and technologies (Shrodes, 2021).
- **Critical digital literacies**: youth-focussed work on using digital tools to resist oppressive ideologies and imagine alternative futures (Shrodes, 2021).
- **Transcultural digital literacies**: informal, self-directed, multimodal practices through which learners access global texts and communities; these literacies challenge the primacy of writing as young people create audio/visual texts (Kim, 2016).

Across this literature, several themes recur. First, **literacies are culturally embedded practices**, not neutral skill sets; technology and culture are tightly coupled, with digital media reshaping the very culture of literacy (Moore & Grisham, 2015; Toscano, 2011). Second, participation and production matter as much as analysis: studies foreground youth engagement and the ways **participatory cultures** cultivate critical media literacy (Shrodes, 2021). Third, **globalization and multimodality are now baseline conditions** for literacy practice: transcultural digital literacies highlight how media creation and consumption extend beyond print to audio-visual modes and transnational networks (Kim, 2016). These trends collectively mark a continuing redefinition of literacy education in the digital era (Koutsogiannis, 2015).

Overall, contemporary media and digital literacies are best understood as **culturally situated capacities for critical**

engagement, production, and global interaction. They support intellectual growth and socialization by leveraging opportunities afforded by digital technologies and remain crucial for meaningful participation in an interconnected society (Bloom & Johnston, 2010; Moore & Grisham, 2015; Toscano, 2011; Shrodes, 2021; Kim, 2016; Koutsogiannis, 2015).

v. Language and literacy education: Pedagogy and design

Building on evolving perspectives on literacies, work in this current review highlights how this plurality intersects with culture and pedagogy, often with a focus on language and/or literacy education. In language education, Oxford (2010) argues for aligning learning goals and curricula with twenty-first-century conditions, a stance that complements these shifts in digital and critical literacies. Design frameworks such as Content and Language Integrated Learning (CLIL) also emphasize integrating content and language goals in task and curriculum design (Coyle, 2015).

It is clear that writers in the field hold that **culture remains central in language and literacy education**. Scholarship in language instruction emphasizes culturally relevant pedagogy that supports achievement, cultural competence, and critical consciousness–especially for English Learners–and offers multifaceted strategies and models for practice (Eutsler & Perez, 2022; Moore & Grisham, 2015; Shih, 2013). Frameworks such as the *Culturally Relevant Model for Digital Language and Literacy Instruction* guide educators in tailoring instruction to diverse learners; cooperative learning and targeted small-group work are highlighted as especially supportive (Eutsler & Perez, 2022). This aligns with efforts to cultivate a school "culture of literacy" integrating language, literature, arts, and student activity (Moore & Grisham, 2015).

A sociocultural perspective treats **literacy not as neutral, universal skills but as multiple, situated, and ideological practices** through which people communicate, make meaning, and enact identities in specific contexts (Hull & Stornaiuolo, 2014; Perry, 2021). Accordingly, print-centric and numeracy-focussed approaches sit in tension with functional, sociocultural, and human-centred views, and scholars urge attention to the affective and practical dimensions of language as lived among people, places, and practices (Perry, 2021).

Twenty-first-century literacies extend well beyond print and locality, challenging conventional categories in multicultural education (Kim, 2016). Educational policy regimes that privilege functional linguistic/numeric skills can inadvertently reinforce colonial languages, facilitating some global exchanges while excluding other linguistic and cultural forms (Perry, 2021).

Technology **integration remains uneven**–often shaped by teachers' beliefs and prior experiences–yet, when approached through constructivist and culturally relevant designs, it can transform learners' experiences and improve reading outcomes; more research is needed in mainstream, inclusive classrooms (Eutsler & Perez, 2022). Digital technologies also help constitute and sustain the evolving "culture of literacy," underscoring the ongoing need to study technology's role in language and culture learning (Chun, 2017; Moore & Grisham, 2015).

Taken together, this literature calls for culturally responsive, critically informed technology integration and for viewing literacies as plural, situated practices shaped by policy and power (Street, 1984; Warschauer, 1999; Moore & Grisham, 2015; Shih, 2013; Hull & Stornaiuolo, 2014; Kim, 2016; Perry, 2021; Eutsler & Perez, 2022; Chun, 2017).

vi. L2/FL language learning: Embodiment, metaphor, culture, and design

We noted elsewhere that contemporary literature offers little research or commentary on the social or cultural impacts of embodiment/ **disembodiment** in digital worlds. Research on culture and embodied experience, *does* appear, however,

in the literature of the 'second language acquisition' (SLA) field (see for example Avgousti, 2018; Roche & Todorova, 2010; Shih, 2013). SLA research shows that embodiment–**bodily/sensorimotor experience–can shape language processing and instruction**. Empirical studies link such experience to comprehension and learning (Johnson-Glenberg et al., 2016; Lindgren et al., 2016; Pouw et al., 2016; Shapiro & Stolz, 2019), while design studies on technology (animations, virtual reality) report mixed but promising effects, with outcomes depending on task-goal alignment and the degree of bodily engagement (Arnett & Suñer, 2019; Clavel Vázquez & Clavel-Vázquez, 2023; Comisso & Della Putta, 2023; de Knop, 2020; Lowe & Schnotz, 2014; Skulmowski & Rey, 2018; Suñer & Roche, 2019; Vázquez et al., 2018).

Significantly, a cognitive-linguistic view explains that **languages do not just have different forms (words/grammar); they also encode different, often embodied ways of understanding the world**–frequently via metaphors (e.g., treating time like space, or emotion like temperature/height) (see for example Danesi, 2008). Because those **metaphors are culture-shaped**, learners need more than drills on forms; they need help seeing and experiencing the underlying mappings so they can build conceptual/pragmatic competence (i.e., understanding the meanings and using them appropriately in context)(Roche & Jessen, 2023). For this reason, it is argued that technology (animations, interactive visuals, VR) should be used to make those mappings perceptible–so learners grasp the idea the form encodes, not just the form itself (Berti, 2021; Roche & Suñer, 2016). Design cautions include avoiding the simplistic assumption that "more movement/input = embodiment," attending to cultural and affective context, and providing guided attention to the features that matter. Taken together, this work offers practical implications for online courses: make embodied meanings and metaphorical mappings explicit; match the level of embodiment to the learning objective; use technology selectively and purposefully; and **treat cultural variation as a central design parameter**, not an add-on.

Emerging themes

i. Social-emotional learning and well-being

Of interest to us in this corpus is the existence of a small number of studies who make connections between culture, technology, and social-emotional learning or well-being (see for example Brownell & Wargo, 2017; Jeon, 2021; Kirmayer et al., 2013; Lehtonen et al., 2008), seeking to counterbalance contemporary concerns about the potential impact of "too much time online" on health and wellness (Cavalcanti et al., 2024). This work frames **digital well-being** as **requiring an intercultural approach** that recognizes both universal elements and culture-specific variation.

Two core contributions theorize **well-being as culturally patterned**. Dennis and Clancy (2022) show that what it means to "flourish online" differs across cultures: Western accounts emphasize positive, high-arousal affect and individual life satisfaction, whereas many East Asian accounts prioritize balanced/low-arousal emotion, meeting social expectations, and an interdependent sense of self; even the protective effects of positive emotion vary cross-culturally. Köhl and Götzenbrucker (2014) foreground **emotion cultures in networked sociality**, detailing shifting "feeling rules," emotion-sharing, the publicity of relationships, and emotion management as aspects of identity performance; they also note dis-inhibition effects (often diminishing as digital literacy grows), the rise of **"emotional capitalism,"** and the role of **social networking sites as "third places."** Complementary perspectives examine how users communicate and troubleshoot emotion online (Lehtonen et al., 2008; Sandel, 2014) and position emotion as central to perspective transformation in transformative and lifelong learning (Jurkova & Guo, 2022).

Across these studies, several themes recur. Networked technologies–especially social media–have a dual potential: they can support self-understanding and well-being or undermine them, with outcomes mediated by cultural models and by the stage of technology diffusion (Dennis & Clancy, 2022; Köhl & Götzenbrucker, 2014). Users adapt technologies as emotional resources to meet local needs; at the same time, g**lobalizing media can reshape emotional experience and expression,** sometimes challenging established norms within distinct emotion cultures (Köhl & Götzenbrucker, 2014). Taken together, this literature advances an i**ntercultural (and at times transcultural) ethics of digital well-being**, treating well-being as constructed at the intersection of social expectations, cultural values, and technologically mediated practices (Dennis & Clancy, 2022; Köhl & Götzenbrucker, 2014; Sandel, 2014; Jurkova & Guo, 2022).

For educators, meaningful design follows from aligning tasks, assessment, and support with how learners actually make meaning, relate, and sustain well-being in digital environments, not with tools alone.

THEME 5: POWER, ETHICS, AND GLOBAL PERSPECTIVES

This theme addresses **normative** and geopolitical questions. It examines digital cultural politics, globalization and inequality, and sociocultural/political impacts, and moves toward an intercultural digital ethics–with implications for platform governance, equity-centred design, and conditions for safe, meaningful participation.

Our 2004 review (Macfadyen et al.) documented a sharply polarized discourse on the cultural and societal effects of digital technologies. Here, power refers to infrastructural and platform control over visibility and access; ethics to distributive, procedural, and epistemic justice in design and use; and global to cross-border diffusion, localisation, linguistic justice, and data sovereignty. Commentators alternated between utopian and dystopian framings: technologies appeared at once universalizing yet non-totalizing, liberating yet dominating, empowering yet fragmenting. Optimists anticipated new forms of democracy and collective intelligence; critics warned that entrepreneurial logics (sometimes referred to as *platform/market logics*) and existing social and economic inequalities would simply be reproduced online. Concerns included cultural homogenization, the dominance of English as a carrier of a particular culture, and the ways that access and design choices structure participation and visibility.

Debate also centred on globalization. For some, the internet promised social, cultural, and political change–enabling "regional public spheres." Others stressed the complexity of digitally mediated globalization and the risks of cultural destabilization.

A parallel strand raised ethical questions: access and equity (the persistent digital divide), intellectual property and the appropriation of cultural knowledge–especially from Indigenous communities–and the need for legal frameworks to protect cultural heritage.

In short, by 2004 the field recognized deep tensions and unresolved ethical risks in the global diffusion of digital technologies. The sections that follow ask: How have these debates evolved, and what does recent scholarship add?

Contemporary perspectives on digital impacts and digital ethics

i. Sociocultural and political impacts

Over the past two decades, scholars have continued to show that digital technologies are reshaping core dimensions of social, cultural, and political life across national and cultural boundaries (see for example Averbeck-Lietz, 2011; Block, 2013; Frost, 2013; Halstead, 2021; Liebermann, 2021; Mihelj & Jiménez-Martínez, 2021; Pathak-Shelat & Bhatia, 2019; Petrus, 2016; Shields, 2014). Arguably, these transformations are increasingly organised through large technology companies whose platforms mediate communication, visibility, and participation, giving rise to what has been described as "**platform society**" and "**digital cultural politics**" (Dennis & Clancy, 2022; Valtysson, 2020). In this view, **digital infrastructures** are not only technical systems but cultural and political actors: they shape how culture is produced, governed, circulated, and experienced.

Work in this area highlights several interconnected domains: digital cultural politics; well-being; **participatory culture** and digital literacy; convergence culture; and narrative and identity formation. **Digital cultural politics** refers to the entanglement of cultural, media, and communication policy with platform governance and technological infrastructure. By **participatory culture** we mean cultures in which audiences not only consume but also produce, remix, and circulate cultural content within communities and networks. **Convergence culture** refers to the cross-media flow of content, capital, and practices across platforms and institutions, often blurring boundaries between producers and audiences. As cultural activity migrates to digital environments, control over infrastructures (e.g., algorithms, moderation systems, data access) becomes a form of cultural regulation in itself, influencing who is represented, what is amplified, and which practices are made legitimate or marginal (Valtysson, 2020). Scholars argue that this reconfigures cultural policy: instead of states alone setting the conditions for cultural production and circulation, platforms increasingly do so, often according to commercial priorities rather than cultural or democratic ones (Dennis & Clancy, 2022; Valtysson, 2020).

Nevertheless, digital spaces are positioned as sites of **participatory culture**, where users can develop social, cultural, and intellectual competencies through creation, remix, peer assessment, and collaborative problem-solving. Participation in these environments is frequently linked to the development of digital literacy and to forms of informal learning, particularly among young people (Young & Asino, 2020).. However, this is complicated by what Jenkins (2014) terms **convergence culture**: the blending of media industries, user participation, and networked circulation of content. Convergence culture raises political and economic questions about who actually benefits from participation, and whether "participatory culture" genuinely captures the uneven, sometimes exploitative, conditions under which people create and circulate media online. In other words, participation is celebrated rhetorically but is also structured by platform logics, labour expectations, and differential visibility.

Researchers have also drawn attention to questions of **well-being and identity** under these conditions (Dennis & Clancy, 2022). Digital environments are not simply channels for expression; they are affective and relational spaces in which people negotiate belonging, recognition, and harm. This ties the politics of platforms to questions of emotional life, safety, and flourishing online (Dennis & Clancy, 2022).

Finally, digital technologies play a constitutive role in **narrative formation** and **identity work**. Platforms mediate crime stories, local histories, and everyday accounts of place, and in doing so create spaces where individuals from different ethnic, social, and political backgrounds encounter one another, exchange interpretations, and contest meaning. Such translocal exchanges allow memory, identity, and place to be narrated collectively, rather than solely through institu-

tional channels (Halstead, 2021; Stratton, 2019). This underscores that culture online is not only consumed but continually made–through storytelling, circulation, and response.

Taken together, this body of work positions **digital technologies as infrastructures of cultural life**: they govern circulation and visibility (platform society), organize conditions for participation and literacy (participatory and convergence cultures), shape emotional experience and well-being, and provide arenas in which identities and collective narratives are produced, contested, and anchored in place.

ii. Globalization, power and digital culture

Work included in this subsection examines **how globalization, power relations, and digital culture intersect**, with particular attention to digital cultures and politics (see for example Block, 2013; Brüggemann & Wessler, 2014; Ess, 2008; Gautam & Singh, 2021; Hepp & Couldry, 2009; Mihelj & Jiménez-Martínez, 2021; Petrus, 2016; Tsagarousianou & Retis, 2019; Valtysson, 2020). An important contributor in this areas is Goggin (2016), who argues that **digital cultures are inherently global**–rooted in transnational infrastructures, supply chains, and platform corporations with international user-producer networks–yet they are **simultaneously locally embedded**, shaped by specific cultural, social, and political contexts. He also highlights **asymmetric power** in knowledge production: Anglophone scholarship often overlooks non-Anglophone research on digital cultures, not accidentally but through unequal structures of validation and circulation. Addressing this imbalance requires intentional integration of non-Western perspectives, he argues.

Challenging an overly simplistic **cultural-imperialism thesis**, Barendregt (2012) documents **reverse and South-South flows**–for example, Free and Open-Source Software (FOSS) movements in South Africa and Brazil and initiatives such as Grameen's Village Pay Phone in Bangladesh–alongside the continuing influence of Western tools (e.g., how Microsoft Word affects vernacular languages). Drawing on superdiversity, he underscores the growing complexity of linguistic, religious, ethnic, and cultural resources and **argues for recognising plural digital worlds** rather than treating digital culture as an exclusively Western project.

Taken together, this work calls for a **rigorous, genuinely global account of digital culture**: one that moves beyond Western-centric frames, assesses where infrastructures and policy regimes concentrate power, and analyzes **cultural exchange as reciprocal yet locally situated** (Barendregt, 2012; Goggin, 2016). Future research should explore how digital development and international cultural communication and cooperation can be fostered through nuanced appreciation of diverse digital worlds, integrating perspectives that capture both transnational circulation and local embedding (Žuvela-Bušnja et al., 2008).

iii. An intercultural digital ethics

Pre-2004 scholarship raised ethical issues at the intersection of culture and digital technologies, focussing on power, cultural imposition, and access. Authors warned of cultural imperialism–the privileging and export of Western (especially U.S.) values and technomeritocratic ideals via the internet–and questioned the unreflective promotion of norms such as free speech and individualism where they may conflict with local preferences. The dominance of English was seen to marginalize non-English speakers and broadcast particular cultural norms. Claims that technology is culturally or morally neutral were scrutinized, and technological determinism–the assumption that digital progress naturally aligns with democracy and free speech–was deemed reductive. Scholars also anticipated reinforcement of existing social and economic hierarchies (e.g., a "destructive mass market" removing cultural ownership from ethnic groups),

alongside an uneven distribution of access and the appropriation of technologies by powerful actors. Additional concerns included online identity fluidity (deception, "virtual crime") and the possibility that digital engagement could weaken commitments to local communities, erecting new barriers to participation. In short, the pre-2004 literature mapped ethical dilemmas around cultural dominance, unequal access, online identity, and the export of Western values–particularly in education.

As of 2025, research on culture and digital technologies remains a focussed but steady field (see for example Clancy, 2021; Ess & Sudweeks, 2006; Gautam & Singh, 2021). Some have proposed an **Intercultural Digital Ethics (IDE)** framework (Dennis & Clancy, 2022)(sometimes referred to as **intercultural information ethics (IIE)** (Capurro, 2008)) for addressing persistent concerns while framing new ones. A central challenge is devising a **global ethical framework** that supports **universal norms** yet **accommodates local identities, traditions, and practices**. Contemporary systems often embed a culturally skewed value set rooted in Western philosophy (Dennis & Clancy, 2022). In education, **Western-centric platforms** and r**eliance on English-language** content risk cultural disconnects and limit meaningful engagement (Young & Asino, 2020). The prospect of **computer-mediated colonization** intensifies these questions, requiring attention to the practical consequences of digital design and implementation, not only their theoretical justification (Ess, 2020).

Several proposals aim to guide ethical practice. Variations on the IDE theme seek to advance **pluralist approaches** that deliberately integrate **multiple cultural perspectives** into the design and diffusion of ICTs (Ess, 2020). Dennis and Clancy (2022) argue that ethical judgments in IDE–especially around **digital well-being**–can be grounded in intuitive responses informed by empirical research in cultural and moral psychology.

Future work, various authors argue, should be **inclusive and contextual**, examining technologies and the social conditions that necessitate their use; it should also probe c**ultural disconnects** associated with Western bias in educational technologies (Young & Asino, 2020). Methodologically, IDE would benefit from three complementary strands: (1) **empirical studies** that test how specified principles (e.g., data sovereignty, linguistic justice) change behaviour and well-being in practice; (2) **normative work** that articulates and operationalizes those principles into concrete design and governance criteria; and (3) **case studies** that document implementations, trade-offs, and outcomes in situated contexts (Dennis & Clancy, 2022). Across all three, researchers should audit for "computer-mediated colonization"–i.e., technologies or research practices that impose external value systems, erase local epistemologies, or extract data and control–so that proposed solutions do not reproduce the very harms they seek to remedy (Ess, 2020).

Emerging themes

i. Indigenous cultures in the digital era: Governance, design & justice

Compared with our 2004 review–which identified very little scholarship engaging Indigenous peoples or cultures–the past two decades show a marked expansion of work in this area. This growth reflects shifts in the **normative** and policy landscape: the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) (United Nations General Assembly, 2007) asserts rights to culture, language, and self-determination, and national reconciliation processes (e.g., Truth and Reconciliation Commission of Canada Calls to action (TRC, 2015) have reframed **digital initiatives as matters of governance and justice** rather than access alone. Parallel movements around **Indigenous Data Sovereignty** have articulated principles for Indigenous authority over information and infrastructures (Carroll et al., 2019; Kukutai & Taylor, 2016). Against this backdrop, recent studies examine digital technologies as potential instruments of **cultural revitalization** and **political agency**–but also as **vectors of renewed colonization** when not co-designed and governed by communities themselves.

Recent scholarship examines how digital technologies present a **double set of possibilities** for Indigenous peoples–offering tools for empowerment while risking further cultural infiltration. Real benefits are evident, but only when technologies align with Indigenous cultural aims and self-determination (see for example Abdelnour-Nocera & Densmore, 2017; Srinivasan, 2013; Tierney, 2018; Wagner, 2019).

Studies in the current corpus describe how communities are using digital media to **capture, preserve, and revitalize cultural knowledge** at risk amid rapid change (Winschiers-Theophilus et al., 2021; Winschiers-Theophilus et al., 2019; Young & Asino, 2020). Digital technologies can support **linguistic revitalization** for example, through conferencing, social networks, and virtual environments that increase exposure to heritage languages and counter intergenerational loss of elder speakers (Young & Asino, 2020). Digital platforms also enable **self-representation**, from community websites to broadcast rights, and facilitate the development and circulation of Indigenous cultural content via databases, apps, and online platforms; new media appropriations further open avenues for **collective action and participation** in public debate. Many communities are proactively adopting tools to shape their futures (Young & Asino, 2020).

Nonetheless, scholars detail **persistent misalignments**. Digital systems can perpetuate **computer-mediated colonization** when they encode prevailing assumptions–for example, by treating culture as a codifiable worldview–while sidelining Indigenous understandings grounded in land, kinship, and spiritual traditions (Ess, 2020; Wagner, 2019; Winschiers-Theophilus et al., 2019). The architecture of websites and databases may **devalue Indigenous Knowledge Systems (IKS)**, exposing tensions between digital knowledge infrastructures and Indigenous epistemologies (Eijkman, 2009; Wagner, 2019; Winschiers-Theophilus et al., 2021). Too often, Indigenous people are not meaningfully engaged in the design of learning technologies, leading to representations that lack reflexivity and sometimes reproduce biased portrayals (Winschiers-Theophilus et al., 2019; Winschiers-Theophilus et al., 2021).

In response, authors argue that Indigenous communities should decide how and when to access and use technologies, and they advocate **community-based co-design (CBCD)** to create culturally appropriate tools. A transcultural, plurality-oriented approach seeks to embed not only Indigenous content but also underlying epistemologies and values within technological design (Wagner, 2019; Winschiers-Theophilus et al., 2021).

Because digital participation is always normative and uneven, research and practice must foreground ethics, equity, and governance–making visible who benefits, who is burdened, and how fairer alternatives can be built.

THEME 6: DIGITAL INFRASTRUCTURES AND DESIGN

This theme brings **infrastructure** into view. It considers technical/infrastructural constraints, design principles and practices, and **localization**/internationalization, arguing for culturally and linguistically responsive design that aligns affordances with the needs and practices of diverse communities.

Technical and infrastructural challenges

Pre-2004 work on culture and digital technologies identified **recurring technical hurdles** around language, interfaces, and the limits of computer-mediated communication. Authors noted font/encoding and input requirements for non-Latin scripts, the **need for machine translation** to support cross-linguistic exchange, and debates over **culturally appropriate interfaces and localization** (with no consensus on approach). They also pointed to the loss of contextual cues in text-based interaction and uneven user proficiency with emerging tools.

In the current era, commentators show that **many challenges persist and are tightly interwoven with intercultural dynamics**. At the infrastructural level, **connectivity and bandwidth** remain major barriers, particularly in developing contexts (Abdelnour-Nocera & Densmore, 2017; Hauck, 2019; Sandel, 2014). As international collaboration has expanded, **time zones** now figure more prominently as a logistical constraint (Sandel, 2014). The sets of tools people must combine to communicate and collaborate (e.g., videoconferencing, shared documents, cloud storage, and translation utilities) change rapidly, and familiarity with specialised applications remains uneven (Hauck, 2019). Users therefore require ongoing **adaptive capacity–**including behavioural flexibility, interaction management, messaging strategies, and language competence–as digital environments change.

Abdelnour-Nocera and Densmore (2017) argue that developers and educators should **prioritize communication problems over purely technical fixes**. In their view, success depends first on building mutual understanding of needs, values, and perspectives, and only then selecting or configuring appropriate technologies.

Current work indicates that while infrastructure matters, **the deeper difficulties lie at the sociotechnical seam** where technology meets culture. In our current collection, this is exemplified by the fact that few of the studies in this collection focus on technical challenges directly; instead, they mention technical issues as side issues observed during broader investigations of culture online. Efforts to improve digital interaction–especially in diverse and developing contexts–should foreground cultural understanding and communication design, with technical solutions chosen to serve those aims (Abdelnour-Nocera & Densmore, 2017; Hauck, 2019; Sandel, 2014).

Design for cultural and linguistic diversity

Pre-2004 scholarship on culture and digital technologies focussed on **inclusive, culturally appropriate design** and on the communicative limits of digital media. Technology was framed not only as a product but as part of a **cultural process of encoding/decoding**. Debates centred on localization and the incorporation of cultural values in interfaces (the *adaptation* of designs as they travel is treated in part iii. below). Some prescient authors warned about "invisible" technologies: interfaces that minimize cognitive effort may also suppress the development of **adaptive skills** for evolving environments—concerns that resonate today in the era of generative AI (Yan et al., 2024). Our 2004 review mapped competing models and gaps, calling for stronger theories of culture to illuminate how culture and computer-mediated communication interact and to guide interface and system design. It also underscored the need to understand cultural differences in attitudes toward technology and use, to address linguistic diversity, and to mitigate the communicative constraints of digital media in intercultural exchange.

Current work continues to foreground the **interplay of design, culture, and communication across digital and educational technologies** (see for example Hoye & Kaiser, 2007; Srinivasan, 2013). Ethical and pluralist frameworks have gained prominence in design and diffusion–illustrated by the *Cultural Attitudes towards Technology and Communication* (CATaC) community and related initiatives (Ess, 2020). In internationalized digital learning, **culture is treated as a process model linking artefacts, behaviours, and values**, offering designers explicit points of intervention (Young & Asino, 2020). Community technology design is also shown to be shaped by dominant discourses in development, HCI, design, and cultural theory; **approaches to cultural engagement are deliberate choices, not incidental practices**, and they structure both collaboration and outcomes (Winschiers-Theophilus et al., 2019). Within educational technology, scholars argue for i**ntegrating cultural considerations within the design workflow**–clarifying how designers, educators, and innovators conceptualize culture; operationalizing that understanding in specifications; and **testing for cultural disconnects** that often arise because technologies are Western-based and English-reliant (Young & Asino, 2020).

Localization of digital technologies

While the preceding section addresses *how* we design (principles, processes, ethics), this section turns to **localization**–the negotiated ways designs are adapted, interpreted, and owned in specific contexts.

Much of the work on technology design, past and present, has focussed specifically on localization and the challenges of designing for diverse users. Our 2004 review argued that localization is shaped not only by technical affordances but by human choices, collaborations, and sociocultural contexts. Early "global electronic village" imaginaries (for example Rheingold, 1993) were shown to rest on culture-bound assumptions, reinforcing the need for more inclusive approaches. Case studies highlighted collaborative projects that expanded accessibility while pursuing standards that were "global without being imperialistic," and pointed to political-cultural factors–such as metaphor interpretation and interface acceptance–that condition design, adoption, and use. In education, scholars called for cultural localization of online learning environments designed for multiple cultures rather than privileging one.

In more recent literature, **localization is framed as an ongoing negotiation** between customization and adaptation, encompassing **vernacularization, creolization, and broader fit to local practices** (see for example Abdelnour-Nocera & Densmore, 2017; Jin, 2021; Park & Wen, 2016; Perumal et al., 2021; Sydorenko et al., 2021; Winschiers-Theophilus et al., 2021). These processes often yield hybrid forms that merge Western digital influences with local traditions (Barendregt, 2012). Some research continues to deploy some of the older and essentializing cultural frameworks that we critiqued earlier (Hall, 1976; Hofstede, 1991) to analyze how platforms and content are tuned to distinct cultural logics (Ess & Sudweeks, 2006). Yet **perceptions of localization remain ambivalent**: users interpret and negotiate media within their own frameworks, sometimes in tension with what counts as "typical" local media (Seto & Martin, 2019). Beneath these debates lies concern about global inequalities in the production and ownership of technologies and services, and how such asymmetries shape access and agency (Wagner, 2019).

A recurring argument–echoing other sections of this review–is the need to move beyond Western-centric design: new media technologies and projects should **attend to local ontologies and practices**, rather than relying on singular, Western representations of knowledge (Srinivasan, 2013). This stance emerges from earlier worries about the homogenizing effects of global ICTs on local cultural identities (e.g., via foreign audiovisual content), a legacy that continues to shape contemporary development research and practice (Wagner, 2019).

Selected examples illustrate the range of approaches. Ess and Sudweeks (2006) show how university and multinational advertising sites adapt graphic elements in line with established cultural analyses. Seto and Martin (2019) trace how Australian audiences negotiate meaning across digital and traditional media, using shared content to build common ground while expressing distinctive cultural traits.

Overall, the recent literature treats localization as an ambivalent, negotiated process that mediates between global and local influences, generates hybridities, and foregrounds cultural sensitivity in design. Future research and practice should move past homogenizing or Western-centric paradigms to integrate diverse cultural perspectives, prioritizing local knowledge systems, practices, and needs in the evolving ecology of digital technologies (Srinivasan, 2013; Barendregt, 2012; Ess & Sudweeks, 2006; Seto & Martin, 2019; Wagner, 2019).

Infrastructures and design decisions are never neutral: aligning affordances, accessibility, and localization with diverse communities is a prerequisite for durable, equitable cultural participation.

ANTICIPATING THE FOURTH AGE: GENERATIVE AI AND ALGORITHMIC CULTURES

> *How can we leverage the notion of culture to envision and collectively build approaches that are more sensitive to the global dimensions of generative AI?*
>
> (Natale et al., 2025)

Building on Wellman's (2011) *Third Age* of internet studies–when the internet became embedded, participatory, and plural–we propose that 2023 marked a watershed for digital culture and internet research, catalyzed by the release of ChatGPT in November 2022 (OpenAI, 2022, November 30; Stokel-Walker, 2022, December 9). In the *Fourth Age*, **model-mediated communication** is becoming routine, and AI and **algorithmic cultures** are emerging and shaping our digital worlds and encultured lives. Generative models (text, image, audio, video) are increasingly co-authors, translators, stylizers, curators, and interlocutors in everyday interaction, reshaping ideas of authorship, creativity, and identity. Content is now not only curated by algorithms but increasingly produced by them (see Box 2). Continuing the discussion of 'computer-mediated colonization' (Ess, 2002), we must now also ask: Who creates knowledge? Who is represented in training data? Whose values shape AI-generated communication? Language dominance, cultural references, and communicative norms are increasingly shaped by training corpora and tech platform values.

Box 2. What makes the *Fourth Age* different?

- **Model salience.** Communication is now shaped not only by platform norms but by model training data, alignment/reward regimes, and default prompts, which in turn shape phrasing, stance, and what counts as "appropriate."
- **Synthetic co-presence**. Generative systems act as co-authors, translators, stylizers, recommenders, and moderators, mediating interaction in real time rather than merely storing or routing messages.
- **Generative scale & speed**. Near-zero-cost creation across text, image, audio, and video accelerates diffusion and remix, producing content saturation and new attention dynamics.
- **Style normalization pressures**. Prompts, safety policies, and "good writing" suggestions tend to standardize output–often toward Western/educated registers–flattening local varieties and minority styles.
- **Data/compute asymmetries.** Control over training data, tuning, and deployment is concentrated in a few actors, whose choices set *de facto* cultural defaults and guardrails

Our own use of generative AI in this project made several of these dynamics tangible in practice. Working with ChatGPT to generate candidate codes, cluster topics, and refine prose repeatedly foregrounded model defaults shaped by opaque

training data and interface design. For example, the model's tendency to favour US-Anglophone generic academic phrasing and to smooth over tensions in the literature illustrated the normalizing and re-centring pressures we later describe in relation to model-mediated communication. The need to actively resist these tendencies by re-introducing ambiguity, reinstating local concepts, and cross-checking AI-suggested patterns against the source texts, reinforces our argument that generative AI systems do not simply "assist" scholarly work, but participate in shaping which cultural framings, styles, and voices appear most salient.

Familiar themes and trends in the Fourth Age

Data compiled using the *Dimensions* analytics platform reveals the explosive growth in number of publications located using the search terms 'generative artificial intelligence' AND 'cultural diversity' since 2020, in the extensive database of academic literature to which it has access (Figure 3). Meanwhile, a guided survey of recent literature relevant to AI or generative AI and cultural difference or cultural diversity using *SciSpace* shows jumps in related topic trends in academic work beginning in 2023 (Figure 4) (note that both data samples must be interpreted as indicative, and not exhaustive).

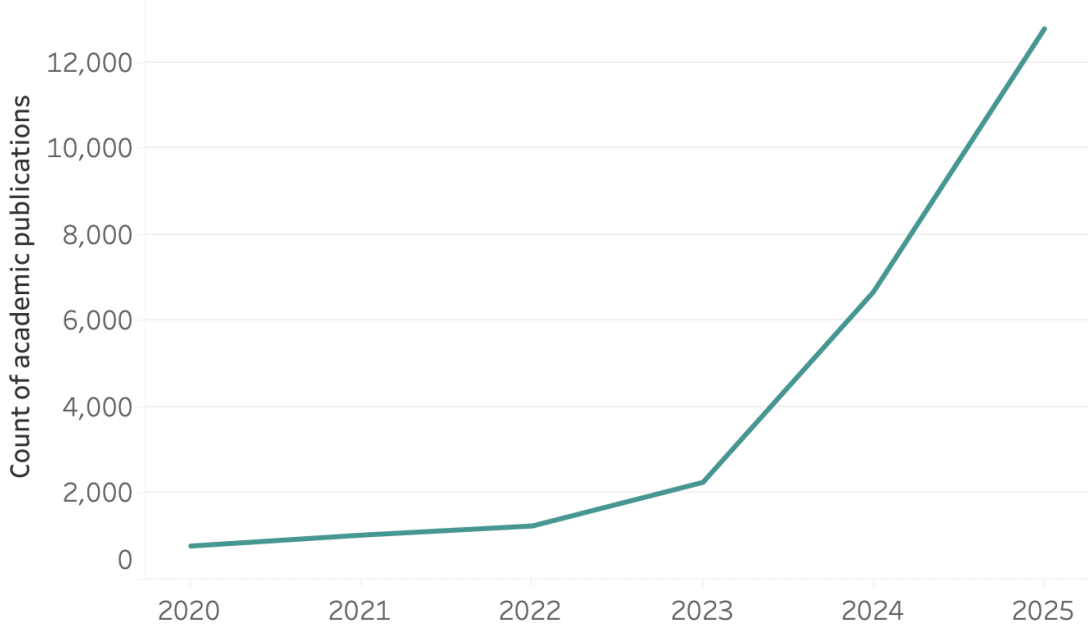

Figure 3. Count of academic publications referring to "'generative artificial intelligence' AND 'cultural diversity'" 2020–2025

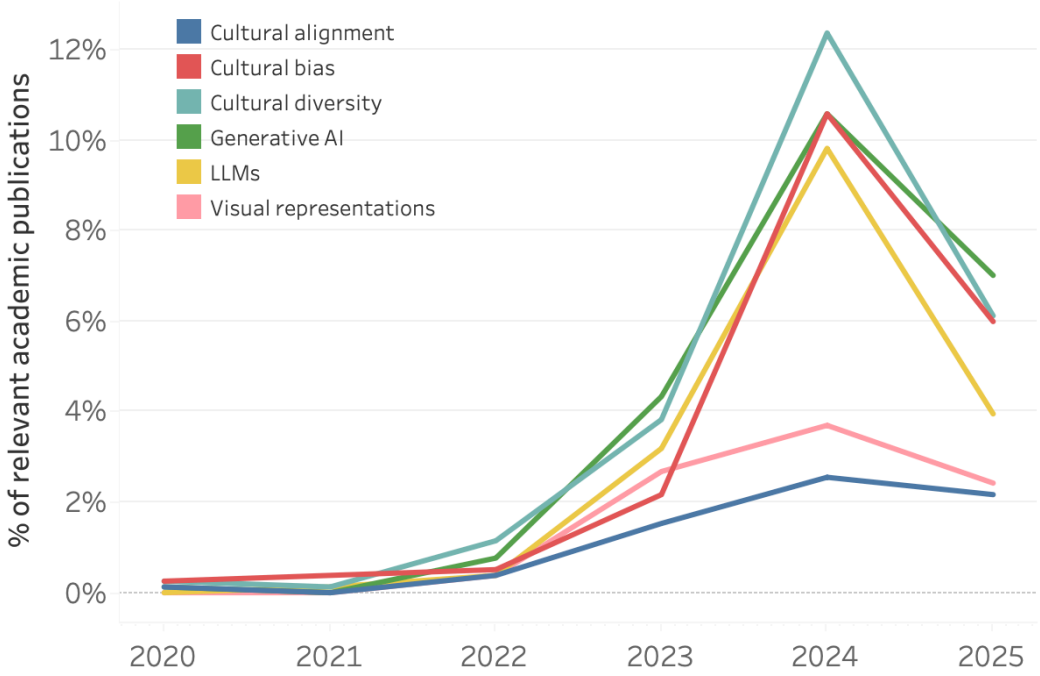

Figure 4. Topic trends in academic literature relevant to AI or generative AI AND cultural difference or cultural diversity

Perhaps unsurprisingly, a high-level overview of very recent publications (many still only available as preprints) reveals themes familiar to us from earlier decades of internet research when previous technological developments also brought about tumultuous change. Recent 'alignment studies', for example, have reported on **misalignment of generative AI with national or cultural values** (interestingly, Globig et al. (2024) report in their preprint that citizens in Western countries declare greater skepticism and perceive greater misalignment). **LLMs are reported to exhibit systematic value orientations** based on the dominant cultural signals used in their training (they are not 'neutral') (Agarwal et al., 2024; Fenech-Borg et al., 2025). Concern is expressed about the **moral and cultural homogenizing force** of generative AI tools, and their **failure to reflect culturally diverse values** (Kharchenko et al., 2024; Meijer et al., 2024). With relation to output, text-to-image and multimodal models are reported to **miss cultural expectations** frequently (Johnson et al., 2022; Nayak et al., 2025). Researchers observe **stereotyping, exoticism, and erasure of nuance in LLM output** (Nayak et al., 2025) and AI suggestions are found to steer writers toward Western styles (Liu, 2025). Recent work does also report **some success with early mitigation efforts**, for example, fine-tuning with culturally relevant corpora, language-specific tuning, iterative prompting, and culture-aware pipelines to improve cultural alignment in targetted settings. **Broad coverage remains challenging, however**. As the literature of the Fourth Age matures, it will be interesting to discover whether these patterns hold.

Large language models and intercultural communication

LLMs are language technologies. In practice they act as mediators (translation, repair, paraphrase), partners (drafting, turn-suggestions), and normalizers (stylistic smoothing). To support intercultural communication, we need to understand how these functions interact with the pragmatic work people do online (turn-taking, stance-marking, mitigation, repair) and with platform/model salience–the extent to which **platform norms** and **model defaults** shape what is said and how it is read (as discussed in *Theme* 3).

LLMs may offer new linguistic opportunities to intercultural communicators. For example, they can scaffold cross-lingual interaction (*ad hoc* translation/glossing), help soften or strengthen tone appropriately, and provide metapragmatic prompts ("offer a counter-argument politely," "avoid idioms"). Such uses may expand participation and lower linguistic barriers. On the other hand, various risks are apparent. Default prompts and safety policies often normalize toward dominant styles; "good writing" suggestions may erase local registers; false fluency can mask misunderstanding; and absence of non-verbal cues remains unresolved even with avatar-based systems. If principles of intercultural communication are weakly specified, uncritical reliance on LLMs may amplify misunderstanding or reproduce bias.

Good training data is necessary but insufficient. Expanding beyond English-dominant corpora will be essential (Choudhury, 2023; Natale et al., 2025), but cultural alignment requires more than adding texts: it involves representing genres, pragmatics, and norms, engaging communities in data governance, and evaluating interactional outcomes (not only intrinsic benchmarks).

Future researchers might profitably ask: How do LLM-mediated suggestions alter turn-length, uptake, and disagreement across languages/scripts? When and how do systems standardize toward Western academic or professional styles; what guardrails counter this? Can we develop culturally situated fine-tuning, pluralist reward models, and pragmatics-aware metrics?

Situating generative AI within diverse cultural contexts: Challenges and trajectories

Generative AI "is still most often discussed in the singular", even as it is acknowledged as a global phenomenon (Natale et al., 2025). We align with these authors' calls to **situate AI in diverse cultural geographies** and to **treat culture as central to knowledge-making and ways of life**.

Whether ongoing AI development will follow this path is uncertain. Reflecting on *Third Age* technologies, McKenzie (2025, July 23) argues that social media firms prioritized building platforms and audiences before investing in the "civil infrastructure" (norms, ethics, cultural practices) required for public benefit. The open question is whether current AI developers–companies, institutions, and coalitions–will repeat that sequence or embrace co-governance and localization from the outset.

If *Fourth Age* digital technologies are to serve diverse communities, developers will need to **recognize plural "AI cultures"** (Natale et al., 2025), not a single default; establish frameworks and processes for **participatory data/tuning governance**; and evaluate digital technologies by their interactional and cultural outcomes, not just against benchmark scores.

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE WORK

With this review, we set out to ask whether two decades of research have yielded definitions and theories of culture that offer better frameworks analyzing contemporary digital (intercultural) communication, whether digital technologies necessarily import particular cultural values, and how the language and disciplinary scope of the field have shifted. Across the corpus, **we do find some clearer, more usable accounts of culture**–moving from essentialist, nation-bound models to constructivist and practice-based views attentive to **superdiversity**, mediation, and power.

With respect to theory, there is **terminological progress but no final settlement**. Terminology has modernized (from *cyber* to *digital*, from *cyberspace* to *platformed worlds*), and **scholarly language now travels more fluently** across media studies, journalism studies, sociolinguistics, HCI, and design–broadening both analytic tools and sites of inquiry. **Increased attention has been given to multilingual and translingual practice, pragmatic work (stance-taking, mitigation, repair), and the role of platform norms** in shaping interaction.

At the same time, the field still works with multiple, sometimes incompatible, meanings of culture, and operationalization often lags behind theory. **Intercultural and transcultural frameworks co-exist**, with both still sometimes treated as static binaries. Modern process-oriented theories of cultures–such as the transdifference approach that is vibrant in cultural and literature studies–are completely absent from the literature we located. Future research on culture and communication in digital worlds **must continue to explore and embrace dynamic, processual approaches to the study of cultures and (trans-)culturalization.**

Methods remain predominantly qualitative; comparatively little cumulative, longitudinal, or mixed methods research ties theoretical claims to actual comparable measures across languages, genres, and settings. Strengthening the field will **require studies that make their cultural constructs explicit, align methods to those constructs, and report measures that permit cross-study synthesis.**

Do digital technologies necessarily import particular cultural values? The evidence suggests a more qualified claim: **technologies are not neutral, but importation is neither uniform nor unavoidable**. Platform affordances, governance arrangements, data availability, and gatekeeping practices often channel **participation toward dominant styles and centres of power; yet users also hybridize, localize, and resist**. Our *Fourth Age* coda underscores how generative models intensify both tendencies: **model defaults** can normalize toward Western/educated registers, while targetted fine-tuning, co-design, and locally governed data practices can open room for plural "AI cultures." The task ahead is to study–not assume–the conditions under which each trajectory prevails.

Accordingly, we recommend that future work proceed programmatically rather than piecemeal. Conceptually, researchers should state what they mean by culture (Inherited traits? Interactional practice? Media-shaped meaning-making?) and select designs that measure those commitments in use. Empirically, the field needs comparative, **longitudinal**, and mixed methods studies that connect interactional outcomes (e.g., participation patterns, disagreement management, register drift) with platform rules, model defaults, and local norms across languages and scripts. Infrastructurally, collaboration with communities–particularly beyond the Anglophone world–should extend from data governance to evaluation, so that claims about "effective" or "ethical" practice are tested against situated goals. Theoretically, we should continue to braid insights from sociolinguistics, media and journalism studies, STS, design justice, and education to explain how power and practice travel together. Taken together, these steps position the field to *describe* (and not just imagine) digital cultures in their plurality, and to shape technologies and learning environments that recognize, rather than overwrite, that plurality.

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Glossary

algorithmic cultures

Social and cultural practices that are shaped by algorithms, such as recommendation systems on platforms.

algorithmic logic

The rules and decision processes built into algorithms that shape what content is shown or prioritized.

applied cognitive linguistics

A branch of linguistics that uses ideas from cognitive science to understand and support language learning and use.

bi-directional citation tracing

Looking at both who a paper cites and who later cites that paper, to follow conversations through the literature.

civil society

Groups and organizations outside government and business, such as community groups and NGOs, that take part in public life.

cognitive language pedagogy

Teaching approaches that draw on cognitive science to explain how people learn and process language.

constructivist views of culture

The idea that culture is constantly created and negotiated through social interaction, rather than fixed or given.

corpus

A large, organized collection of texts or data that researchers analyze to find patterns.

cultural democracy

The idea that all groups should have equal opportunities to create, share, and access cultural expression.

cyberculture

Cultures, practices, and communities that develop in and around digital networks and online spaces.

cyberspace

The virtual environment created by interconnected computers, networks, and digital communication.

datafication

Turning aspects of everyday life into data that can be collected, analyzed, and used for decision-making.

deterritorialization

The weakening of ties between culture and a specific geographic place, often through migration and digital media.

diaspora

Groups of people who live outside their ancestral homeland but maintain connections to it.

digital age

The period in which digital technologies are central to communication, work, and everyday life.

digital culture

Shared meanings, practices, and values that arise around digital technologies and online life.

digital infrastructure

The underlying hardware, software, networks, and platforms that support digital communication and services.

digital media

Content that is created, stored, and shared in digital form, such as websites, videos, and social media posts.

digital platforms

Online services that host and organize user activity, such as social media sites, streaming services, or learning platforms.

digital revolution

The large-scale social and economic changes brought about by the spread of digital technologies.

disembodiment

In digital communication, disembodiment refers to the way online interaction can loosen the link between our physical bodies and how we present ourselves. Many cues tied to the body (such as appearance, accent, or physical location) may be hidden, altered, or re-imagined in online spaces, which can both open up new possibilities for identity and interaction and raise questions about power, visibility, and exclusion.

empirical study

A study that is based on collecting and analyzing data from observations, experiences, or experiments.

epistemic cultures

The different ways groups or disciplines create and justify knowledge.

epistemic stance

A speaker's or writer's position about knowledge, such as how certain, doubtful, or open they are about a claim.

experimental study

A study that tests the effect of one or more variables by deliberately changing something and comparing outcomes across groups.

Fourth Age

A proposed era in which everyday communication is strongly shaped by AI models that filter, generate, or transform messages.

generative AI

AI systems that can create new content such as text, images, or audio based on patterns learned from data.

hallucinations

Confident but incorrect or invented outputs produced by AI language models.

hidden cultures

Unspoken norms, expectations, and power relations that shape how people experience online courses or platforms.

horizontal and simultaneous form of transmission

Communication flows where many people can share and receive information at the same time, rather than information moving top-down in sequence.

hybrid cultural forms

Cultural practices or products that mix elements from different cultural traditions.

hybrid genres

Text or media types that combine features of several established genres, such as a vlog that is part diary, part tutorial.

hypermedia

Linked digital content that can include text, images, audio, and video.

hypertext

Non-linear digital text that is connected by hyperlinks, allowing readers to jump between sections or documents.

Information and Communication Technologies (ICT)

Digital tools and systems used to handle information and support communication, such as computers, networks, and mobile devices.

intercultural communication

Communication between people from different cultural backgrounds, where cultural differences may affect meaning.

intercultural or cross-cultural learning

Learning that involves comparing or engaging with different cultural perspectives, practices, or experiences.

Journalism Studies

The academic study of journalism, news production, and their role in society.

knowledge society

A society in which knowledge creation, access, and use are central to economic and social life.

large language models (LLMs)

A type of AI system trained on large amounts of text to generate and interpret human-like language.

localization

Adapting technologies, interfaces, or content to fit the language and cultural norms of a specific place or group.

localization work

The practical activities of adapting content or tools for local languages, cultures, and conditions.

longitudinal studies

A study that collects data from the same participants or settings over an extended period of time.

media culture

The shared practices, values, and meanings that arise around media industries and media use.

media studies

An academic field that examines media technologies, industries, texts, and audiences.

mediagraphy

A method that traces people's media use over time to understand their media habits and meanings.

mediascapes

The global flows of media images and narratives that people draw on to make sense of the world.

mediatized cultural landscape

A social environment in which media are deeply woven into how culture is produced and experienced.

model defaults

The built-in settings and behaviors of an AI model that shape what it tends to produce unless users adjust it.

model-mediated communication

Communication in which AI models help filter, translate, summarize, or generate messages between people.

multimodal communication

Communication that uses several modes at once, such as language, images, sound, and layout.

multimodal resources

The different types of meaning-making tools, such as images, gestures, or sound, used together in communication.

normative

Value-based; concerned with what should happen or what is judged right or wrong, rather than simply describing what exists.

participatory culture

A culture in which people not only consume media but also actively create, share, and remix it.

participatory platforms

Platforms that invite users to actively contribute content, comments, or creative work.

platform affordances

What a platform makes easy or hard to do, based on its design and features.

platform norms

The explicit and implicit rules, expectations, and conventions that govern acceptable behaviour, interactions, and content sharing within a specific digital platform.

platform vernaculars

Distinctive styles, norms, and ways of speaking or posting that develop on particular platforms.

political economy (of media/tech/AI)

The study of how economic interests and power relations shape media, technologies, networks and AI systems.

popular nationalism

National pride and identity expressed through everyday culture and media, not just official politics.

post-industrial digital age

A phase in which economies rely heavily on information, services, and digital technologies rather than manufacturing.

public cultural sector

State-supported institutions and programs that fund or provide cultural activities, such as museums and arts councils.

Second Age

A way of describing the era when the web and early online communities became widespread, after initial experiments with networking.

semiotic resources

The different sign systems (such as language, images, sound, or layout) people use to make meaning.

Sociolinguistics

The study of how language use varies across social groups and situations.

sociotechnical reality

A view of the world that recognizes social and technical elements as deeply intertwined.

superdiversity

A high level of diversity where many different variables (such as language, migration history, and legal status) intersect.

surveillance (data/tech governance sense)

Monitoring people's activities and data, often by states or companies, to track behaviour or manage risks.

symbolic goods

Cultural products, such as books or films, whose value lies largely in their meanings rather than physical properties.

technology-assisted language learning

Language learning supported by digital tools such as apps, platforms, or online resources.

Third Age

A suggested era marked by social media platforms, smartphones, and highly commercialized online spaces.

third space

A conceptual space where cultures meet and new, hybrid identities and meanings can emerge.

transcultural communication

Communication that moves across and mixes cultural boundaries, not just between two fixed cultures.

transcultural competence

The ability to navigate, understand, and act effectively across multiple cultural contexts.

transculturalization

Processes through which cultural practices and ideas circulate, mix, and change across contexts.

translanguaging practices

Flexible language use in which speakers draw on all their linguistic resources rather than keeping languages separate.

virtual intercultural interface

Points of contact in digital spaces where people from different cultures interact.

virtual learning environments

Online platforms designed to support teaching and learning, often with tools for content, communication, and assessment.

Acknowledgements

Compilation and coding of this collection of work was supported by a grant from Ludwig Maximilan University, Germany. Development of this review and database as an open resource was supported by a OER Rapid Innovation Grant from the University of British Columbia's Open Educational Resource (OER) project.

We thank the Open UBC team for their support and assistance. Erin Fields, UBC Vancouver's Open Education & Scholarly Communications Librarian offered critical support in finalizing our Pressbook publication. Rie Namba, Educational Resources Developer in UBC Vancouver's Centre for Teaching, Learning & Technology was endlessly patient in supporting our use of FacetWP. Kelvin Xu and the UBC CMS team also offered important technical support with our website.

We also thank student research assistant Parsa Hashemi for his detailed and patient work constructing this open online database of work.

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How to cite this review

APA 7th edition

Macfadyen, L. P., Morales, E., & Roche, J. (2025). *Culture and communication in digital worlds. A scoping review of literature from the Third Age of internet studies*. The University of British Columbia. https://doi.org/10.14288/r5xm-qn87

MLA 8th edition

Macfadyen, L. P. et al. *Culture and Communication in Digital Worlds. A Scoping Review of Literature from the Third Age of Internet Studies*. The University of British Columbia, 2025. https://doi.org/10.14288/r5xm-qn87.

Chicago 17th edition

Macfadyen, L. P., E. Morales, and J. Roche. 2025. *Culture and communication in digital worlds. A scoping review of literature from the Third Age of internet studies*. Vancouver, BC: The University of British Columbia. https://doi.org/10.14288/r5xm-qn87