

SComS

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SComS aims to build bridges between different research cultures, and publishes high-quality original articles in English, German, French, and Italian. As a general forum for communication scholarship, the journal is especially interested in research that crosses disciplinary boundaries.

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Editorial

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Dear SComS readers,

We are pleased to introduce the third issue of 2025, featuring two research articles in our *General Section* and two contributions in our *Community Section*.

In the *General Section*, we are particularly pleased to feature two contributions originating from the French-speaking part of our scholarly community—France and Quebec. This focus also reflects the journal’s mission: situated at the crossroads of the German-, French-, and Italian-speaking worlds, SComS is committed to representing and connecting communication research across linguistic regions. We believe that such exchange across language areas greatly enriches communication studies.

The *Community Section* also demonstrates the vitality of our scholarly community. It features the dissertation summary by Kiran Kappeler, who received the 2025 *Dissertation Award* from the *Swiss Association of Communication and Media Research* (SACM). In addition, Sabrina Kessler provides nuanced insights into the role of generative artificial intelligence in students’ everyday academic work at the University of Zurich.

Moreover, this issue marks the launch of the redesigned SComS website. The new design brings the online presence and the layout of the print edition into closer alignment, creating a more coherent and elegant overall appearance. We invite you to explore the four contributions in detail and to discover the journal’s renewed digital identity.

General section

The *General Section* opens with “Who produces scientific information in Quebec? Anal-

ysis of the profiles of science journalists in 2023” by Fábio Henrique Pereira and Maxime Bilodeau (Université Laval, Canada). Drawing on a survey of thirty-nine science journalists, the authors offer an updated portrait of this specialized segment positioned between scientific expertise and public communication. Their findings reveal a highly educated and predominantly female group marked by precarious employment conditions and diverse role orientations. Most respondents view themselves primarily as conduits translating scientific knowledge for non-specialist audiences, while also embracing secondary functions such as agenda-setters, watchdogs, connectors, and entertainers. The study advances ongoing debates on the mediatization of science and the evolving professional boundaries between journalism and research communication.

The second article, “*Beyond the discipline, beyond the institution: The outward reach of French Information and Communication Sciences (SIC)*” by Angeliki Monnier (Université de Lorraine, France), quantifies and analyzes how editorial collaborations contribute to defining the disciplinary and international identity of French SIC. Drawing on data from collective publications coordinated by the *Conférence Permanente des Directeurs d’Unités de Recherche en Sciences de l’Information et de la Communication* (CPDirSIC) between 2012 and 2018, the study explores the field’s external interdisciplinarity and its international connections. Monnier finds that collaborations predominantly occur within French-speaking contexts, indicating that linguistic proximity continues to shape and constrain the global circulation of communication research. The article contributes to broader reflections on the geography of



knowledge and the linguistic infrastructures that underpin interdisciplinarity—revealing how language can function simultaneously as a bridge and a boundary in academic exchange.

Community section

The Community Section turns from institutions to individuals and their everyday negotiations with technology and learning. In her dissertation summary, “*How individuals in Switzerland negotiate their everyday digital technology use*,” Kiran Kappeler (University of Copenhagen, Denmark) examines how internet users manage digital risks such as dataveillance, algorithmic bias, and the pressures of constant connectivity. Using a mixed-methods approach that combines representative surveys and qualitative interviews, she demonstrates that individuals actively develop self-help strategies, privacy practices, and even forms of digital resistance to cope with these challenges. The study deepens our understanding of digital inequalities and in-

dividual agency in a highly datafied society, offering empirical evidence that can inform policies aimed at promoting digital inclusion.

In her research note “*Students and ChatGPT: Insights from the University of Zurich*,” Sabrina H. Kessler (University of Zurich, Switzerland) explores how generative artificial intelligence has become embedded in students’ academic routines. Drawing on survey data from 446 students, she finds that ChatGPT is widely used for summarizing, proofreading, and brainstorming, while perceptions of its educational value remain ambivalent. Frequent users tend to view the tool more positively, whereas others voice concerns about reliability, privacy, and excessive dependence. Kessler’s findings portray a student body negotiating a delicate balance between cognitive assistance and intellectual autonomy—an evolution emblematic of broader transformations in academic communication and authorship.

We hope that you will enjoy reading this issue.

Philipp Bachmann and Thilo von Pape

SComS

General Section

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Beyond the discipline, beyond the institution: The outward reach of French Information and Communication Sciences (SIC) through the prism of editorial collaborations (2012–2018)

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Abstract

The internal interdisciplinarity of Information and Communication Sciences (*Sciences de l'information et de la communication*, SIC) in France has often been discussed in an effort to apprehend how various academic inputs and scholarly traditions have integrated to form SIC. However, the external interdisciplinarity of SIC, or cross-disciplinarity, i.e., its connections and collaborations with other disciplines, has received comparatively less attention. The present contribution seeks to address this gap through the prism of editorial collaborations. Our dataset consists of a list of collective publications covering the period 2012–2018, published in 2019 (*Dynamiques des recherches en sciences de l'information et de la communication*) under the coordination of the Permanent Conference of Directors of Research Units in Information and Communication Sciences (CPDirSIC). In this dataset, narrow interdisciplinarity is observed within France. Outside France, joint editorial endeavors mostly bring together researchers who are already located in the field of information-communication. The study also suggests the significance of linguistic proximity, with the majority of international collaborations concerning countries with French-speaking areas. Finally, the thematic area within SIC also plays a role in the way interdisciplinarity materializes. Given the limitations of the dataset, however, these findings should be interpreted with caution and must not be generalized or extrapolated beyond the specific scope of this study.

Keywords

SIC, Information and Communication Sciences, interdisciplinarity, discipline, linguistic proximity, France

1 Introduction

Information and Communication Sciences in France (*Sciences de l'information et de la communication*, alias SIC) is a well-established scholarly discipline that has developed a distinct academic identity over the past decades. Emerged in the 1960s and 1970s, it is characterized by its strong internal interdisciplinarity, its foundations being deeply rooted in a combination of social sciences, humanities, and information technologies. It draws from various disciplines and areas of study such as sociology, psychology, linguistics, semiotics, philosophy, political economy, library science and documentation, cybernetics, film studies, etc. This interdisciplinary nature is reflected in the diverse research topics covered by French SIC scholars, including media studies, digital communication, public com-

munication, organizational communication, and knowledge management.

The *internal* interdisciplinarity of SIC, especially during the first years of its institutionalization in France, has attracted a lot of attention and discussions among its members, who have tried to apprehend how various academic inputs and scholarly traditions have integrated to form SIC (e.g., Boure, 2006, 2007; Carbou, Christophe, & Negrel, 2016; Dacheux, 2009; Durampart, 2015; Fleury & Walter, 2007, 2011; Gallot, 2014; Miège, 2012 – this list is not exhaustive). However, the *external* interdisciplinarity of SIC, or cross-disciplinarity, i.e., its connections and collaborations with other disciplines, has received comparatively less attention, despite the significant insights such links could offer. As Robert T. Craig has highlighted (2008), disciplines derive their identity and coherence from their participation in



the conversation of disciplines. Investigating the outward reach of SIC, within or across the French institutional framework, could contribute to a better understanding of SIC and its challenges.

Following Jean-Louis Fabiani (2006, p. 15) and along with Sarah Cordonnier (2017b), we use the term “discipline” in its institutional dimension to refer to “both a pedagogical framework (stable and stabilizing) and a place for the production of new knowledge. The discipline is an inseparably organizational and discursive, cognitive and cultural device” (Cordonnier, 2017b, p. 89)¹. In what follows, we also use the term “field”² to designate a broader, often more flexible and less institutionalized area of inquiry (Casadevall & Fang, 2015; Nordenstreng, 2007); in order to more clearly delineate this distinction, we capitalize the initial letter when we refer to a discipline in its institutional sense (e.g., Communication), while using lowercase letters for fields (e.g., communication).

Against this backdrop, our research focuses on the external, i.e., cross-disciplinary, collaborations of SIC. Our dataset consists of a list of collective publications covering the period 2012–2018, published in 2019 under the coordination of the Permanent Conference of Directors of Research Units in Information and Communication Sciences (CPDir-SIC): *Research Dynamics in Information and Communication Sciences*, which we will refer to in this paper as ReDynSIC (in French *Dynamiques des recherches en sciences de l’information et de la communication*, 190 p., edited by Walter, Douyère, Bouillon, & Ollivier-Yaniv, 2019, 3rd edition). This initiative aimed to “highlight the richness of the domains they [SIC] encompass and the potential for scientific innovation they carry” (ibid., p. 11). It sought to promote research in SIC focusing on recent collective volumes illustrating its current dynamics (as we write these lines, an updated edition is in preparation, and its study could certainly serve as a means to put in perspective the observations of the present study). Joint book editing and thematic re-

view issues thus constitute the data analyzed in the present paper.

Obviously, the findings of this analysis primarily reflect the choices made in the ReDynSIC collection to foreground the discipline itself, its members, and its (potential) audience within the constrained format of the book – choices certainly shaped by compromises, strategic considerations, and other contextual factors; and clearly, the ReDynSIC corpus of bibliographical references cannot be regarded as a comprehensive representation of the entire discipline in recent years. Firstly, joint editorial contributions measure only the collaborative output of research, but they do not capture the full range of interdisciplinary activities. Coediting does not reflect how deeply integrated the disciplines are, and many interdisciplinary collaborations or informal exchanges of ideas do not always result in published works. The ReDynSIC bibliographic references do not provide information on the contents of the publications or the authors who contributed to them (i.e., besides coeditors). Secondly, the selection of works, as operated by ReDynSIC editors and/or co-authors (directors of research units), inevitably restrains the exhaustivity, representativity, and scope of the dataset. For example, interdisciplinary approaches can be present in single-authored works; interdisciplinarity can also be measured through the number of publications in journals external to SIC, etc. Finally, research programs would most certainly show significant interdisciplinary and international collaboration, the latter often being a requirement for obtaining funding. However, the ReDynSIC presentation did not include details allowing for the assessment of these aspects (although some coediting works cited in the book might also constitute the outcome of these programs).

In any case, even in its current form, ReDynSIC provides the only official list in SIC and could serve as a tangible outcome of collaborative efforts (Wuchty, Jones, & Uzzi, 2007), also reflecting the image of the discipline sought *at a given time*. Nevertheless, due to the inherent limitations of the dataset, the findings presented here should be approached and interpreted with caution and should not be generalized or misrepresented beyond the contextual and time boundaries of this study.

1 The term will be further discussed in the following sections.

2 “Field” is not employed here as in Bourdieu’s (1992) theoretical framework (“le champ”, in French), although power relations do structure the realm of epistemic production.

We thus observe in our dataset that interdisciplinary openness seems to be more pronounced within the country's geographic perimeter. Narrow interdisciplinarity is, in this case, mostly observed. Outside France, joint editorial endeavors mainly bring together researchers who are already located in the field of information-communication. These observations form the first result of our research.

The second result extends the aforementioned findings. Our study suggests the significance of linguistic proximity, the majority of international collaborations concerning countries with French-speaking areas (Canada, Belgium, etc.) or with traditional connections with SIC (e.g., French-speaking scholars in Germany or Romania). Unlike other forms of proximity that have been identified and studied to understand the underlying mechanisms and logics of interdisciplinarity, linguistic proximity has attracted less attention, which makes these findings even more relevant.

Finally, the third result of our study highlights that although the trends identified above globally apply to the entire dataset, differences are detected across SIC internal thematic areas (i.e., journalism, organizational communication, etc.). In other words, the object of study also plays a role in the way external interdisciplinarity materializes.

All these elements translate the latent dynamics and limitations that forge a discipline within a specific geographic and institutional frame; they also relate to its internal epistemic configuration. These are the starting points of our research.

2 Theoretical framework: Discussing the discipline

2.1 Discipline as a national and institutional realm

Scientific disciplines – the “prerequisite” of interdisciplinarity (Carbou, Christophe, & Negrel, 2016, p.8) – are not purely intellectual constructs but are profoundly influenced by the national³ and institutional contexts in

which they operate (Crow & Dabars, 2017; Fabiani, 2006; Heinze, Von Der Heyden, & Pithan, 2020). At the national level, governmental policies, cultural values, and economic priorities shape the evolution of disciplines. Educational systems embedded in national frameworks define the structure of disciplines through curricula, degree programs, and research priorities, reinforcing or challenging established disciplinary boundaries. At the institutional level, universities and research organizations play a pivotal role in organizing and sustaining disciplines. They do so by creating departments, faculties, and research centers, which serve as both intellectual and administrative units. Academic journals and professional societies – often tied to specific institutions – serve as gatekeepers of disciplinary knowledge, influencing the trajectory of research and the emergence of new fields. Paraphrasing Martin Guntau and Hubert Laitko (1991, p. 17), one could reasonably argue that disciplines, even though challenged, have “institutional conditions and consequences”. According to Björn Hammarfelt (2020, p.244), disciplines are characterized by their institutional and organizational features. In this sense, even though cognitive proximity is often associated with the notion of discipline, the terms are not synonyms: cognitive proximity can also be interdisciplinary, especially in social sciences, which, as demonstrated by Andrew Abbott (2001), tend to circle around an inevitable pattern of core principles.

In France, the development and organization of scientific disciplines are deeply embedded in national and institutional frameworks, combining State oversight and academic autonomy. The National Council of Universities (*Conseil national des Universités*, CNU) plays a crucial role in this system. Its structure, organized into disciplinary sections, emphasizes clear delineation of knowledge domains, trying to foster coherence in research and teaching practices.

As Kaarle Nordenstreng has highlighted (2007), Communication is widely referred to as being an academic discipline, in its own right alongside traditional disciplines such as History, Literature, Sociology, or Political Science. However, the author also uses the term “field” as a means to compensate for a certain lack of a more robust definition of disci-

3 The term “national” is used here to refer to a specific geographic scale (the country), in its political and administrative dimensions, and not as a means to necessarily indicate a form of cultural coherence.

pline, the nature of the latter often remaining unclear, and its identity being determined by administrative convenience and market demand. Indeed, the emergence of French Information and Communication Sciences in the 1970s was shaped by the country's intellectual traditions on critical theory and structuralism, but also by institutional efforts to address the growing significance of media and communication in a modernizing society (Boure, 2006; 2007). Ever since, the national and institutional context has played a pivotal role in defining the scope and priorities of SIC research. SIC occupies the 71st CNU section within the national and institutional landscape. SIC programs are housed within universities, specialized schools, and technical institutions offering professional training. State-driven initiatives, such as the Research Programming Law and the Second French Plan for Open Science, have encouraged the adoption of open-access practices and interdisciplinary collaborations. The professional association SFSIC (*Société française des Sciences de l'information & de la communication*) serves as a platform for disciplinary cohesion, advocating for the discipline's growth and international visibility.

According to Paul Trowler (2014), the emblematic metaphor stipulating the existence of “academic tribes and territories” (Becher, 1989) has evolved over time, moving from epistemological essentialism towards a more nuanced understanding influenced by social practice theory. This perspective recognizes disciplines as both constructed and enacted, with their development shaped by contextual factors in academic departments, universities, and broader societal influences.

2.2 Discipline as an epistemic and geographic territory

Because of its institutional dimension, a scientific discipline can generally be conceptualized as both an epistemic and a geographic territory. As an epistemic territory, it allegedly encompasses a specific body of approaches, terminologies, methodologies, and frameworks that define how research is conducted, evaluated, and interpreted. Research usually refers to this feature as cognitive proximity (Boschma, 2005).

A certain degree of cognitive proximity assures a common language that can facili-

tate communication and collaboration. It thus influences the formation and dynamics of collaborative research relationships. According to Mattes (2012, p. 1086), “the transfer of knowledge deeply relies upon proximity, as the assimilation of the exchanged knowledge is not possible at all without it”. In an often-cited paper, geographer Ron A. Boschma (2005) retraces the history of academic research on proximity, and studies the concept in its different – evolving and sometimes overlapping – dimensions. Proximity can indeed take several forms (cognitive, organizational, social, geographic, technological, temporal, etc.), each of which plays a crucial role in shaping who collaborates with whom and how these collaborations unfold (Bozeman & Corley, 2004; Cummings & Kiesler, 2005; Gilly & Torre, 2000; Torre & Rallet, 2005).

However, as explained by Fabiani (2006) or Abbott (2008), disciplines, due to their various dimensions (institutional, pedagogical, cognitive, etc.), are not coherent gatherings of knowledge. Sarah Cordonnier (2021, p. 8) argues that the works on discipline often start from a *normative* ideal of scientific knowledge rather than from the reality of practices, or, on the contrary, remain too close to those practices without putting them into a broader historical context. In the field of communication, epistemic proximity has also been debated and contested. According to Robert T. Craig (1999), communication theory as an identifiable field of study does not really exist, and this is the reason why the author strives to provide a comprehensive framework unifying this rather disparate field. Silvio Waisbord (2019) considers communication studies to be a post-discipline and argues that it is impossible to transcend fragmentation through a single project of intellectual unity. Without fully embracing this thesis, we do agree that specialization is also an intrinsic part of SIC, as is the case with other disciplines, though. In this sense, we rather align with his argument on the importance of the institutional architecture of academic disciplines, hence the role of geography.

Indeed, a scientific discipline can also be viewed as a geographic territory, defined by the institutions, networks, and physical spaces that enable and constrain scientific activity. Geographically, this territory includes universities, research institutes, and professional

organizations that serve as the institutional frameworks for the discipline. These spaces are crucial for the dissemination and institutionalization of knowledge, where scholars collaborate, publish, and debate. As indicated above, traditionally, the geographic spread of a discipline is often influenced by national or regional policies, funding structures, and educational systems, which direct where research is conducted and which topics receive attention (Gibbons, Limoges, Nowotny, Schwartzman, Scott, & Trow, 1994). Doctoral students engaged in international joint thesis supervision encounter first-hand the significance of national – geographic and institutional – contexts in shaping research (Friche & Kanaani, 2024).

Surely, a certain “globalization” of science (Caillé & Dufoix, 2013; Keim, 2014), facilitated by conferences, journals, and digital networks, has led to a more transnational expansion of knowledge. Furthermore, the expansion of “studies” (gender studies, war studies, etc.) crystallizes a noticeable tendency to practically engage with research through themes or objects, rather than from a strictly disciplinary anchoring (Darbellay, 2014). Against this landscape, Claudia Derichs (2015) argues that disciplines are not bound to geographical settings but are politically constructed, deriving from a process of politically-informed defining and “scaling” of localities, ethnicities, languages, religions, and cultures.

In the wake of these theses, our argument in what follows is that disciplinary boundaries are still marked by their institutional, geographic, but also linguistic perimeters. It is actually because of the latter that they become political.

3 Dataset and methodology

3.1 The dataset: Coedited volumes as a platform for dialogue

As mentioned above, the institutionalization of SIC in France began in the 1970s. The discipline was officially recognized in 1975 when it was granted its own section (71st), the CNU section, which formalized SIC as an academic discipline. This institutionalization allowed for the expansion of specialized journals, research groups, and professional associations

(some of which pre-existed the institutional recognition). In 2017, 830 tenured researchers were identified in SIC, including 108 male professors and 79 female professors, 281 male associate professors [*maitres de conférences*], and 362 female associate professors [*maitresses de conférences*] (Walter, Douyère, Bouillon, & Ollivier-Yaniv, 2019, p. 11). Since the 1970s, SIC has emerged as an “interdiscipline” (Olivesi, 2006; 2007; Ollivier, 2000; 2001), integrating, among others, methodologies and approaches from semiotics, sociology, linguistics, film studies, etc. Initially seen as a risk of dilution, this interdisciplinary positioning has become a “hallmark” (Walter, Douyère, Bouillon, & Ollivier-Yaniv, 2019, p. 12).

Against this backdrop, *Research dynamics in information and communication sciences* was edited by CPDirSIC and released in 2019 under the direction of professors Jacques Walter, David Douyère, Jean-Luc Bouillon, and Caroline Ollivier-Yaniv (Eds) – professor Jacques Walter, who served as President of CPDirSIC from 2012 to 2021, having initiated the project and overseen its implementation⁴. Co-authored by a panel of 32 directors or deputy-directors of 38 research units involved in SIC⁵ (Walter, Douyère, Bouillon, & Ollivier-Yaniv, 2019, p. 12), it aspired to provide an overview of the discipline in France, analyzing its practices, theories, and foundational research topics. Obviously, the volume should be apprehended at the crossroads of multiple aims: scientific, institutional, and political. It sought to map research areas and trends, forge a coherent and attractive disciplinary image, as well as promote SIC within the larger scientific community and civil society: indeed, it has to be noted that unlike other social sciences and humanities disciplines that have consolidated their positions within the French National Centre for Scientific Research (*Centre national de la recherche scientifique, CNRS*), SIC have not been granted a dedicated CNRS section.

4 The author of the present paper has also been representing her research unit at CPDirSIC since 2021 and has been following the discussions on the volume’s update, under preparation.

5 Not all of these units are monodisciplinary, and the place occupied by SIC scholars can considerably vary from one case to another.

ReDynSIC identified ten primary research “domains” within SIC – to avoid confusions, we will call the latter “areas”, “topics” or “subfields”, following the OpenAlex naming system:⁶ (1) “Media and journalism”; (2) “Images, cinema, audiovisual media, and cultural industries”; (3) “Public and political communication”; (4) “Communication and organizations”; (5) “Memory, cultural and heritage mediations”; (6) “Digital strategies, devices, and uses”; (7) “Information, documents, and writing”; (8) “Design”; (9) “Knowledge organization”; (10) “Knowledge mediation, education, and training”. This classification was based:

On the results of an internal questionnaire at CPDirSIC, on reports submitted by its members to the Agency for the Evaluation of Research and Higher Education (AERES) or to the more recent High Council for the Evaluation of Research and Higher Education (HCERES), as well as on online information available on the concerned laboratories’ websites. (Walter, Douyère, Bouillon, & Ollivier-Yaniv, 2019, p. 12)

Each of the thematic areas was supported by examples of research programs, professional associations, as well as joint editorial works offering a panorama of SIC’s diversity. The focus on collaborative editing – books or scientific journals having at least one SIC coeditor – sought to highlight collective dynamics: “it is the collective dimension which is privileged” (Walter, Douyère, Bouillon, & Ollivier-Yaniv, 2019, p. 13), also illustrated by the fact that chapters are not signed, deliberately aiming to avoid putting forward specific scholars or individual initiatives. The included bibliographic references were mainly selected by research directors. Several versions of the chapters circulated among CPDirSIC members. They were intended to be passed on to all

adherents of the research units involved, though it is true that the degree to which large consultations were conducted within units remained at the discretion of directors. It was also possible to directly address the editors with eventual individual claims and demands, after the preliminary release of the list, which were, when necessary, taken into consideration.

3.2 The methodology: Epistemic and geographic proximity

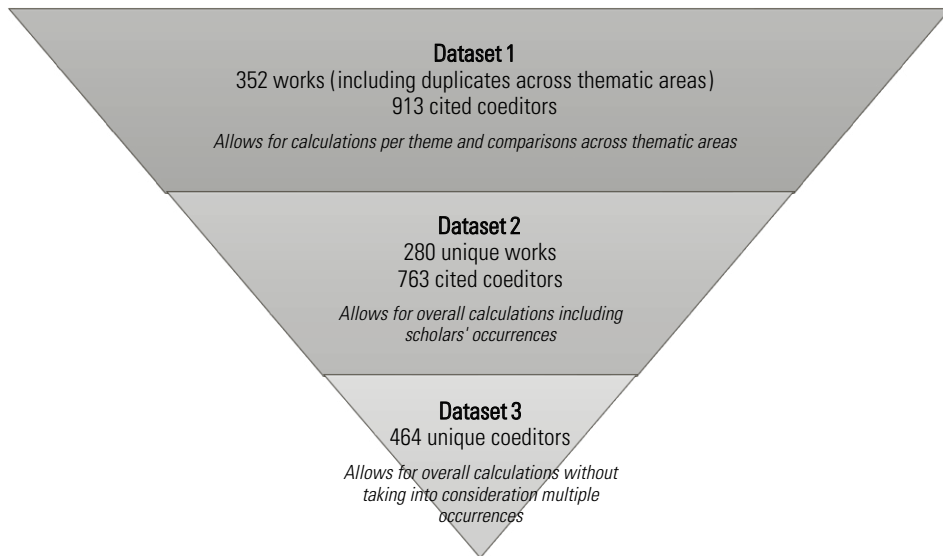
It has, of course, to be remembered that despite the substantial literature on the topic (e.g., Charaudeau, 2007; Frodeman, Klein, & Mitcham, 2010; Huutoniemi, Klein, Bruun, & Hukkinen, 2010; Klein, 1990; Pohl & Hadorn, 2008; Repko, 2008; Resweber, 2011; Schmitt, Goldmann, Simon, & Bieber, 2023), interdisciplinarity still remains an epistemologically unclear construct. We therefore only use the term to refer to visible associations between disciplines as they appear through coediting. We resort to the hyphenated term “cross-disciplinarity” when we seek to further highlight these interconnections across different disciplines.

Our approach is dual, focusing on both the epistemic and geographic dimensions of SIC scholarly connections. The epistemic reach refers to SIC’s interaction with other academic disciplines through joint editorial works. The geographic reach pertains to SIC’s coediting endeavors across French borders. *Each of the ten SIC thematic areas* identified in ReDynSIC was analyzed by calculating: the proportion of monodisciplinary (SIC) vs multi-disciplinary works; the proportion of SIC vs non-SIC researchers (coeditors) involved; their disciplinary affiliations and geographic locations at the period of the publication – the latter being manually investigated and as much as possible verified through online queries. In total, the list consisted of 352 works corresponding to 913 coeditors, some of whom appeared several times in the dataset (dataset n° 1). The average number of occurrences of coeditors was 1.96 (suggesting a certain diversity in the dataset), whilst the highest number of coeditors in a single work was 9.

In a second phase, we have cross-examined the thematic areas and *removed duplicates*, i.e., works that were indexed in more

6 The OpenAlex database uses a hierarchical and granular structure starting from 4516 topics, and moving to 252 subfields, 26 fields, and finally 4 domains (broad disciplines). An example provided by the platform’s technical documentation is the following: The topic “Artificial Intelligence in Medicine” is part of the “Health informatics” subfield, which is part of the “Medicine” field, which belongs to the “Health Sciences” domain: <https://help.openalex.org/hc/en-us/articles/24736129405719-Topics>

Figure 1: Stages of dataset development



than one theme. We considered duplicates to be important and necessary to keep when analyzing production per thematic area, but they tainted global results. This new dataset allowed us to calculate the *overall* presence of monodisciplinary (SIC) vs multi-disciplinary works, and SIC-only vs non-SIC coeditors, as well as their disciplinary affiliations and geographic locations. It comprised 280 publications, including a total of 763 scholars (dataset n° 2). When even further refined, the corpus resulted in a list of 464 “unique” coeditors, i. e., listed at least once, no matter how many times (dataset n° 3). The arithmetic mean of coeditors per work was 2.5. Figure 1 illustrates the stages of the development of the dataset.

4 Research results and discussion

In order to facilitate the presentation of the results, we will first deal with the overall trends before delving into the findings from each thematic area.

4.1 Overall trends

4.1.1 Monodisciplinary Focus

As Tables 1 and 2 showcase, a high number of SIC-only coedited publications is recorded,

corresponding to more than half of the registered publications in all datasets (54.5% of all works, 51% of unique works). This comes as no surprise, as bibliographic references in the ReDynSIC volume have been mainly chosen for their belonging to the discipline; in this sense, it is expected that they occupy a dominant place. The same trend is observed in the contribution of SIC scholars, which remains paramount: the majority of the coeditors involved are institutionally situated within SIC.

However, the data also shows significant interdisciplinary collaborations in France and abroad, though the latter are less prominent. These figures suggest that SIC scholars are actively engaging with, or being solicited by, researchers from other disciplinary fields – likely in response to problems that require interdisciplinary approaches. Alternatively, from a more nuanced standpoint, such interactions may reflect a strategic effort to enhance the legitimacy of SIC within a complex and competitive landscape shaped by power dynamics between disciplines. We can assume that such collaborations have most probably some impact on the breadth and applicability of SIC research in terms of methodologies and insights. The international dimension is also crucial for the discipline's visibility and relevance, especially as the rec-

Table 1: SIC vs. non-SIC works

Works (coedited volumes)	Dataset 1	%	Datasets 2 & 3	%
SIC-only coedited works	195	54.50	145	51.00
Coedited works containing at least a non-SIC coeditor located in France	98	27.40	84	29.60
Coedited works containing at least a coeditor located outside France	65	18.10	55	19.40
Total number of works	354*	100.00	280*	100.00

* Four works include at least one non-SIC coeditor in France and one coeditor abroad.

Table 2: SIC vs. non-SIC scholars

Coeditors (scholars)	Dataset 1	%	Dataset 2	%	Dataset 3	%
SIC coeditors	698	76.50	580	76.00	299	64.44
Non-SIC coeditors located in France	130	14.20	114	15.00	104	22.41
Coeditors located outside France	85	9.30	69	9.00	61	13.15
Total number of coeditors	913	100.00	763	100.00	464	100.00

Table 3: Affiliations of non-SIC coeditors within the French perimeter (dataset 3), in descending order

Discipline/field (France)	Number of occurrences (coeditors)	%
Sociology	16	15.39
Political Science	15	14.42
Literature/Letters	13	12.50
Language Sciences	11	10.58
Anthropology	9	8.65
History	9	8.65
Other: professional sector	9	8.65
Educational Sciences	5	4.81
Arts (& Cinema)	4	3.85
Management	4	3.85
Economics	3	2.89
Computer Science	2	1.92
Law	1	0.96
Philosophy	1	0.96
Psychology	1	0.96
Urban planning*	1	0.96
Total	104	100.00

* Scholar's official affiliation, although anthropology is also displayed on the scholar's online page.

Table 4: Affiliations of coeditors institutionally located outside France (dataset 3), in descending order

Discipline/field (Outside France)	Occurrences	%
Communication-media-journalism-information	44	72.13
Sociology	6	9.83
Literature/Letters	3	4.92
Other: professional sector	2	3.28
Political Science	2	3.28
Economics	1	1.64
Geography	1	1.64
Language Sciences	1	1.64
Philosophy	1	1.64
Total	61	100.00

ognition of Communication as a contributor to the broader international research community constitutes a topic of debate (Cordonnier, 2017b; 2022)

4.1.2 *Narrow interdisciplinarity within the French perimeter*

As Table 3 indicates, Sociology and Political Science lead the collaborations (15.39% and 14.42%, respectively), reflecting the natural alignment of these disciplines with SIC, as they share an interest in analyzing societal structures, communication processes, and institutional interactions. Similarly, Literature/Letters (12.50%) and Language Sciences (10.58%) represent a significant portion of external collaborations mirroring their traditional ties to SIC in areas such as discourse analysis, semiotics, and media narratives. Anthropology and History show moderate levels of collaboration, suggesting a shared focus on cultural heritage, identity, and educational transformation. Arts & Cinema, and Management represent smaller but still relevant contributions. Collaborations with the professional sector (e.g., members of cultural institutions) are also observed, and we have included them in the results.

In our dataset – and keeping in mind that the study of funded programs may suggest otherwise – SIC shows minimal engagement with certain disciplines, such as Computer Science, Urban Planning, Law, and Philosophy. In this sense, SIC’s interdisciplinarity

has a narrow *scope* (Kelly, 1996; Klein, 2005; Huutoniemi et al., 2009) (or *range*, Porter & Rossini, 1984), bringing together closely related disciplines, mostly situated in the humanities and social sciences, with sometimes overlapping concepts and terminologies. As it appears, this trend is even more pronounced when it comes to interdisciplinarity outside France.

4.1.3 *Outside the French perimeter: The importance of the field*

The pursuit of international collaborations as part of academia’s performance indicators is a long-standing directive within SIC (Cordonnier, 2017a; 2017b; Cordonnier & Wagner, 2018). As Table 4 shows, in our dataset, the overwhelming majority of coeditors institutionally located outside France fall into the field of information-communication (72.13%). This dominance suggests that SIC research resonates with scholars abroad who work on similar objects. Of course, the latter do not necessarily apply the same theories and methodologies as French SIC, and, because of their institutional dimension, these collaborations should still be regarded as interdisciplinary. These findings also need to be apprehended in the frame of back-and-forth movements (post-doctoral fellowships, expatriation, etc.) of French researchers towards French-speaking regions abroad.

With a moderate but notable percentage, Sociology is well represented in the corpus

Table 5: Country affiliations of scholars institutionally located outside France, in descending order (dataset 3)

Country	Occurrences	%
Canada	22	36.07
Belgium	7	11.47
Germany	6	9.83
Romania	6	9.83
Brazil	4	6.56
Switzerland	4	6.56
United Kingdom	3	4.92
Spain	2	3.28
Australia	1	1.64
Cyprus	1	1.64
Italy	1	1.64
Japan	1	1.64
Luxembourg	1	1.64
The Netherlands	1	1.64
Tunisia	1	1.64
Total	61	100.00

(9.83%). The presence of Literature/Letters (4.92%) also aligns with SIC's traditional connections to textual and discourse studies, semiotics, and narrative analysis. Other disciplines, including Political Science, Economics, Geography, Philosophy, and Language Sciences, play smaller roles in SIC's international collaborations. While Political Science is a key partner domestically, its representation in international collaborations is modest within our analyzed dataset. Meagre international collaborations with Language Sciences come perhaps as no surprise, the study of specific languages often being conducted within the perimeter of the related countries. The "Other: professional sector" category refers to collaborations, possibly with media professionals and industry stakeholders.

4.1.4 *The role of linguistic, geographic, and cultural proximity*

Interdisciplinarity is often discussed in terms of its structural or epistemic dimensions, such as institutional support, cognitive distance, or methodological integration (e.g., Barry, Born, & Weszkalnys, 2008), linguistic factors being treated as logistical challenges rather than in-

tegral determinants of collaboration patterns. This oversight is striking given its profound influence on the dynamics of knowledge production and dissemination, particularly in international collaborations.

Against this backdrop, the geographic distribution of coeditors institutionally located outside France provides valuable insights into the international reach and collaborative patterns highlighted in the ReDynSIC volume. Most cited works are in French (we have identified ten works in English and two bilingual French-German publications). Canada stands out with 36.07% of unique coeditors, representing the largest group of international collaborators. Datasets 1 and 2, which take into consideration scholars' occurrences as well as duplicates across thematic areas (see appendices A-E), confirm this trend. This significant presence highlights the historical, cultural, and linguistic ties, particularly with Francophone Canada (e.g., the conferences hosted by the French-Canadian Association for the Advancement of Science / ACFAS).

Notable contributions from neighboring European countries are also observed. The contributions from Belgium (11.47% of

unique coeditors) and Switzerland (6.56% of unique coeditors) indicate the close cultural, linguistic, and academic connections between these countries, particularly in their Francophone regions. Romania's and Germany's representation (9.83% for both) is also noteworthy. Since its foundation in 1993 in Bucharest by Ioan Dragan, the Franco-Romanian Colloquium on SIC has created a favorable environment for collaborations between scholars from these two countries in areas as varied as journalism, political communication, organizational communication, or cultural mediation (Tajariol, Roxin, Pélissier, & Oliveri, 2020). Various French-German interactions also emerged over the last ten years because of the involvement of a small group of – mostly bilingual – researchers who analyze the ties between these two presumably distinct academic fields (Averbeck, 2008; Averbeck-Lietz, Bonnet, & Bonnet, 2014; Averbeck-Lietz, Bonnet, Cordonnier, & Wilhelm, 2019; Averbeck-Lietz, Bonnet, Cordonnier, & Wilhelm, 2023; Roth & Wilhelm, 2016). Brazil's representation (6.56%) highlights ties with Latin America – for example, in the domain of journalism (Adghirni, 2019; Le Cam, 2019).

Data reveals moderate to limited collaborations with countries like UK, Spain, Italy, Luxembourg, the Netherlands and Cyprus, but also meagre and most probably sporadic engagement with institutions outside Europe and North America, with only a few coeditors from regions such as Australia, Japan and Tunisia (1.64% for each of the latter)⁷. In addition, despite a traditional interest in African media studies (e.g., Kiyindou, Ekambo, & Miyouna, 2009), SIC's collaborations with African institutions (beyond Tunisia) remain limited within the studied references. The absence of collaborators from research hubs like China, South Korea, or India attracts our attention. Of course, various factors, such as the geopolitical stakes of such endeavors, should be considered when interpreting these observations. It is also important to note that the authors who contributed to the listed publications are not included in the dataset. A more refined analysis of the authors, beyond the co-

editors, could thus reveal more pronounced links.

Finally, only four works in the ReDynSIC collection simultaneously combine external coeditors from France and abroad, underlining the limited overlap between domestic and international collaborations observed in the dataset.

4.2 Observations by thematic area

The findings presented above are based on calculations applied to the completely “cleansed” dataset (dataset n° 3), which does not include duplicates and consists only of unique coeditors, i.e., scholars listed at least once, no matter their occurrences. However, similar trends can be observed in dataset n° 2, which also leaves out duplicates of works but takes into consideration all occurrences of scholars' names. Finally, the tendency is furthermore consolidated in dataset n° 1, which comprises all works (even duplicates) and all scholars' occurrences, as they appear across the 10 thematic areas identified by ReDynSIC. Varying degrees of divergence are noticed in this case. Appendices A-E, at the end of this paper, provide the necessary supporting data.

More particularly, SIC scholars approach “Media and journalism” (T1) focusing on the socio-economic transformations of media industries and the shifts in journalistic practices, influenced by technological advancements and economic pressures. This involves examining the mediatization of political processes, the framing of public issues, and the evolving norms around professional ethics in journalism. Our data shows that when external input is observed, the discipline involved is mainly Political Science. Specific collaborations are identified with institutions in Belgium, Canada, Brazil, Germany, Romania, etc. The numeric distribution of such partnerships probably indicates the importance of linguistic proximity, crystallized through collaborations with French-speaking universities in Belgium and Canada.

“Images, cinema, audiovisual media, and cultural industries” (T2) focuses on media forms and content, as well as on their industrial development at the confluence of media production, distribution, and consumption. SIC scholarship in this area underscores media's dual role as economic sectors and cultural expressions, highlighting how they shape

7 A variety of actions currently seek to consolidate SIC's international presence (e.g., within the International Communication Association).

and are shaped by societal values, political agendas, and global market forces. Studies on television, the dominant media of the 1980s and 1990s, have particularly marked the field and allowed the cross-fertilization of many approaches. Our data suggests that international editorial collaborations mentioned in the ReDynSIC volume mainly concern countries with French-speaking regions (Canada, Switzerland), and generally fall within the field of communication (gaming, interactive narratives, etc.). Within France, interdisciplinary collaborations mostly involve Sociology and History.

SIC scholarship explores the evolving dynamics of “Public and political communication” (T3), emphasizing their critical role in shaping contemporary democratic societies. Research in this area sheds light on the impact of technological, social, and political transformations on public discourse and governance. Our analysis reveals a relatively strong interdisciplinary reach, marked by recurrent collaborations in France with scholars coming from Political Science, but also, although to a lesser degree, Sociology, Language Sciences, Anthropology, etc. Outside France, joint editorial works are rare in our dataset, mainly with researchers in the field of communication and located mostly in Germany.

The thematic area “Communication and organizations” (T4) concentrates on the interplay between communication processes, professional practices, and organizational structures, examining how these interactions shape and are shaped by institutional goals, cultural contexts, and technological advancements. Areas investigated are numerous: hospitals, universities, think tanks, NGOs, large companies, and local associations, etc. The geographic reach observed in the corpus mainly concerns Canada and falls under the general umbrella of the information and communication field. Interdisciplinary collaborations within the national geographic perimeter mostly involve Management Sciences, and to a lesser degree, Arts, Language Sciences, and Sociology.

SIC scholarship in “Memory, cultural and heritage mediations” (T5) investigates how societies engage with their past, construct collective memories, and interpret cultural heritage through various media and practices.

It focuses on the tension between history and memory (terrorism, migrations, etc.), the role of testimonies in shaping collective identities, and the use of digital technologies in preserving and presenting patrimonial assets. Research takes an interest not only in physical artifacts and sites but also in intangible cultural elements like rituals and traditions, which are increasingly recognized as pivotal to understanding societal evolution. Our data reveals a substantial production, with a large panel of interdisciplinary collaborations in France. History, Literature, and Sociology appear to be the dominant disciplines solicited. Outside France, scholars from Canada, Romania, and Germany remain the most frequent partners; editorial endeavors are mostly within the field of communication. It is noteworthy that collaborations are also forged with non-scholarly partners, notably cultural institutions, both in France and abroad.

The “Digital strategies, devices, usages” thematic area (T6) underscores the transformative role of digital tools and platforms. From a stand-alone object of study within SIC not as far as twenty years ago, digital technology has nowadays become the environment of most research objects, both an ecosystem and a horizon for almost every research endeavor. SIC scholarship in this area explores how digital ecosystems – comprising infrastructures, algorithms, and networked interactions – structure contemporary societal practices. Collaborations with foreign scholars in the field of information and communication are numerous, especially with Canada, whereas interdisciplinarity within the French perimeter concerns a variety of disciplines, from Anthropology and Literature to Language Sciences, along with some links with the professional sector.

“Information, documents, and writing” (T7) investigates the intersection of information theory, the materiality of documents, and the evolution of “writing” practices, in a general sense. Central to this theme is the notion of the document as both a medium for preserving memory and a tool for coordinating actions. The study of “documentarization” and “editorialization” – processes that structure and organize information across various media – emphasizes the document’s evolving role in the digital age, from printed texts to

interactive and multimodal formats. In our dataset, though, fewer works are registered with this thematic area.

Initially associated with aesthetics and artistic creation, “Design” (T8) in SIC has evolved to encompass broader concerns, including user-centered innovation, interaction, and mediation. By emphasizing usability and ethical considerations, design research within SIC not only addresses the immediate needs of technology adoption but also contributes to a reflective and holistic understanding of human-technology interaction in a rapidly evolving sociotechnical landscape. As with the previous thematic area, fewer works are registered here, and interdisciplinary trends are hard to identify.

“Knowledge organization” (T9) addresses how knowledge is classified, managed, and accessed in various contexts. It refers to the development of systems and frameworks, such as taxonomies, ontologies, and thesauri, to structure and represent knowledge for effective retrieval and use. Its roots lie in traditional library science, whilst more dynamic and user-centered approaches have been developed in the digital era. In our dataset, this area showcases some international reach within the field and with scholars coming from countries with French-speaking regions (Canada, Switzerland) and beyond (Brazil).

The thematic area “Knowledge mediation, education, training” (T10) delves into the transmission, transformation, and social dissemination of knowledge, either through media outlets or through scientific institutions, specialized school or university programs, etc. SIC research examines the interplay between traditional educational structures and the informal learning opportunities offered by digital media and technologies, as well as, more recently, open and collaborative ecosystems. It highlights the evolving dynamics of media literacy, digital pedagogy, gamification, and e-learning. Joint editorial collaborations with non-SIC scholars occupy half of the overall production. Given the thematic orientation of this axis, it comes as no surprise that Education Sciences constitute an important partner of SIC. Some international collaborations are observed (Germany, Switzerland, Canada), along with links with the professional sector.

5 Conclusions

As highlighted from the outset, the findings of this analysis primarily mirror the decisions made in the ReDynSIC volume to promote the discipline itself and its members, decisions certainly influenced by compromises, strategic choices, and contextual constraints. In this dataset, interdisciplinary collaborations are slightly more pronounced within France and typically exhibit narrow interdisciplinarity. Beyond national borders, collaborative efforts predominantly involve researchers already rooted in the field of information, media, and communication. Linguistic proximity seems to be important, with countries with French-speaking regions (e.g., Canada, Belgium) occupying a significant place, along with countries with historical ties to French SIC (e.g., Germany, Romania).

Obviously, the ReDynSIC corpus of bibliographical references cannot be considered to be a simple representation of the entire discipline over the last few years, and a more thorough study of SIC productions – e.g., those registered in HAL⁸ – would be needed. In addition, the absence of any empirical benchmark coming from other countries or disciplines does not allow for comparisons with other institutional environments and calls for prudence when it comes to generalizations. However, even though this dataset does not fully cover all the existing production in SIC between 2012 and 2018, its significance still remains paramount since it constitutes the only official list in the discipline. The dynamics observed are in this sense of value, questioning the factors shaping academic collaborations.

For example, concerns were expressed in the past that the increasing reliance on Computer Science may lead to an overemphasis on technical and quantitative approaches at the expense of the critical, theoretical, and humanistic dimensions that have traditionally characterized SIC (Jouët, 2011). Even though such evolutions can still take place within SIC (e.g., through the evolution of methodologies), it has to be noted that collaborations

8 HAL stands for Hyper Article Online (*Hyper Article en Ligne*). It is the French multidisciplinary platform for the deposit and consultation of writings, works and results of scientific research.

with computer scientists were not quantitatively salient in our dataset – though more recent data and/or the study of interdisciplinary funded programs could lead to different observations, as mentioned above. Also, the fact that Computer Science is not very well represented in our corpus does not mean that there is no evolution in the way SIC scholars work with and on digital technology.

The limited engagement with disciplines such as Computer Science or Economics may generally reflect a decision to align with more traditional, humanities-oriented disciplines rather than embracing the epistemological challenges posed by emerging technologies and market-driven research agendas. As to the dominance of French-speaking collaborations in SIC, beyond its practical dimension, it may also suggest a deliberate effort by some scholars to maintain and strengthen a Francophone academic identity in an increasingly globalized and Anglophone research environment (Ammon, 2001; Van Weijen, 2012).

Clearly, interdisciplinary and international collaborations are not merely academic exercises but political acts that shape the boundaries of a discipline. Interdisciplinary engagements – both epistemic and geographic – serve not only cognitive or methodological purposes but also act as mechanisms for establishing authority, forging alliances, and shaping the political economy of the discipline itself. As noted by Connell (2007), knowledge production is not politically neutral but is embedded within global hierarchies where certain countries dominate the academic landscape. In the field of communication, Wendy Willems (2014) has demonstrated how academic knowledge production is frequently driven and constrained by particular dominant social, political, and economic interests. By choosing specific disciplines and countries as partners, SIC scholars participate in a process of political positioning within academia. Understanding these dynamics requires a broader analysis of the political economy of academic disciplines and their place within global hierarchies of knowledge production.

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Conflict of interest

The author declares no conflict of interest.

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Qui fabrique l'information scientifique au Québec? Analyse du portrait des journalistes scientifiques 2023

Who produces scientific information in Quebec? Analysis of the profiles of science journalists in 2023

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Résumé

Cet article présente un portrait des journalistes scientifiques québécois en soulignant les éléments de l'identité et les rôles professionnels de cette spécialité journalistique. Il se fonde sur des réponses à un sondage mené en 2023 auprès de 39 journalistes scientifiques qui résident ou travaillent au Québec. Les données suggèrent que ce segment est majoritairement féminin, relativement âgé et très éduqué. Les résultats révèlent une dualité dans la configuration du marché de travail au Québec. La base de la pyramide salariale est composée surtout par des journalistes indépendants qui gagnent moins que leurs pairs qui travaillent dans d'autres spécialités. Au sommet de cette pyramide se placent les journalistes scientifiques qui ont un emploi permanent généralement dans le système public de radio et télévision. Le rôle de courroie de transmission, responsable de traduire des informations scientifiques à destination d'un public non spécialisé, domine le segment des journalistes scientifiques. Les résultats suggèrent une diversification des rôles secondaires, avec un poids relativement important attribué par les répondants aux dimensions de décideur de l'ordre du jour, chien de garde, connecteur et amuseur. Cet article innove en proposant une typologie des rôles professionnels adaptée au segment du journalisme scientifique.

Abstract

This article presents a profile of science journalists in Quebec, highlighting the identity and professional roles of this "segment" of journalism. It is based on responses to a survey conducted in 2023 among 39 science journalists living or working in Quebec. The data suggest a predominantly female, relatively old, and highly educated segment. The results reveal a duality in the configuration of the labour market in Quebec. At the base of the salary pyramid are mainly freelance journalists, who earn less than their counterparts in other segments of journalism. Science journalists, who have permanent jobs mainly in the public broadcasting system, are at the top of the pyramid. Within the segment of science journalists, the role of conductor, responsible for translating scientific information for a non-specialist audience, emerges as dominant. The results suggest a diversification of secondary roles, with respondents giving relatively high weight to the dimensions of agenda-setter, watchdog, connector, and entertainer. This article breaks new ground by proposing a typology of professional roles adapted to the science journalism segment.

Mots-clés

journalistes-scientifiques, portrait, rôles professionnels, sondage, Québec

Keywords

science journalists, profile, professional roles, survey, Quebec



1 Introduction

D'une façon générale, les journalistes scientifiques s'intéressent aux résultats, institutions et enjeux de la science, de la technologie et de la santé. Ils « interprètent les questions scientifiques difficiles pour le grand public, une tâche que la communauté scientifique peine à accomplir par elle-même¹ » (Wormer, 2009, p. 1). Dans un contexte de « médialisation de la science » (Peters, 2012), dans laquelle les scientifiques sont de plus en plus encouragés (voire contraints) à se faire présents sur la scène publique, les journalistes scientifiques cherchent à replacer ce genre de connaissance dans son contexte social et humain, pour faire « jaillir de la science les intérêts non perceptibles de prime abord, les débats et les incertitudes qu'elle entretient en son sein, les méthodes qui la génèrent, l'esprit qu'elle cultive, les idées qui l'entourent, les rêves qu'elle sublime » (Mbarga, 2009, p. 166).

Plusieurs recherches sur le profil et l'identité des journalistes scientifiques ont été conduites dans différents espaces nationaux, y compris aux États-Unis (Viswanath *et al.*, 2008; Schultz, 2023), au Brésil (Massarani *et al.*, 2013), en Espagne (Cassany-Viladomat *et al.*, 2018), en Suisse (Kristiansen *et al.*, 2016) ou encore à partir des perspectives comparatives (Fahy & Nisbet, 2011) et transnationales (Mbarga, 2011), voire à ambition mondiale (Massarani *et al.*, 2021). Ces travaux ont pour similarité de souligner la diversité des parcours formatifs de ces journalistes et de porter un regard critique sur les enjeux liés à la communication de la science.

Par ailleurs, certaines études se penchent sur les nouvelles pratiques de couverture journalistique de la science, par exemple celles fondées sur l'utilisation accrue des dispositifs numériques (Cf. Fahy & Nisbet, 2011). À la lumière d'une enquête et d'entretiens menés auprès de journalistes scientifiques de 14 pays de l'Union européenne, y compris de la Belgique et de la France, Granado (2011) conclut que la dépendance croissante au numérique modifie en profondeur les routines

de travail des journalistes scientifiques. Ces derniers privilégient désormais les communiqués de presse « prêt-à-l'emploi » comme source primaire plutôt que de collecter des informations originales sur le terrain. Cela ouvre la porte au phénomène du journalisme basé sur le copier-coller (ou « churnalisme ») qui est d'ailleurs perçu comme une menace professionnelle par des journalistes scientifiques de l'Afrique du Sud (Franks *et al.*, 2022).

Plus récemment, Martin-Neira *et al.* (2023) ont mis en évidence le rôle grandissant des réseaux socionumériques en journalisme scientifique, autant à titre de canaux de diffusion et d'interaction avec des publics existants que de canaux d'engagement avec de nouveaux publics. Les approches journalistiques en matière de communication de la science sur ces plateformes varient toutefois grandement, notamment sur Instagram (Planner *et al.*, 2023). La multiplication des prépublications, ces manuscrits non révisés par les pairs accessibles par l'entremise d'archives ou de serveurs dédiés, pendant la pandémie de COVID-19 a également amené les journalistes scientifiques à investir plus avant le champ de la recherche ouverte dans leur collecte d'informations (Massarani *et al.*, 2021). La pérennité de cette exploration demeure cependant sujette à discussion (Fleerackers *et al.*, 2024).

Les journalistes sont également confrontés à l'arrivée de nouveaux acteurs provenant de l'extérieur de leur territoire professionnel. Ceux-ci utilisent des plateformes pour promouvoir la communication publique des sciences en tant que vulgarisateurs ou influenceurs, ou les deux (Allgaier, 2020; Lukasik & Bassoni, 2023; Metag *et al.*, 2023). Cette concurrence met à l'épreuve l'autorité journalistique et entraîne une reconfiguration de l'écosystème informationnel, y compris une augmentation de la circulation des contenus non vérifiés.

Au Québec, malgré l'intérêt pour les journalistes scientifiques, nous observons une absence de travaux récents sur son travail et son identité. Au cours des vingt dernières années, trois sondages ont été menés à propos des journalistes scientifiques par des chercheurs de l'Université Laval (Marcotte & Sauvageau, 2006; Rochon, 2008; Fleury *et al.*, 2012). Le dernier coup de sonde, daté de 2012, s'est at-

1 Dans la version originale: « Science journalists interpret difficult scientific issues for a broader public, a task the scientific community cannot do sufficiently by itself ». Traduit par les auteurs.

tardé aux éléments sociodémographiques de ce segment. Il a révélé que le groupe des journalistes scientifiques québécois est majoritairement constitué de femmes âgées entre 35 à 49 ans travaillant à temps partiel et engagées sous le statut de salariées (Fleury *et al.*, 2012).

Soit parce qu'elles ont été menées il y a plus d'une dizaine d'années, soit parce que les chercheurs qui les ont pilotés ont focalisé leur attention sur la composition sociodémographique des groupes des répondants, ces études demeurent muettes quant aux impacts des changements du marché de travail sur l'identité professionnelle des journalistes scientifiques. Cette étude vise ainsi à porter un regard sur le rapport entre changement et permanence dans le journalisme scientifique. Plus spécifiquement, nous cherchons à mettre en lumière comment ces journalistes représentent des dimensions du travail et des valeurs professionnelles associées à leurs pratiques. Cette démarche nous permettra d'identifier certains éléments qui définissent cette spécialisation en tant que segment de la profession journalistique. La principale contribution de cette étude est en ce sens de proposer, puis de tester une typologie des rôles assumés par ces journalistes dans l'exercice de leur profession.

Pour atteindre cet objectif, cet article analyse les réponses à un sondage mené en 2023 auprès des journalistes scientifiques qui résident ou travaillent au Québec. Il propose d'abord une mise à jour des données sociodémographiques de ce segment professionnel. Ensuite, il aborde leur perception des conditions de travail, notamment leur perception de la montée de la précarisation. Finalement, il apporte une compréhension de la façon dont ces journalistes représentent les valeurs associées à la profession.

2 Approche théorique : journalisme et identité

2.1 La spécialisation : journaliste scientifique

Cette étude s'inscrit dans une approche sociologique autour des identités journalistiques (Le Cam *et al.*, 2019). Cette perspective interroge une vision normative du journalisme comme «un métier certain, au domaine

bien délimité et aux capacités établies» (Ruellan, 1992, p. 27). Le journalisme doit au contraire être considéré comme une profession ouverte et hétérogène (Marchetti, 2002; Ruellan, 2017) constituée d'un amalgame de plusieurs segments «poursuivant des objectifs divers, plus ou moins subtilement maintenus sous une appellation commune à une période particulière de l'histoire²» (Bucher & Strauss, 1961, p. 326).

Ces segments sont comparables à des mouvements sociaux; ils assument leurs propres manières d'être et d'agir. Nous pouvons donc dire qu'à l'intérieur d'une profession ou d'une organisation, «les identités, ainsi que les valeurs et les intérêts, sont multiples, et ne se réduisent pas à une simple différenciation ou variation. Ils tendent à être structurés et partagés; des coalitions se développent et prospèrent en s'opposant à d'autres³». (Bucher & Strauss, 1961, p. 326). Ainsi, la pratique du journalisme scientifique ne s'oppose pas à d'autres formes de journalisme, y compris les journalismes «généralistes». Elle s'inscrit dans un mouvement de différenciation à l'intérieur du journalisme (cf. Strauss, 1982) à travers ses intersections avec d'autres pratiques et d'autres «mondes», en particulier celui des sciences. Le segment du journalisme scientifique fait référence à une spécialisation thématique, ainsi qu'un ensemble de pratiques associées à l'actualité scientifique. Il renvoie par ailleurs à des modalités spécifiques de recrutement et de mobilité dans le marché de travail (Cf. Daoust-Boivert, 2022). Faire sienne cette approche implique d'admettre que les journalistes scientifiques partagent avec d'autres journalistes des représentations similaires du métier, mais qu'ils expriment aussi des nuances dans leur système de valeurs, leur perception des rôles professionnels et leur identité.

2 «Pursuing different objectives in different manners and more or less delicately held together under a common name at a particular period in history». Traduit par les auteurs.

3 «There are many identities, many values, and many interests. These amount not merely to differentiation or simple variation; they tend to become patterned and shared; coalitions develop and flourish and in opposition to some others». Traduit par les auteurs.

2.2 Travail et satisfaction professionnelle

Le travail des journalistes scientifiques québécois s'inscrit dans le contexte du journalisme au Canada, marqué par une montée de la précarité et une détérioration des conditions de travail (Cohen *et al.*, 2019; Pereira, 2023). Cela se traduit par une augmentation des contrats d'emploi temporaires ou instables, tels que les engagements à la pige, ainsi que par une réduction de la durée de la carrière sur le marché médiatique (Joseph & Alonso, 2022). De plus, les journalistes québécois sont confrontés à un contexte de surcharge de travail et de perte d'autonomie au sein des salles de rédaction (Francoeur, 2021), ce qui peut entraîner des situations de souffrance au travail (Lamoureux, 2022), voire d'abandon de la profession.

Plusieurs études soulignent que les conditions de travail influencent la satisfaction professionnelle des journalistes. Cette dernière notion repose certes sur les propriétés objectives liées à l'exercice du métier, mais aussi sur les attentes individuelles concernant les récompenses matérielles ainsi que symboliques et affectives liées à la profession (Lee, 2024). Ainsi, les journalistes peuvent être négativement affectés par l'absence d'une politique de conciliation travail et vie personnelle au sein des salles de rédaction, par la surcharge de travail (Reinardy, 2009), par l'instabilité du marché de l'emploi (Ternes *et al.*, 2017), par la perte d'autonomie et par l'absence de perspectives d'évolution dans la carrière sur le long terme (Gutiérrez-Coba, 2020). D'autre part, l'attachement au métier (Le Cam & Ruellan, 2017), le sentiment de remplir une mission et l'adhésion à l'idéologie de la responsabilité sociale sont des facteurs qui incitent plusieurs journalistes à embrasser cette profession. Et, donc, à continuer de fournir un travail de qualité (Ternes *et al.*, 2017). Ainsi, notre première question de recherche peut se lire: QR1 *Comment les journalistes scientifiques québécois évaluent leurs conditions de travail et expriment leur satisfaction par rapport au métier?*

2.3 Les rôles professionnels du journalisme

Le concept de rôle professionnel fait référence à la façon dont les journalistes perçoivent, articulent et adoptent des attentes

sur leur manière d'agir vis-à-vis de la société (Hanitzsch, 2019). Ces rôles expriment un ensemble de valeurs, d'attitudes et de croyances qui peuvent (ou non) avoir un impact sur les pratiques journalistiques (Mellado, 2015). Il s'agit donc d'un discours identitaire qui relie l'(auto)perception du groupe professionnel, leur pratiques et leur fonction sociale (réelle ou attendue).

La littérature relative à ce sujet est riche en typologies qui cherchent à décrire et à mesurer les principaux rôles assumés par les journalistes dans les sociétés occidentales. Ces classifications distinguent certains rôles classiques associés aux pratiques de dissémination d'informations, de surveillance des pouvoirs, de défense des intérêts des citoyens, et ainsi de suite (Cf. Berganza *et al.*, 2017). Au cours des dernières années, certains auteurs ont toutefois souligné l'importance «d'accepter le besoin de continuer l'expansion de notre compréhension des rôles journalistiques fondés sur l'expérience de travail des praticiens, plus que dans les atteintes normatives de ce que ces rôles journalistiques doivent remplir⁴» (Hanusch, 2019, p. 206; Cf. Hanitzsch & Vos, 2018). Cela signifie d'intégrer à ces études des dimensions relatives par exemple aux rapports des journalistes avec les intérêts commerciaux des entreprises de presse (Hallin, 2000) ainsi qu'à l'importance pour ces derniers d'établir et d'alimenter les liens avec les audiences (Cf. Blanchett *et al.*, 2024; Brin *et al.*, 2004) par des pratiques de divertissement ou par la mise en valeur d'informations de services utiles.

Ce besoin de fonder l'analyse des rôles professionnels sur les vécus et les expériences des journalistes, en allant au-delà du discours normatif à propos de leur fonction sociale, devrait être étendu à l'étude du journalisme scientifique. Ainsi, un des premiers efforts pour proposer une typologie spécifique à ce segment a été mené par Fahy et Nisbet (2011) dans un contexte de changement des pratiques de couverture des sciences par l'introduction du numérique. Dans cette étude fondée

4 « Accepting of the need a continuing expansion of our understanding of journalistic roles that is grounded in the experiences of working practitioners, rather than normative expectations on what roles journalism should fulfill ». Traduit par les auteurs.

sur 11 entretiens, les auteurs proposent un modèle des rôles professionnels des journalistes scientifiques constitué de neuf dimensions, à savoir : les courroies de transmission (*the conduits and explainers*), l'intellectuel public (*the public intellectual*), le décideur de l'ordre du jour (*the agenda-setter*), le chien de garde (*the watchdog*), le journaliste d'investigation (*the investigative reporter*), le pédagogue (*the civic educator*), le curateur de contenus (*the curator*), le rassembleur (*the convener*), et l'activiste (*the advocate*). Cette typologie fournit quelques pistes sur l'identité des journalistes scientifiques, même si elle reste très collée à une vision normative de la profession journalistique.

D'autres études ont tenté d'approfondir le débat sur les rôles professionnels des journalistes scientifiques spécialisés dans des thématiques ou des événements spécifiques. Dans une étude sur les journalistes couvrant les événements climatiques extrêmes en France, en Allemagne, aux Pays-Bas et au Royaume-Uni, Strauss *et al.* (2021) constatent que le rôle prédominant perçu est celui d'éducateur, suivi par ceux d'observateur impartial, de curateur de contenus, de chien de garde et de gardien des portes (*gatekeeper*). Klem *et al.* (2019) montrent pour leur part, dans une recherche sur le travail des journalistes allemands lors de la couverture de crises de santé, que ces professionnels restent fortement engagés dans la diffusion de l'information et l'interprétation des faits, puisqu'ils préfèrent fournir une analyse contextuelle ainsi que des commentaires. Toutefois, ces auteurs identifient un nouveau rôle lors de la couverture d'une crise sanitaire : celui de mobilisateur du public (*public mobilizer role*), responsable de la mobilisation de comportements protecteurs individuels et de la responsabilisation sociale.

Ainsi, nous cherchons à reprendre ces différents travaux comme point de départ pour une analyse exploratoire à propos de l'identité des journalistes scientifiques québécois des années 2020. Le but est de proposer une typologie élargie et compréhensive des rôles journalistiques associés à la couverture de l'actualité scientifique. Ainsi, notre deuxième question de recherche s'exprime de la façon suivante : QR2 *Quels rôles professionnels orientent la perception que les journalistes scientifiques ont de leur travail ?*

3 Méthodologie

Pour notre étude d'ambition régionale, nous avons élaboré un questionnaire d'enquête de 31 questions. Il s'inspire librement de l'instrument employé lors de l'étude *Portrait des journalistes belges en 2018* (Van Leuven *et al.*, 2019). L'équipe belge nous a gracieusement partagé la version française de ce questionnaire. Ce dernier, qui compte 49 questions dans sa version originale, a été fortement retravaillé par les chercheurs responsables de ce projet-ci pour en réduire le nombre des questions et l'adapter au contexte du journalisme scientifique au Québec.

Notre document se constitue ainsi de 31 questions divisées par sept blocs : 1. caractéristiques sociodémographiques ; 2. formation et compétences ; 3. parcours professionnel ; 4. situation professionnelle ; 5. sources des journalistes ; 6. discrimination et intimidation ; et 7. opinions sur la profession et la vie associative. Ici, nous analysons celles relatives au profil sociodémographique, la situation professionnelle et les opinions sur la profession, laquelle comprend une évaluation des tendances et des valeurs journalistiques.

Le questionnaire s'adresse à la population des journalistes scientifiques du Québec, à partir d'un échantillonnage non probabiliste de convenance. Nous avons recouru au logiciel LimeSurvey pour créer le questionnaire en ligne. Le lien d'accès a d'abord été envoyé aux membres de l'Association des communicateurs scientifiques du Québec (ACS), partenaire de cette étude – et qui rassemble également des journalistes spécialisés dans l'actualité scientifique. En parallèle, nous avons acheminé le lien d'accès à la Fédération professionnelle des journalistes du Québec (FPJQ) et à l'Association des journalistes indépendants du Québec (AJIQ) et aux principaux médias scientifiques québécois en leur demandant de le partager avec leurs membres et employés : *Québec Science*, *Unpointcinq*, l'Agence Science-Presse, *Les Débrouillards*, *L'actualité* et Radio-Canada.

Ces titres font office de référence en matière de production de contenus de nature scientifique sur le marché médiatique québécois. Pour certains, il s'agit même du principal fonds de commerce. C'est par exemple le cas du magazine sesquimestriel *Québec Science*,

fondé en 1962, qui se spécialise dans la vulgarisation des questions d'actualité et de culture relatives à la science et à la technologie, ce qui en fait un « lien privilégié entre le milieu de la recherche et le grand public » (*Québec Science*, s. d.). Le mensuel *Les Débrouillards* poursuit une mission similaire depuis son lancement en 1982, mais auprès de 9 à 14 ans, donc avec un souci de rejoindre cette tranche d'âge par des jeux, de l'humour, des contenus pratico-pratiques, etc. L'Agence Science-Press, la seule agence de presse scientifique au Canada, fait pour sa part uniquement dans l'information, notamment par l'entremise du *Détecteur de rumeurs*, sa rubrique de vérification des faits en science. L'Agence Science-Press opère depuis 1978.

Malgré leur position influente, ces médias bénéficient toutefois d'un rayonnement limité. Du fait de son mandat de diffuseur public national présent d'un océan à l'autre, y compris dans les communautés francophones hors Québec, les contenus scientifiques produits par Radio-Canada touchent de plus larges publics, et ce, aussi bien à la radio (p. ex. *Les années lumière*), à la télévision (p. ex. *Découverte*) que sur le Web (p. ex. *Le vrai du faux sur le climat*). Le magazine d'affaires publiques *L'actualité*, le seul du genre au Québec « et l'une des grandes publications de langue française dans le monde » (*L'actualité*, s. d.), propose également des reportages, des chroniques et analyses ainsi que des textes d'information dans sa rubrique consacrée à la science, et tout particulièrement à la santé.

Fondé en 2017 seulement, le magazine numérique de solutions dédié à l'action climatique *Unpointcinq* occupe certes une niche dans le marché médiatique du Québec. Nous avons néanmoins décidé de l'inclure dans notre liste de diffusion étant donné l'importance croissante des préoccupations envers l'environnement, une thématique à la croisée des questions scientifiques et de société (Bernier, 2021; Sormany; 2011). Qui plus est, ce genre de plateforme spécialisée s'impose comme l'une des principales sources d'information sur l'environnement dans le monde (Painter *et al.*, 2024).

Le lien pour accéder au questionnaire et au formulaire de consentement éclairé a été partagé directement avec l'ensemble des partenaires de l'étude. Le questionnaire a circulé du 5 septembre au 15 novembre 2023. Pour

répondre au sondage, les personnes interrogées devaient confirmer qu'elles s'identifient bel et bien comme journalistes scientifiques œuvrant au Québec. Cette procédure visait à exclure de l'échantillon les journalistes généralistes couvrant les sciences, ainsi que les professionnels travaillant dans le secteur de la communication. Nous avons reçu 39 réponses valides d'une population estimée à une cinquantaine de journalistes scientifiques⁵. Cet échantillon n'a aucune validité statistique, compte tenu de l'absence de données de recensement sur l'ensemble de la population des journalistes scientifiques québécois. Bien que notre échantillon ne soit pas issu d'une procédure probabiliste, il représente tout de même près de 2% de l'ensemble des journalistes du Québec (n = 1 935) (Statistiques Canada, 2023), offrant une base suffisante pour une étude exploratoire. Ces données préliminaires permettent donc de dégager des tendances et d'orienter des recherches futures, et ce, malgré l'impossibilité de les généraliser à l'ensemble de la population cible.

3.1 Codage

Les réponses à ce sondage ont été codifiées sur le logiciel SPSS Statistics. Pour les données de nature sociodémographique et portant sur le statut des répondants, nous avons privilégié les statistiques descriptives. Pour l'analyse des rôles professionnels des journalistes, nous avons procédé à une analyse factorielle avec rotation orthogonale (Varimax). L'indice d'adéquation de l'échantillonnage de Kaiser-Meyer-Olkin (KMO) était de 0,534, ce qui reste acceptable pour une analyse de nature exploratoire, tandis que le test de sphéricité de Bartlett ($p < 0,000$) confirme la pertinence des corrélations entre les variables. Huit composantes présentent des valeurs propres supérieures au critère de Kaiser (>1) et expliquent ensemble 70% de la variance totale.

4 Résultats

4.1 Être journaliste scientifique au Québec

La population des journalistes scientifiques québécois est composée majoritairement de

5 Joël Leblanc, président de l'Association des communicateurs scientifiques du Québec (ACS), échange courriel, 25 octobre 2023.

Tableau 1: Démographie et profil d'emploi des journalistes scientifiques québécois

Genre	N	%
Masculin	17	43,6
Féminin	22	56,4
Age Moyen	Moyenne	Écart type
	45,64	11,141
Temps d'exercice du métier	Moyenne	Écart type
Nombre d'années de travail en tant que journaliste scientifique	15,33	11,148
Exercice d'autre(s) métier(s) avant de devenir journaliste	N	%
Oui	23	59,0
Non	16	41,0
Fonctions	N	%
Rédacteur en chef	3	10,0
Rédacteur en chef adjoint	3	10,0
Chef de rubrique / de pupitre	1	3,3
Journaliste/reporter/rédacteur	23	76,7
Formation	N	%
Enseignement universitaire 1 ^{er} cycle	17	43,6
Enseignement universitaire 2 ^e ou 3 ^e cycle	22	56,4
Spécialisation	N	% des cas
Sciences de la nature et technologies	18	46,2
Sciences de la santé	14	35,9
Sciences sociales et humaines	4	10,3
Vérification des faits (<i>fact-checking</i>)	5	12,8
Je n'ai pas de spécialisation particulière	19	48,7
Autre	5	12,8
Revenu moyen annuel (par tranches salariales)	N	%
1 \$ à 24 999 \$	12	34,3
25 000 \$ à 49 999 \$	4	11,4
50 000 \$ à 69 999 \$	8	22,9
70 000 \$ à 99 999 \$	7	20,0
Plus de 100 000 \$	4	11,4
Emploi(s) en dehors du journalisme scientifique	N	%
Oui	16	41,0
Non	23	59,0

Source : élaboré par les auteurs à partir de l'étude menée par Van Leuven *et al.* (2019). Des questions portant sur la spécialisation ont été ajoutées pour mieux cibler les pratiques des journalistes scientifiques. Les réponses concernant les fonctions et les revenus ont été adaptées au contexte québécois.

femmes (56,4%), âgées de plus de 45 ans et travaillant dans des fonctions liées à la production et à l'écriture de l'information (journaliste/reporter/rédacteur): 76,7% (voir Tableau 1). Elles pratiquent depuis à peu près 15,3 ans le journalisme scientifique et la majorité (59%) a eu d'autres emplois avant cette carrière. Ce segment est très éduqué: 22 répondants (56,4%) ont suivi une formation universitaire de 2e ou 3e cycle tandis que les autres ont au moins un diplôme de 1er cycle. Ce portrait sociodémographique ressemble beaucoup à celui de journalistes scientifiques européens que brosse Granado (2011), à la différence que cette dernière population est surtout masculine et est moins éduquée – 36,4% des répondants possèdent un diplôme de 2e ou 3e cycle (22,9% à la maîtrise et 13,5% au doctorat). La qualification des journalistes scientifiques québécois est aussi bien supérieure à celle de la population des journalistes canadiens, dont 28% ont un diplôme des cycles supérieurs (27% à la maîtrise et 1% au doctorat) (Rollwagen *et al.*, 2019).

Trois mécanismes peuvent expliquer ces constats. D'abord, la proximité avec le monde de la science exige des journalistes de ce secteur un niveau d'éducation plus élevé, car il s'agirait d'un préalable pour couvrir des sujets considérés comme complexes et interagir avec les acteurs scientifiques. Une autre explication renvoie à la forte concurrence sur le marché du travail, où les organisations journalistiques demanderaient une formation plus élevée pour permettre aux journalistes d'accéder à la profession et d'y rester. Enfin, comme l'explique Daoust-Boisvert (2022), une partie importante des nouveaux arrivants dans ce segment professionnel au Québec sont des individus qui, après avoir suivi une formation en sciences dures ou en santé aux cycles supérieurs, décideraient de réorienter leur carrière en communication ou en journalisme scientifique. Quoi qu'il en soit, ces trois explications méritent d'être approfondies.

En ce qui concerne le domaine de spécialisation, les journalistes scientifiques québécois restent très axés sur les sciences de la nature et des technologies (46,2%) et les sciences de la santé (35,9%). La spécialisation dans le domaine des sciences humaines et sociales reste très minoritaire (10,3%), et ce, malgré les efforts déployés par les médias

et les institutions publiques de pays occidentaux pour faire appel aux chercheurs des humanités afin de répondre aux défis de société contemporains, comme l'immigration, la désinformation, les inégalités sociales ou l'acceptation de nouvelles technologies et de politiques publiques (Cf. Summ & Volpers, 2016).

D'une façon générale, la rémunération annuelle des journalistes scientifiques québécois n'est pas très élevée. Un tiers de l'échantillon gagne moins de 25 000 dollars canadiens (\$), soit à peu près 18 500 dollars américains par an. Presque 70% reçoivent moins que le salaire annuel moyen d'un journaliste au Québec, de 71 000 \$ (Québec, 2020). Une petite élite professionnelle (11,4%), dont les membres possèdent tous un statut d'employé permanent, gagne plus que 100 000 \$. Parmi ceux qui gagnent moins de 25 000 \$ par an, presque 78% travaillent à la pige⁶.

Presque 54% des répondants pratiquent le journalisme scientifique pour la presse périodique, comme les magazines spécialisés. La radio publique (28,2%), les médias exclusivement numériques (28,2%), la télévision publique (25,6%) et la presse quotidienne ou hebdomadaire (23,1%) sont aussi des espaces importants où cette pratique a cours (Tableau 2). Ces résultats sont relativement proches de ceux trouvés par Cassany-Viladomat *et al.* (2018) dans le contexte espagnol (35% dans la presse écrite, 33% dans les médias audiovisuels, 16% sur Internet).

Par ailleurs, en consonance avec des données de recherches précédentes en contexte québécois (Cf. Fleury *et al.*, 2012) et celles réalisées dans d'autres pays (Schultz, 2023; Cf. Massarani *et al.*, 2021), la proportion entre les journalistes indépendants, soit les individus qui exercent une fonction de journaliste pour une entreprise de presse, mais sans entretenir de lien d'emploi permanent avec celle-ci, et les journalistes qui ont un statut plutôt stable

6 Ces chiffres semblent cohérents avec la situation des journalistes pigistes au Québec. Une enquête menée en 2022 par la Fédération nationale des communications et de la culture révèle que ces journalistes gagnent en moyenne 31 336 \$ par année. Si on considère le nombre d'heures consacrées à leur travail, presque 30% des pigistes interrogés reçoivent un salaire minimum ou moins (Radio Canada, 2022).

Tableau 2: Distribution des journalistes scientifiques québécois selon le statut et le type de média

	Presse quoti- dienne ou hebdoma- daire	Presse périodique (maga- zines)	TV publique	TV privée	Radio publique	Radio privée	Radio com- muna- taire ou étudiante	Média exclusi- vement numérique	Agence de presse	Autre	Total
Employé permanent	1	6	7	0	6	1	0	1	1	1	19
	2,8%	16,7%	19,4%	0,0%	16,7%	2,8%	0,0%	2,8%	2,8%	2,8%	52,8%
Employé à temps partiel (occasionnel, temporaire, saisonnier, etc.)	1	2	1	0	1	0	0	2	3	0	3
	2,8%	5,6%	2,8%	0,0%	2,8%	0,0%	0,0%	5,6%	8,3%	0,0%	8,3%
Indépendant (à la pige) pour un seul client	1	2	0	1	2	0	0	0	0	0	3
	2,8%	5,6%	0,0%	2,8%	5,6%	0,0%	0,0%	0,0%	0,0%	0,0%	8,3%
Indépendant (à la pige) pour plusieurs clients	5	10	2	1	2	0	1	6	3	2	11
	13,9%	27,8%	5,6%	2,8%	5,6%	0,0%	2,8%	16,7%	8,3%	5,6%	30,6%
Total	8	20	10	2	11	1	1	9	7	3	36
%	22,2%	55,6%	27,8%	5,6%	30,6%	2,8%	2,8%	25,0%	19,4%	8,3%	100,0%

Source: élaboré par les auteurs à partir de l'étude menée par Van Leuven *et al.* (2019). Les réponses concernant le type d'organisation médiatique ont été adaptées au contexte québécois.

est relativement similaire dans notre échantillon. En effet, 52,8% de nos répondants bénéficient d'un statut d'employé permanent et presque 40% travaillent à la pige pour un seul ou plusieurs clients. Ce dernier chiffre reste néanmoins bien supérieure aux 17% de journalistes qui travaillent comme pigiste dans le reste du Canada (Rollwagen *et al.*, 2019).

La distribution des régimes de travail varie selon la catégorie des médias. Ainsi, les employés permanents sont plus présents dans le secteur public – télévision (19,4%) et radio (16,7%) – et, dans une moindre mesure, dans la presse périodique (16,7%). Ces données suggèrent un rôle important assumé par le diffuseur public national francophone Radio Canada dans la configuration et la stabilisation du marché de travail provincial⁷, y compris en journalisme scientifique. À son tour, la presse périodique emploie un tiers des journalistes scientifiques indépendants de l'échantillon, suivi par les médias exclusivement numériques (16,7%). Or, cette concentration des pigistes dans les magazines n'est pas exclusive au journalisme scientifique; on l'observe dans d'autres secteurs de la presse spécialisée (Cf. Frisque, 2013; Norbäck & Styhre, 2019).

Ces données suggèrent que le segment des journalistes scientifiques québécois s'appuie sur une structure duale, composée d'une masse de travailleurs précaires et d'un petit groupe de professionnels établis qui jouissent d'une série de récompenses financières et symboliques inaccessibles aux autres journalistes (Pontes & Mick, 2023). Ce constat se trouve renforcé par le fait que 41% des répondants sont des journalistes qui ont d'autres emplois en dehors des salles de rédaction. Cette situation va dans le sens des observations faites par Lapointe (2009) ainsi que Marcotte et Sauvageau (2006). Ces auteurs avancent l'existence, dans le marché de travail québécois, de professionnels au profil hybride qui partagent leur temps entre la communication et le journalisme scientifiques dans le but de pallier le manque de revenus relié aux activités journalistiques.

Cette mise en précarité d'une fraction importante du segment se traduit dans la perception que les journalistes scientifiques interrogés entretiennent de leurs conditions de travail (Tableau 3). Invités à évaluer quelques tendances de la profession, ces répondants reconnaissent une augmentation de la pression au travail ces dernières années (moyenne de 3,64 sur 5); une réduction de la sécurité d'emploi (3,87 sur 5); et une incitation à travailler sur plusieurs supports médiatiques (3,87 sur 5). Ainsi, les journalistes scientifiques québécois semblent exercer leur métier dans des conditions similaires à celles d'autres segments du journalisme au Canada (Cf. Pereira, 2023) et dans d'autres pays (Reinardy, 2009; Frisque, 2013), ce qui se traduit par un regard moins favorable porté sur leur travail.

Par ailleurs, les journalistes scientifiques considèrent qu'il y a eu une détérioration des conditions de couverture de l'actualité scientifique. Un nombre important de répondants perçoit une montée « d'affirmations douteuses, de rumeurs et d'idées reçues à vérifier » (3,74 sur 5) et une réduction « des occasions d'aller sur le terrain » (3,41 sur 5). En outre, ces journalistes scientifiques font face à des difficultés pour accéder aux sources d'information, celles qui œuvrent dans des instances publiques (3,77 sur 5) comme privées (3,56 sur 5). À ce propos, les sources scientifiques, soit les chercheurs d'institutions académiques, constituent une exception. Le taux d'accord autour de l'énoncé « Accéder aux scientifiques est de plus en plus difficile » est de 2,67 sur 5. Cette tendance correspond à la configuration du milieu du journalisme au Québec, dont la taille favorise la proximité avec les sources spécialisées, voire des rapports de connivence avec les scientifiques (Marcotte & Sauvageau, 2006; Piccard, 2012; Lapointe & Lieutenant-Gosselin, 2019).

Les répondants sont moins pessimistes lorsqu'ils évaluent la capacité de leur spécialité d'offrir des conditions d'équilibre entre leur travail et leur vie personnelle (*work-life balance*) (Snyder *et al.*, 2021). Ainsi, les taux d'accord sont moins élevés pour les questions suivantes: « Les journalistes scientifiques les plus âgés sont poussés à quitter leur emploi » (2,38 sur 5); « Les journalistes scienti-

7 Un article publié sur le média québécois *La Presse* affirme qu'un tiers des journalistes canadiens sont employés par le groupe CBC/Radio-Canada (Crête, 2023)

Tableau 3: Évaluation des tendances, réelles ou supposées, qui caractérisent le métier de journaliste scientifique actuellement

Tendances	Moyenne	Écart type	% Plutôt important et Très Important
La pression au travail n'a fait qu'augmenter ces dernières années	3,64	,811	53,8
Il y a de moins en moins de sécurité d'emploi	3,87	,833	64,1
Les journalistes scientifiques les plus âgés sont poussés à quitter leur emploi	2,38	,990	7,7
Les journalistes scientifiques les plus jeunes peinent à faire leur place	3,03	,959	33,3
Les journalistes scientifiques doivent travailler sur plusieurs supports médiatiques	3,87	,951	74,4
Les tâches attribuées aux journalistes scientifiques n'ont fait qu'augmenter ces dernières années	3,49	,823	38,5
Les compétences techniques deviennent de plus en plus importantes	3,64	,668	64,1
Les journalistes scientifiques disposent de peu de temps pour leur vie sociale	2,59	,993	15,4
Être journaliste scientifique est difficile à concilier avec une vie familiale	2,33	1,060	15,4
Accéder aux scientifiques est de plus en plus difficile	2,67	1,060	28,2
On demande de plus en plus aux journalistes scientifiques de produire des contenus commandités	2,62	1,091	23,1
La réputation des journalistes scientifiques souffre du mauvais travail de leurs collègues généralistes	3,26	1,163	53,8
Les occasions d'aller sur le terrain sont de plus en plus rares	3,41	1,093	51,3
L'accès à l'information est difficile auprès des instances publiques	3,77	,872	64,1
L'accès à l'information est difficile auprès des instances privées	3,56	,788	48,7
Les rédactions accordent peu ou pas d'importance à la spécialisation scientifique et confient des reportages scientifiques à des journalistes généralistes	3,36	1,063	53,8
Il y a trop d'affirmations douteuses, de rumeurs et d'idées reçues à vérifier	3,74	1,069	66,7

Source : élaboré par les auteurs à partir de l'étude menée par Van Leuven *et al.* (2019). Les éléments suivants ont été ajoutés au questionnaire appliqué au Québec de manière à mieux résonner avec le contexte du journalisme scientifique régional : « Les journalistes scientifiques les plus jeunes peinent à faire leur place », « Accéder aux scientifiques est de plus en plus difficile », « On demande de plus en plus aux journalistes scientifiques de produire des contenus commandités », « La réputation des journalistes scientifiques souffre du mauvais travail de leurs collègues généralistes », « Les occasions d'aller sur le terrain sont de plus en plus rares », « L'accès à l'information est difficile auprès des instances publiques », « L'accès à l'information est difficile auprès des instances privées », « Les rédactions accordent peu ou pas d'importance à la spécialisation scientifique et confient des reportages scientifiques à des journalistes généralistes », « Il y a trop d'affirmations douteuses, de rumeurs et d'idées reçues à vérifier ».

Tableau 4: Degré de satisfaction quant aux conditions de travail

	Moyenne	Écart type	% Plutôt Important et Très Important
Mes revenus	3,31	1,341	61,5
Ma charge de travail	3,49	1,233	56,4
Les tâches et fonctions	4,10	1,119	76,9
Mon temps libre disponible	3,44	1,095	48,7
Mes avantages sociaux	2,72	1,701	35,9
Mon autonomie	4,46	1,022	87,2
Mon sentiment d'accomplissement	4,21	1,174	87,2
Mon sentiment de compétence	4,33	,869	89,7
Le prestige de ma fonction	3,21	1,380	51,3

Source : Élaboré par les auteurs.

riques disposent de peu de temps pour leur vie sociale» (2,59 sur 5); et «Être journaliste scientifique est difficile à concilier avec une vie familiale» (2,33 sur 5).

Finalement, au niveau de la satisfaction avec la carrière, les réponses suggèrent un attachement important des journalistes scientifiques à leur travail. Cela est conforme aux résultats d'un sondage international où 79% des répondants se disent satisfaits (Massarani *et al.*, 2021). Ce constat s'exprime par les évaluations très positives à propos des tâches et fonctions réalisées (4,10 sur 5), de leur autonomie (4,46 sur 5), de leur sentiment d'accomplissement (4,21 sur 5) et de leur sentiment de compétence (4,33 sur 5) (Tableau 4). Cette dimension «affective» (Le Cam & Ruellan, 2017) à propos de la pratique du journalisme scientifique est nettement plus valorisée que le sont de possibles avantages d'ordre matériel (rémunération, avantages sociaux) ou symbolique (le prestige). Tout cela suggère, d'un côté, une certaine adaptation des projets de carrière des journalistes

scientifiques québécois à la situation du marché de travail provincial, où les revenus sont généralement faibles et où la charge de travail dans les salles de rédaction augmente. D'un autre côté, l'attachement de ces journalistes à leur travail et à la science semble justifier leur permanence dans ce segment (Cf. Marcotte & Sauvageau, 2006).

Il est donc possible d'affirmer que les journalistes scientifiques partagent une perception similaire à celle d'autres segments de la profession au Canada (Pereira, 2023; Cohen, 2021) en ce qui concerne leurs conditions de travail. Cet «engagement affectif et parfois passionnel dans le travail d'information [...] attendu dans un contexte profondément précaire⁸» (Deuze et Witschge 2018, p. 196) semble affecter à la fois la carrière de ces journalistes, instable et marquée par

8 «The affective and at times passionate engagement with newswork is expected in a profoundly precarious context and as such asks for rearticulation». Traduit par les auteurs.

des contrats temporaires, et leur conception d'identité, fortement marquée par un investissement passionnel dans leur travail (Hong, 2015). Cette hypothèse mérite cependant d'être développée à l'aide d'autres données issues par exemple d'entretiens en profondeur.

4.2 Se concevoir en tant que journaliste scientifique québécois

Pour répondre à la QR2 sur les rôles professionnels, nous avons analysé les réponses fournies par les journalistes québécois quant aux fonctions exercées dans l'exercice de la profession. Il s'agit d'une démarche explicitement exploratoire. Au lieu d'utiliser en amont une typologie déjà existante, nous avons identifié les indicateurs qui se regroupent lors d'une réduction des variables faite par analyse factorielle. Sept rôles ont émergé de cette opération: quatre regroupés autour d'approches citoyennes et trois qui épousent les attentes des consommateurs de l'information (Hanitzsch, 2017; 2019) (Tableau 5).

Pour les approches citoyennes, nous avons adopté, puis adapté le classement des rôles des journalistes scientifiques proposé par Fahy et Nisbet (2011). Ainsi, quatre rôles ont émergé de nos résultats. Le décideur de l'ordre du jour (*Agenda-setter*) «identifie et attire l'attention sur des domaines de recherche, des tendances et des problèmes importants, dont la couverture est ensuite reprise et reflétée dans d'autres médias scientifiques⁹» (Fahy et Nisbet, 2011, p. 780). L'activiste (*Advocate*) donne la parole à des groupes spécifiques ou exprime un point de vue ou une vision de monde particulière, par exemple par rapport à l'environnement. Le chien de garde (*Watchdog*) surveille les scientifiques, organisations scientifiques et institutions responsables des politiques publiques en science, en technologie et en innovation. Finalement, la courroie de transmission (*Conduits*) «explique ou traduit des informations scientifiques provenant des experts à des publics non spécialisés¹⁰» (p. 780).

9 «Identifies and calls attention to important areas of research, trends and issues, coverage of which is then picked up and reflected in other science news outlets». Traduit par les auteurs.

10 «Explains or translates scientific information in their reporting from experts to non-specialist publics». Traduit par les auteurs.

Pour catégoriser les trois rôles orientés vers les consommateurs, nous nous sommes approprié trois rôles-dimensions proposés par Hanitzsch et Vos (2018) lors de leur analyse sur les journalistes spécialisés dans le style de vie. Ainsi, le connecteur (*connector*) cherche à connecter les membres de l'audience avec la société, en leur offrant un sentiment d'appartenance sociale. À son tour, l'amuseur (*entertainer*) contribue à la gestion et à la régulation du bien-être émotionnel. Finalement, l'inspirateur (*inspirator*) fait la promotion de nouveaux modes de vie et de nouveaux produits auprès de publics cibles-consommateurs.

Cette typologie cherche ainsi à enrichir celle mise de l'avant par Fahy et Nisbet (2011), qui est très centrée sur la dimension «citoyenne» du journalisme scientifique. Cela permet ainsi d'aborder les impacts d'un contexte d'hyperconcurrence médiatique ainsi que l'ouverture aux pratiques commerciales et de divertissement qui caractérisent, selon Brin *et al.* (2004), le «journalisme de communication». Par ailleurs, les sept rôles que nous suggérons s'inscrivent dans le prolongement des questions portant sur ce sujet figurant dans notre outil d'enquête. Construite avec un échantillon de 39 réponses, cette typologie n'a évidemment aucune ambition de validité statistique. Elle cherche surtout à proposer une nouvelle typologie qui tient compte de l'évolution des rôles des journalistes scientifiques, afin de fournir des éléments de discussion pour de futures recherches.

La Tableau 5 présente les saturations factorielles des éléments ainsi que la moyenne des réponses pour chaque affirmation (sur 5) et la proportion (%) des répondants ayant jugé chacun de ces rôles comme «Important» ou «Très important». Les moyennes permettent d'observer la tendance générale des réponses, tandis que les pourcentages mettent en évidence la force du consensus autour de certains rôles.

Dans l'ensemble des rôles orientés vers les citoyens, celui de courroie de transmission était de loin le plus plébiscité par les journalistes scientifiques québécois (4,94 sur 5). Ce facteur regroupe les fonctions de présentation compréhensible de l'information (4,92 sur 5) et de fiabilité de l'information (4,97 sur 5). Ces deux dimensions présentent les scores

Tableau 5: Typologie des rôles professionnels assumés par les journalistes scientifiques québécois

Rôles Professionnels	Varimax	Moyenne	Écart type	% Plutôt important et Très Important
Approches citoyennes (Citizen Approaches)				
<i>Décideur de l'ordre du jour (Agenda-setter)</i>				
Analyser et interpréter des problèmes complexes	,652	4,44	,680	94,9
Influencer l'opinion publique	,896	3,26	,966	46,2
Influencer l'agenda politique	,798	2,95	1,050	30,8
<i>Activiste (Advocate)</i>				
Inciter les gens à l'action et à la participation	,579	2,90	1,252	41,0
Être le porte-voix de certains groupes	,386	2,13	1,151	15,4
Fournir une tribune pour que les gens expriment leurs point	,598	2,77	1,111	30,8
<i>Chien de garde (Watchdog)</i>				
Diffuser les informations le plus rapidement possible	,311	3,00	,761	25,6
Être un « chien de garde » de la démocratie.	,435	3,74	1,069	61,5
Lutter contre les fausses nouvelles	,811	4,56	,788	75,6
<i>Courrois de transmission (Conduits)</i>				
Présenter les informations de manière compréhensible.	,736	4,92	,270	100,0
Fournir des informations fiables	,911	4,97	,160	88,9
Approches orientées vers le consommateur (Consumer Approaches)				
<i>Connecteur (Connector)</i>				
Entretenir le contact avec le public.	,533	3,72	,793	66,7
Prendre en compte les commentaires du public sur votre travail	,893	3,51	,914	56,4
<i>Amuseur (Entertainer)</i>				
Divertir	,807	3,10	1,021	33,3
Toucher un public le plus large possible	,665	4,00	,918	76,9
<i>Inspirateur (Marketer)</i>				
Trouver des pistes de solution aux problèmes de société.	,326	3,82	,854	64,1
Créer un environnement favorable aux publicitaires	,318	1,31	,614	0,0
Signaler de nouvelles tendances et idées	,848	3,31	1,080	53,8

Source : élaboré par les auteurs à partir de l'étude menée par Van Leuven *et al.* (2019). L'affirmation « Lutter contre les fausses nouvelles » a été ajoutée au questionnaire pour vérifier l'impact de la circulation des contenus de désinformation sur l'autoperception des rôles professionnels par les journalistes scientifiques au Québec.

moyens les plus élevés de l'ensemble des rôles identifiés, ainsi que des taux très élevés de perception d'importance (100% et 88,9% respectivement). Le deuxième rôle le plus valorisé par les journalistes scientifiques du Québec est celui de chien de garde (3,77 sur 5), bien que son importance perçue soit moindre que celui de courroie de transmission. Ce rôle est composé de trois dimensions au niveau d'adhésion variable: diffuser rapidement de l'information (3 sur 5), être un chien de garde de la démocratie (3,74 sur 5) et lutter contre les fausses nouvelles (4,56 sur 5). Ainsi, le rôle de chien de garde est surtout activé lorsqu'il s'agit de contrer la désinformation plutôt que dans une logique de surveillance politique ou de course à l'immédiateté.

Ces constats contrastent avec le manque d'intérêt des répondants québécois pour le rôle d'activiste (*advocacy*) (2,6 sur 5). Ces résultats soulignent l'ancrage de notre échantillon dans une tradition du journalisme fortement marquée par une idéologie de l'objectivité (Deuze, 2005), c'est-à-dire par un refus de toute forme d'engagement de la part des journalistes, ainsi que par une forte adhésion aux normes du journalisme traditionnel, comme l'indépendance, la neutralité et l'exactitude (Strauss *et al.*, 2021). Ces résultats sont similaires à ceux observés auprès de journalistes scientifiques dans différents pays d'Europe, comme l'ont constaté Klem *et al.* (2019) et Strauss *et al.* (2021). De même, Rosén *et al.* (2016) constatent aussi un tel attachement au rôle de fournisseur neutre d'informations auprès de journalistes scientifiques argentins, français et allemands, même si certains interviewés ont mentionné avoir à cœur de divertir un public plus large. « Notre page scientifique est amusante, et il est permis de s'amuser avec la science » (p. 342)¹¹.

Justement, du côté des rôles orientés vers les consommateurs, nos répondants adhèrent fortement à ceux de connecteur (3,61 sur 5) et d'amuseur (3,55 sur 5). Le rôle de connecteur se décline en deux dimensions: « entretenir le contact avec le public » (3,72 sur 5) et « prendre en compte les commentaires du public sur votre travail » (3,51 sur 5). Ces résultats indiquent que les journalistes reconnaissent l'importance de maintenir une

relation avec leur audience, mais sans que cela soit considéré comme une mission centrale de leur pratique professionnelle. Le rôle d'amuseur présente un contraste intéressant entre les deux dimensions qui le composent. La nécessité de « toucher un public le plus large possible » est entérinée relativement largement (4,00 sur 5), ce qui suggère qu'être facile d'approche pour le grand public est perçu comme important. En revanche, la mission explicitement ludique de « divertir » recueille une adhésion beaucoup plus faible (3,10 sur 5). Cette dissociation laisse entendre que, même s'ils souhaitent atteindre le plus grand nombre, les journalistes préfèrent y parvenir par la vulgarisation et la clarté plutôt que par le divertissement au sens strict. Finalement, le rôle d'inspirateur est le moins valorisé de ceux orientés vers le consommateur avec une moyenne générale de 2,81 sur 5.

Ces derniers constats nous semblent liés au contexte du numérique, qui oblige les journalistes scientifiques à se partager entre le travail de production et de diffusion de l'information ainsi que celui de gestion des rapports avec un public intéressé à consommer, contribuer, recommander, partager, commenter et discuter des sujets scientifiques à travers des médias et des plateformes (Cf. Fahy & Nisbet, 2011; Cf. Hermida *et al.*, 2013). Nos résultats suggèrent en ce sens un mouvement d'adaptation de l'identité des journalistes scientifiques québécois à l'écosystème numérique d'information, une piste d'explication similaire à celle privilégiée par Grubenmann & Meckel (2015) auprès d'un groupe de journalistes suisses dont la conception du rôle est davantage axée sur le service et les solutions plutôt que sur un respect des traditions empreint d'élitisme. Ce mouvement se caractérise par un entremêlement de la dimension plutôt normative des rôles professionnels (informer l'audience, surveiller les institutions, etc.) avec des injonctions autour de la construction et l'entretien des liens avec les audiences (Blanchett *et al.*, 2024). Par conséquent, les journalistes (y compris scientifiques) s'efforcent « de divertir et d'informer, ou, en d'autres termes, de jouer à la fois un rôle d'infodivertissement et un rôle civique¹² »

11 « Our science page is fun, and it is allowed that science makes fun ». Traduit par les auteurs.

12 « To both entertain and inform, or, in other words, perform both the infotainment and civic roles ». Traduit par les auteurs.

(p. 18). Dans la pratique, cet entremêlement n'est toutefois pas sans susciter une certaine méfiance de la part des journalistes scientifiques qui voient *de facto* des communicateurs scientifiques institutionnels investir leur champ professionnel (Franks *et al.*, 2022).

Cette apparente complicité entre deux dimensions distinctes des rôles journalistiques (citoyens et consommateurs) renvoie aussi à une dualité déjà évoquée par David Secko, en 2012 (voir aussi Pitrelli, 2017). Dans son travail, l'auteur souligne l'existence de deux modèles de journalisme scientifique : celui de la littérature scientifique (*science literacy model*) dans lequel les connaissances doivent simplement être traduites par le journaliste et transmises vers un public passif ; et celui de la science interactive (*interactive science model*), qui « insiste moins sur l'objectivité de la science et davantage sur une cartographie subjective de ses aspects culturels » (p. 55) de manière à stimuler l'engagement de la part des audiences. Or, dans son article, Secko souligne le fait que le modèle de littérature scientifique reste hégémonique dans le milieu professionnel. Nos résultats suggèrent un mouvement, sinon de transition vers le modèle de science interactive, au moins de convergence entre ces deux modèles de communication publique de la science.

5 Discussions et conclusions

Dans cette étude, nous avons brossé un portrait des journalistes scientifiques de la province canadienne du Québec. Notre démarche nous a permis de reprendre, puis de faire progresser certains constats présentés par d'autres études similaires faites au Québec. Et ce, dans le but de mieux comprendre les traits qui distinguent les journalistes scientifiques en tant que participants d'un segment à l'intérieur du monde des journalistes (Bucher & Strauss, 1961)

Grosso modo, les données sociodémographiques suggèrent que ce segment est majoritairement féminin – suivant une tendance observée dans d'autres spécialités (Schoch, 2012; Damian-Gaillard & Saitta, 2020). En même temps, il s'agit d'un segment relativement âgé (moyenne d'âge de plus de 45 ans, et 90% des répondants âgés de plus de 30 ans)

à l'encontre d'une tendance générale de rajeunissement du journalisme dans différents pays (Cf. Josephi & Oller Alonso, 2021). Ces résultats sont similaires à ceux de Massarani *et al.* (2021) constatés lors de leur enquête.

Les journalistes scientifiques de notre enquête sont très éduqués. Ce niveau assez élevé de formation ne les prémunit toutefois pas contre la précarisation. En fait, le croisement des données sur les revenus et le statut révèle une dualité dans la configuration du marché de travail de l'information scientifique au Québec. D'un côté, dans la base de la pyramide salariale, un important contingent de journalistes scientifiques (70%) gagne moins que leurs pairs qui travaillent dans d'autres spécialités. Qui plus est, entre eux, le statut d'indépendant prévaut. Au sommet de cette pyramide se trouvent les journalistes scientifiques qui ont un emploi permanent, généralement dans le système public de radio et télévision. Ce marché de travail dual et précaire n'est pas exclusif à l'information scientifique (Pereira, 2023; Lamoureux, 2022) ni au contexte du Québec (Pontes & Mick, 2023). Pourtant, cette situation nous semble plus évidente dans un marché historiquement marqué par une forte incidence des journalistes pigistes, ces derniers étant déjà habitués aux logiques de flexibilisation des relations de travail.

La QRI a pour objet l'évaluation, par les journalistes scientifiques québécois, de leurs conditions de travail. La réponse fournie par ce segment professionnel aux conditions précaires d'exercice du métier consiste à assumer un deuxième emploi, probablement dans le domaine de la communication scientifique. Des recherches précédentes suggèrent que ce statut hybride de journaliste et communicateur de la science semble être un trait du marché de travail québécois depuis au moins le début des années 2000 (Marcotte et Sauvageau, 2006). Le nombre important des professionnels qui adoptent cette double appartenance révèle une situation de forte porosité entre ces deux champs professionnels au Québec, ce qui n'est pas nécessairement le cas d'autres segments du journalisme.

Les répondants de notre sondage reconnaissent cette situation. Ils expriment un avis assez défavorable à propos des conditions de travail, ce qui est partiellement compensé par

un fort attachement aux mondes de la science et aux pratiques du journalisme scientifique (Cf. Marcotte & Sauvageau, 2006). Ce constat est renforcé par le rapport de proximité qui semble exister entre les journalistes et les sources scientifiques au Québec.

La QR2 porte sur *les rôles professionnels qui orientent la perception que les journalistes scientifiques ont de leur travail*. Le rôle de courroie de transmission, responsable de traduire des informations scientifiques à destination d'un public constitué de non-spécialistes, domine notre échantillon. Ce résultat nous semble révélateur d'une idéologie professionnelle qui semble répandue parmi les journalistes scientifiques et qui se fonde sur leur capacité à servir de pont entre les scientifiques et les citoyens.

Dans ce sens, la perception des journalistes scientifiques du Québec à propos de leur rôle professionnel rejoint la proposition de Gesualdo *et al.* (2019) qui situent les journalistes scientifiques en tant que « courtiers en savoirs » (*knowledge brokers*), c'est-à-dire ceux qui opèrent le flux des connaissances de la science vers la société. En plus de faciliter l'accès à la recherche pertinente, ces journalistes jouent un rôle important dans la traduction et le transfert des résultats de la recherche. Ainsi, « la fonction d'engagement exercée par les journalistes augmente la probabilité que les consommateurs d'informations comprennent et réfléchissent de manière critique à la signification et aux implications des résultats de recherche pertinents »¹³ (p. 132).

Par ailleurs, les résultats suggèrent une diversification des rôles secondaires partagés par ces journalistes scientifiques, avec un poids relativement important attribué par les répondants aux dimensions de décideur de l'ordre du jour, de chien de garde, de connecteur et d'amuseur. Ces données révèlent une perception assez dichotomique des pratiques de couverture des sciences. D'un côté, l'évaluation assez favorable de certaines dimensions citoyennes du rôle journalistique révèle une préoccupation de préserver l'autonomie

du groupe et de protéger la communication publique de la « Science » des injonctions du monde profane. De l'autre, ces mêmes professionnels semblent reconnaître le besoin d'intégrer les intérêts des consommateurs à la diffusion de l'actualité scientifique. Cette dualité suggère un moment de transition ou de diversification de l'identité des journalistes scientifiques, en réaction à des contraintes d'ordre économique liées à la participation plus active du public cible et à la détérioration de l'industrie médiatique au Canada.

D'une manière générale, notre étude montre que, malgré quelques particularités liées au contexte québécois, l'identité des journalistes scientifiques interrogés évolue de façon assez similaire à celle d'autres journalistes travaillant dans d'autres pays. En ce sens, ils sont soumis aux mêmes contraintes en ce qui concerne les pratiques et la structure du marché du travail dans d'autres systèmes médiatiques. Par ailleurs, leur perception de leur rôle professionnel est assez proche de celle de leurs collègues en Europe, voire en Amérique latine. Ainsi, les réflexions proposées dans cette étude, notamment la typologie des rôles des journalistes scientifiques, peuvent être adaptées et répliquées à d'autres pays partageant un système médiatique similaire à celui du Québec et du Canada (Hallin & Mancini, 2004).

5.1 Contributions et limites

Cette étude apporte au moins trois contributions importantes aux études sur le groupe professionnel des journalistes scientifiques et, plus largement, sur le marché de travail du journalisme au Québec. D'abord, il met à jour le portrait de ce segment, plus de dix ans après le dernier sondage fait sur cet objet dans le contexte québécois (Cf. Marcotte & Sauvageau, 2006; Rochon, 2008; Fleury *et al.*, 2012). L'ensemble des données récoltées permet ainsi de mieux comprendre les impacts de certains événements importants (la montée du numérique et des plateformes, la pandémie de Covid-19, etc.) sur l'identité journalistique et sur la configuration du marché de travail de cette province canadienne.

L'extraction et l'analyse des données issues du questionnaire permettent par ailleurs de détecter les modalités selon lesquelles s'opèrent les clivages au sein de ce segment

13 « Engagement function that journalists perform increases the likelihood that news consumers will comprehend and critically reflect on the meaning and implications of relevant research evidence. » Traduit par les auteurs.

professionnel. En fait, la précarisation observée lors de cette étude semble opérer de façon sélective, affectant particulièrement les journalistes indépendants travaillant pour les secteurs de la presse écrite et en ligne – les plus sensibles à la crise du modèle économique des médias au Québec (Bizimana & Kane, 2019).

Bien qu'il s'agisse d'une étude à l'échelle régionale, les discussions proposées par cet article sont révélatrices des enjeux de mondialisation des identités journalistiques (Le Cam & Pereira, 2022), soumis aux mêmes contraintes et aux mêmes injonctions liées aux innovations du numérique. Ces constantes résistent tout particulièrement dans le contexte du journalisme scientifique, dont les praticiens sont fréquemment confrontés à la couverture de sujets d'envergure internationale, comme les pandémies, les changements climatiques, etc. (Cf. Volkmer, 2022; Wahl-Jorgensen & Quandt, 2022).

Cette étude est limitée par la taille réduite ($n = 39$) de son échantillon. D'autres enquêtes peuvent ainsi élargir le bassin au contingent des journalistes scientifiques canadiens afin de tester certains constats, ainsi que vérifier des similitudes et différences entre les sous-groupes professionnels francophone et anglophone.

De plus, l'utilisation d'un questionnaire centré sur le profil amène à des résultats plutôt descriptifs, sans approfondir certains points importants concernant la pratique et les identités des journalistes scientifiques brièvement évoqués dans les résultats, par exemple la connivence avec les sources et l'interactivité comme tendance constructive pour le champ journalistique. Ainsi, d'autres méthodologies de recherche comme des entretiens en profondeur et des analyses textuelles pourraient être mises en œuvre dans un futur proche pour approfondir ces questions.

D'autres études pourront également reprendre et approfondir la façon dont la littérature internationale classe la préoccupation des journalistes scientifiques d'intégrer les aspirations du public à leur pratique quotidienne dans la catégorie des rôles « orientés vers les consommateurs ». Cette volonté des journalistes d'échanger avec leurs publics pourrait être vue comme un souci d'accéder aux connaissances profanes en matière d'information scientifique, avec des effets im-

portants sur la communication publique des sciences. Nous suggérons ainsi cette piste à ceux qui souhaitent revenir sur ces typologies déjà établies dans le domaine des rôles professionnels du journalisme.

D'ailleurs, ce sondage aurait pu mieux prendre en compte l'existence de profils hybrides. En ce sens, il s'adressait aussi par la bande à des communicateurs (ou à d'autres statuts professionnels) qui pratiquent, d'une façon plus ou moins occasionnelle, le journalisme scientifique. Cette lacune est due à notre stratégie d'échantillonnage qui s'est adressée spécifiquement aux individus qui se considéraient des *journalistes scientifiques* lors de la circulation du questionnaire. Cette stratégie réputée très efficace pour cibler les valeurs et l'autoperception de ces journalistes passe à côté de toute une constellation de communicateurs, d'influenceurs et de vulgarisateurs (y compris sur les plateformes numériques) qui participent à un écosystème assez riche de production et de circulation de l'information scientifique au Québec. C'est par exemple le cas des blogueurs scientifiques qui s'attribuent le rôle de courroies de transmission et d'intellectuels publics (Brown Jarreau, 2015). Ainsi, d'autres instruments de recherche peuvent être mobilisés pour mieux cartographier cet espace.

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Conflits d'intérêts

Les auteurs n'ont pas des conflits d'intérêts à déclarer.

Déclaration éthique

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How individuals in Switzerland negotiate their everyday digital technology use—Insights from a mixed-methods analysis (Dissertation Summary)

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Abstract

Digital technologies pervade the lives of many people in Switzerland. This increasing digital datafication brings opportunities but also risks like algorithmization, dataveillance, and related to this, threats to subjective well-being. In my dissertation, I argue that individuals cope with such risks by engaging in different practices. To investigate these practices, I use a mixed-methods research design. Using representative surveys, I show that social inequalities are related to digital skills and internet usage over time, and also that being aware of a risk, feeling affected by it, and having the necessary skills are crucial for applying self-help strategies to cope with it. Using qualitative interviews, I show that individuals' dataveillance imaginaries play a central role in the self-inhibition of digital communication, and also that resistance to digital technologies can be a way to deal with their omnipresence. From these findings, I derive an integrated conceptual framework, which illustrates that internet users actively negotiate their use of digital technologies through digital practices and sheds light on the factors associated with this process. By doing so, this dissertation advances critical discussions around individuals' digital technology use and provides the basis for evidence-based policy strategies aiming at a more inclusive digitized society.

Keywords

digital risks, digital practices, social inequalities, self-help strategies, dataveillance imaginaries, digital skills, digital resistance, mixed-methods research design

1 Introduction

Digital technologies have become an integral part of everyday life. In Switzerland, 98% of the population uses the internet (Bundesamt für Statistik, 2023), and on average, individuals spend 5.6 hours per day using digital technologies such as smartphones, tablets, laptops, or other devices that are connected to the internet (Latzer, Festic, Kappeler & Odermatt, 2023a). Today, many mundane activities take place online: People use digital technologies for information, for entertainment, and for socializing. Increasingly, these digital technologies are marked by *digital datafication*, *algorithmization*, and *platformization*—three co-evolving drivers of the current media change (Latzer, 2022). On the one hand, this entails *opportunities*, like easy and fast access to personally relevant content (Latzer & Just, 2020). On the other hand, this

entails *risks*, like data-driven surveillance or dataveillance (Lyon, 2017; van Dijck, 2014), the potential for bias and manipulation through distorted information (Noble, 2018; O'Neil, 2017), and threats to subjective well-being, for instance, related to perceived overuse of digital technologies (Büchi et al., 2019; Syvertsen, 2020). Because digital technologies pervade everyday life and because people assign relevance to them (Reiss et al., 2021), they have the potential to shape their users' realities (Couldry & Hepp, 2017) and hence to lead to real-life consequences (Helsper et al., 2015; Scheerder et al., 2019), like the reproduction and reinforcement of social inequalities, i. e., differences between individuals that relate to their socioeconomic background (van Dijk, 2020). This is why empirical and conceptual research into individuals' digital practices in a highly digitized society is needed.



2 Theoretical basis and research question

In my dissertation (Kappeler, 2024b), I combine two perspectives. First, a *user-centered perspective* that highlights digital technologies' opportunities and understands users as active agents (Mariën & Prodnik, 2014). And second, a *critical data-studies perspective* that highlights digital technologies' risks and considers social structures in relation to digital practices (boyd & Crawford, 2012). In addition, I apply a *socio-technological lens*, which reflects my understanding of digital technologies and digital practices being embedded in social contexts (Hall, 2020), and being in a mutually shaping, recursive relationship with each other (Gillespie, 2014; van Dijck et al., 2018). Beyond these perspectives and lenses, my dissertation is informed by theoretical approaches like the *theory of planned behavior* (Ajzen, 1991), *uses and gratifications theory* (Katz et al., 1973), *self-determination theory* (Ryan & Deci, 2000), and the *concept of the digital divide* (van Dijk, 2020). Drawing on these approaches, I argue that individuals are not simply at the mercy of digital technologies but can leverage the associated opportunities and cope with the risks through their digital practices. I use the term *digital practices* in the tradition of De Certeau (1988) to refer to individuals' behaviors that they engage in to negotiate their everyday digital technology use. In doing so, individuals exert agency by navigating their digital everyday lives (Kennedy, 2018). Drawing on the theory of planned behavior (Ajzen, 1991) and uses and gratifications theory (Katz et al., 1973), I assume that individuals use digital technologies to fulfill their needs and hence, to maximize their subjective well-being (Anderson & Rainie, 2018; Büchi, 2021). Having identified digital practices as a key element to leverage digital technologies' opportunities and to cope with their risks, I argue that it is essential to research them as well as individuals' background factors and their digital skills. Therefore, my dissertation investigates the following research question: *How do internet users apply digital practices to negotiate their use of digital technologies?* I address this question empirically as well as conceptually.

3 Identifying digital risks and individual coping strategies

From a critical data-studies perspective, individuals' practices are one way in which they can benefit from the opportunities that digital technology entails as well as in which they can cope with the risks that come with it. In my dissertation, drawing on current research, I identify three risks associated with digital technologies as well as potential practices to cope with these.

The first risk that I identify is *dataveillance*, which refers to surveillance through the automated and constant collection and analysis of digital data traces (Büchi et al., 2020). People can become aware of dataveillance through triggers that heighten their sense of dataveillance or perceived surveillance, i. e., their feeling of being watched or listened to (Odermatt et al., 2025; Strycharz et al., 2022). As a consequence of feeling dataveilled, people can inhibit their legitimate digital communication behavior. The self-inhibition that results from feeling surveilled has been referred to as the *chilling effects of surveillance* (White & Zimbardo, 1975) or *dataveillance* (see e. g., Büchi et al., 2022; Marthews & Tucker, 2017; Penney, 2016; Stoycheff et al., 2019). Such chilling effects constitute a problem for democratic processes as they limit free information and free speech (Habermas, 2022; Penney, 2022), especially for sensitive topics and opinions (Stoycheff, 2016). Besides inhibiting their legitimate digital communication behavior, people can also deal with dataveillance by engaging in *privacy-protection behavior* (see e. g., Baruh et al., 2017; Boerman et al., 2018). A third way in which people can cope with dataveillance is through *resisting digital technologies*, i. e., consciously deciding against using digital technologies to avoid contributing to the collection and analysis of data traces and to the monetization thereof. I refer to *digital resistance* as the active and deliberate disconnection from digital technologies, based on Syvertsen's (2017) conceptualization of the term *media resistance*.

The second risk that I identify is *distorted information through algorithmization*. The constant data collection and algorithmic selection of information can lead to an increasing personalization of the content a person

sees online (Latzer & Just, 2020). People can become aware of such algorithmic selection, especially when the content that is displayed to them is too tailored to their personal interests (Bucher, 2017; Rader & Gray, 2015). Such *awareness* is crucial for people to deal with it (Dogruel et al., 2020; Gruber et al., 2021). Besides being aware of a risk, people also need to *feel affected* by it to feel the need to cope with it (Rogers, 1975; Rosenstock, 1974; Witte, 1992). To deal with a risk like distorted information due to algorithmization, people can apply *self-help strategies* such as adjusting their privacy settings to limit data collection and processing (Boerman et al., 2018; Swart, 2021).

The third risk that I identify are *threats to a person's subjective well-being*. Threats to subjective well-being can arise from the norm of being constantly connected (Büchi, 2021; Nguyen, 2021; Vanden Abeele et al., 2022), as well as from the abundance of input and from potential information overload (Gui & Büchi, 2019). To deal with these threats to subjective well-being, people can engage in practices to *disconnect* from digital technologies (see e.g., Beattie, 2020; Karppi et al., 2021; Syvertsen, 2020). The expectation of engaging in such practices is to find more authentic connections with oneself and with others and to experience authenticity by living according to one's values (Syvertsen & Enli, 2020). Another way in which people can increase their subjective well-being is through self-determined use of digital technologies (Amichai-Hamburger & Barak, 2009).

To cope with these risks, I argue that individuals can engage in digital practices. The relevance of digital practices emerges from their potential to render digital technologies beneficial or harmful for individuals (van Dijk, 2020). They are a central element for the understanding of what people do in their everyday digital lives to leverage the opportunities that digital technologies entail and to cope with their risks (Büchi, 2021), and therefore, warrant empirical investigation. In my dissertation (Kappeler, 2024b), I look at four digital practices that address these risks as well as factors that play a central role in these practices:

(1) Internet usage in terms of time spent online and use of innovative digital technol-

ogies and their relation to digital skills and social inequalities (Kappeler, 2024a),

(2) the relevance of risk awareness, risk affectedness, and algorithm skills for self-help strategies against algorithmic risks (Kappeler, Festic, Latzer & Rüedy, 2023),

(3) the role of dataveillance imaginaries for self-inhibition of legitimate digital communication behaviors (Kappeler, Festic, & Latzer, 2023b),

(4) and manifestations, motives, and consequences of resistance to digital technologies (Kappeler, Festic, & Latzer, 2023a).

4 A mixed-methods research design

To investigate these four digital practices and the factors that are associated with their application, I combine two complementary methods: quantitative surveys and qualitative interviews. The population that I focus on are internet users in Switzerland. The combination of these two methods in a mixed-methods research design allows for a more holistic empirical approach to understanding individuals' digital practices. Also, it allows for the mitigation of some of the limitations that each of the methods entails individually. Hence, one empirical contribution of my dissertation lies in the combination and integration of the findings that I reached using these two methods.

To begin with, I used *quantitative surveys* as they allow for the mapping of the prevalence of phenomena and the testing of relationships on the population level. I contributed to developing, testing, and fielding two sets of surveys that were representative of the Swiss online population over 14 and 16 years, respectively, regarding age, gender, household size, and employment status. I used these surveys to (1) test the associations between internet use, attitudes, digital skills, and the feeling of inclusion in the information society over time (telephone and online surveys: $N_{2011} = 851$; $N_{2013} = 949$; $N_{2015} = 981$; $N_{2017} = 1013$; $N_{2019} = 1035$; $N_{2021} = 1069$; $N_{2023} = 1008$), and to (2) investigate self-help strategies that internet users apply to cope with algorithmic

risks such as surveillance, distorted information, and digital overuse (online survey: $N_{2018} = 1202$). Participants provided informed consent for the collection and scientific use of their data. In terms of data analysis, on the one hand, I applied multiple linear regressions using R to test the association of digital skills with social background, attitudes, and internet usage over time (2011–2023). On the other hand, I applied structural equation modeling in R to test the relationships between risk awareness, risk affectedness, and algorithm skills for dealing with three algorithmic risks, surveillance, distorted information, and perceived digital overuse, individually.

Then, I used *qualitative interviews* as they allow for an in-depth exploration of two phenomena that have so far been understudied: (3) individuals' dataveillance imaginaries and the relationship to the self-inhibition of legitimate communication behavior, and (4) individuals' digital resistance in response to their sense of dataveillance. I developed a topic guide for the semi-structured interviews and collected this data in the summer of 2022. I recruited Swiss internet users in a rolling process to include individuals with varying socioeconomic backgrounds and levels of internet usage. In total, I conducted 16 semi-structured qualitative interviews with Swiss internet users in (Swiss) German online or in-person. The mean length of the interviews was 72 minutes. Adhering to the university's ethics review guidelines, all participants provided informed consent for being interviewed and recorded and for the scientific use of their data. All transcripts were anonymized to protect participants' identities. I began to analyze the data directly after I had completed the first interview and recruited additional participants using a theoretical sampling approach until no new aspects emerged in the analysis, and hence data saturation was reached (Corbin & Strauss, 2015; Silverman, 2017). I conducted the main analysis using the qualitative data analysis software MAXQDA as well as pen-and-paper mind-mapping (Maher et al., 2018). I followed the principles of thematic analysis (Braun & Clarke, 2022) and grounded theory, hence starting with open coding and assigning descriptive codes (Corbin & Strauss, 2015), from which I identified patterns and generated themes. During

this iterative process, I also used the audio files and the memos that I created directly after each interview to enrich and interpret the codes.

5 Main empirical findings

In my first article (Kappeler, 2024a), I investigated *internet usage* as a digital practice, using quantitative survey data that was representative of Swiss internet users. I showed that there are associations between socioeconomic background, attitudes, digital skills, internet usage, and the feeling of inclusion in the information society. More specifically, this article demonstrated that a person's socioeconomic background, their cybers optimistic attitudes, their digital skills, and their feeling of inclusion in the information society are related to their internet usage in terms of time spent online, use of social media, health trackers, voice assistants, and services like ChatGPT. In addition, this article showed that these associations grew stronger over time, which indicates that existing social inequalities can be reproduced in the digital sphere, even in a highly digitized society like Switzerland.

In my second article (Kappeler, Festic, Latzer & Rüedy, 2023), together with my co-authors, I studied the digital practice of individuals' *self-help strategies* to cope with three algorithmic risks that are associated with the increasing algorithmic selection of digital technologies: surveillance, distorted information, and digital overuse. To do so, I used the second set of quantitative survey data that is representative of Swiss internet users. This article showed that risk awareness, personal risk affectedness, and algorithm skills are associated with the self-help strategies that internet users apply in the face of surveillance, distorted information, and perceived digital overuse. This indicates that regulations that aim at promoting individuals' self-help should focus on raising risk awareness, making individuals aware of their affectedness by risks, and supporting the development of digital skills.

In my third article (Kappeler, Festic, & Latzer, 2023b), I investigated, together with my co-authors, the *self-inhibition* of legiti-

mate digital communication behaviors as a digital practice. This article consists of a thematic analysis of qualitative data stemming from semi-structured interviews with Swiss internet users to explore how individuals' dataveillance imaginaries related to their self-inhibition. It demonstrated that due to their sense of dataveillance individuals inhibit their legitimate digital communication behavior in three ways: searching for information searching, voicing their opinion, and using online services. It showed that individuals' dataveillance imaginaries were central for their behavioral responses to a sense of dataveillance and explored the constitution of these imaginaries. More specifically, it showed that individuals' imaginaries were constituted by *who does what with what data and with what consequences*. These imaginaries impacted people's sense of dataveillance, i. e., their feeling of being watched or listened to online, which in turn related to the self-inhibition of the three identified legitimate digital behaviors, i. e., using services, searching for information, and voicing one's opinion. Hence, this article provided in-depth insight into how the *chilling effects of dataveillance mechanism* (Büchi et al., 2022), i. e., the self-inhibition of legitimate digital communication behavior as a reaction to a sense of dataveillance, emerges.

In my fourth article (Kappeler, Festic, & Latzer, 2023a), together with my co-authors, I explored individuals' *digital resistance*, i. e., their intentional non-use of widespread digital technologies, as a digital practice. This article was based on the qualitative analysis of interview data as well. It showed that individuals resist digital technologies to varying degrees, ranging from *discontinued* resistance to *thorough* digital resistance. With discontinued resistance, individuals took up their use of certain services after a period of resistance. With thorough resistance, they quit using multiple services by the same corporation (e. g., Meta) altogether. Further instances of resistance included *partial*, *situational*, and *niche* resistance. This article found motivations for resistance in being critical of data monetization and in fearing an impact on one's subjective well-being. Furthermore, it found that resistance can lead to self-empowerment and, hence, to an increase in sub-

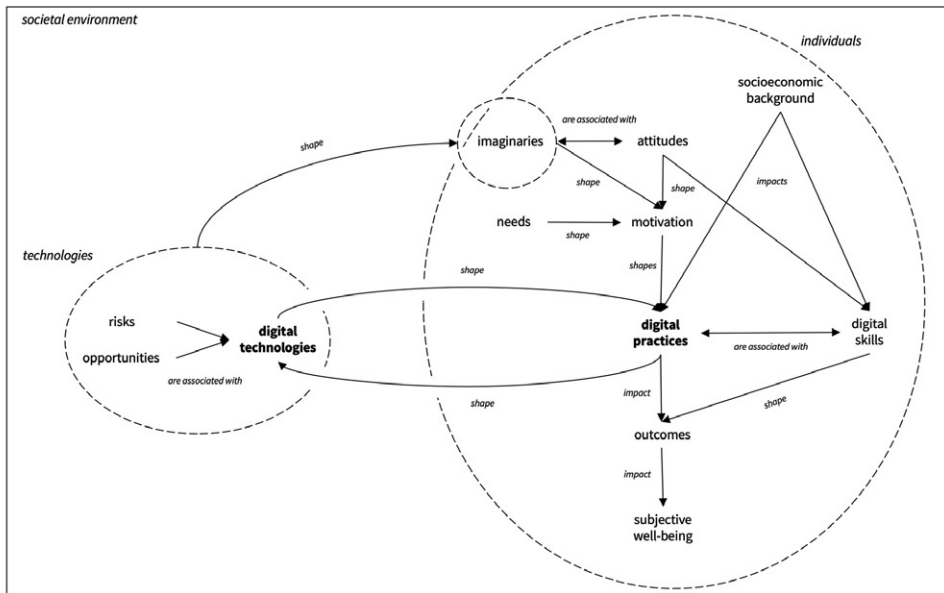
jective well-being. This indicates that digital resistance can be a way to cope with the increasing pervasion of digital technologies in everyday life.

These four articles contribute to answering my research question by showing how internet users apply digital practices to negotiate their use of digital technologies. In addition, they highlight that these digital practices are associated with factors on the individual level. These factors include individuals' socioeconomic background, their perceptions and sense-making in terms of imaginaries, their attitudes, their needs, their motivation, and their digital skills. Moreover, the findings show that these factors can impact outcomes of people's technology use, and through this, individuals' subjective well-being. Based on these empirical findings, I developed an *integrated conceptual framework* that maps the factors that I identified to be associated with internet users' digital practices related to the opportunities and risks which digital technologies entail (see Figure 1).

6 Main conceptual findings: An integrated conceptual framework of individuals' digital practices

This framework is based on my empirical research (Kappeler, 2024a; Kappeler, Festic, & Latzer, 2023b, 2023a; Kappeler, Festic, Latzer, & Rüedy, 2023) and draws on theoretical approaches like the *theory of planned behavior* (Ajzen, 1991), *uses and gratifications theory* (Katz et al., 1973), *self-determination theory* (Ryan & Deci, 2000), and the *concept of the digital divide* (van Dijk, 2020). In addition, it is inspired by research into individuals' technology-related imaginaries (Bucher, 2017), their appropriation of technologies (Silverstone, 1993), and the role of subjective (digital) well-being (Büchi, 2021). Hence, this conceptual framework integrates perspectives from media psychology, internet sociology, and communication studies more broadly. More specifically, I map individuals' digital practices in relation to the opportunities and risks that are associated with digital technologies, as well as with regard to related factors on the societal and individual level. These factors include individuals' socioeconomic

Figure 1: An integrated conceptual framework of individuals' digital practices



Note: This figure was originally published in Kappeler, 2024b, p. 50.

background, their imaginaries and attitudes, their needs, and their motivations, as well as their digital skills and their subjective well-being. The empirically grounded conceptual mapping of these relationships highlights the relevance that digital practices have for negotiating the everyday use of digital technologies. Therefore, this integration in the form of a conceptual framework is valuable for the explanation of individuals' digital practices. On the one hand, it maps how processes on the individual level play out. On the other hand, it connects these to the social context that people are embedded in. This allows for a more holistic and nuanced understanding of individuals' digital practices.

7 Discussion

This dissertation makes *empirical as well as conceptual contributions* to the field of communication and media research. In a society such as the Swiss, where using digital technologies is increasingly the norm and people ascribe them high relevance in their everyday lives, examining individuals' digital practices from a critical data-studies perspective, while considering a user perspective, is essential.

This allows for a nuanced view on individuals' digital practices that considers their agency while also critically reflecting on contextual and structural factors. The *empirical* contribution of this dissertation lies in the application of a combination of qualitative and quantitative methods to research individuals' digital practices. This allows for a more holistic view on how individuals negotiate the use of digital technologies in their everyday digital lives. In addition, the comparison of multiple cross-sectional data sets adds to a longitudinal perspective. The *conceptual and theoretical* contribution of this dissertation lies in the bridging of theoretical approaches from media-psychology and internet sociology to explain the emergence and manifestation of individuals' digital practices. The combination of these theoretical perspectives and the synthesis of the empirical findings leads to an integrated conceptual framework that maps individuals' digital practices in relation to individual factors, while considering the societal context they are situated in. In my dissertation, I adopted a socio-technological lens on these practices and their relationship with digital technologies. In doing so, I acknowledged that digital technologies and the digital practices of internet users exist in a mutually

recursive relationship and that through their digital practices, individuals can exert agency by negotiating their use of these digital technologies and, hence, influencing their outcomes on an individual level.

Beyond this, the empirical findings and the conceptual integrated framework of this dissertation have *implications* for the understanding of processes regarding the use of digital technologies on the individual and on the societal level. On the *individual* level, this dissertation highlights the relevance of digital practices for negotiating the use of digital technologies in everyday life. Through their digital practices, individuals can shape the digital technologies that they use and hence leverage opportunities and mitigate risks associated with digital technologies. In this way, the findings obtained through the mixed-methods research design shed light on factors that are associated with internet users' digital practices in Switzerland in depth and in breadth. These findings show that through their digital practices, individuals exert agency and mold their relationships with digital technologies to suit their needs and manage their subjective well-being. On the one hand, these digital practices are associated with personal factors on the individual level. On the other hand, they do not emerge in a vacuum, but in a social context that affects them. Therefore, on a *societal* level, this dissertation accentuates that even in a highly digitized society, social inequalities and digital practices are still closely interwoven with each other, and that digital practices can lead to the perpetuation of existing inequalities by reproducing them. Hence, the findings of my dissertation can inform policy measures that aim to promote the opportunities that digital technologies make possible and to mitigate the risks they carry. Since the present-day digital context is increasingly challenging to regulate, promoting the development of internet users' digital skills and thus supporting their practices, for instance, in terms of their self-help strategies, is a promising governance strategy that can complement statutory regulations. For such policy measures to be adequate when aiming at rendering today's and tomorrow's digital technologies more beneficial to our society, taking theory-informed empirical evidence such as provided here into account is essential.

With regard to *limitations and avenues for future research*, this dissertation highlights the importance of studying people's everyday experiences with a combination of different methods. In the future, to make causal inferences on the evolution of relationships between factors related to digital practices, a panel design that uses a high-quality sample would be desirable. In addition, surveys should move from relying on self-reports for different concepts, such as skills, as they can be affected by social desirability and biases (Parry et al., 2021), for instance, with regard to gender (Hargittai & Shafer, 2006). Future studies should consider using different operationalizations in surveys or combining survey data with behavioral data obtained through tracking or data donations (Piffner & Friemel, 2023) to further increase the external validity of the findings. With regard to the qualitative method, future studies should include member checks (Lincoln & Guba, 1985) or reflexive participant collaboration (Motulsky, 2021), i. e., asking their study participants for feedback on their interpretations after having engaged in data analysis to validate the findings and to ensure that the interviewees' views are reflected adequately (Hughes et al., 2020). In terms of the topic under scrutiny here, individuals' digital practices, this continues to be relevant to research. New technologies continue to emerge, and the historic developments of human-and-technology-relations suggest that social and digital inequalities are likely to be reproduced (Hargittai, 2018). Hence, the appropriation of new technologies such as conversation-based generative artificial intelligence tools and the role that skills play in this warrant scientific attention.

8 Conclusion

To conclude, my dissertation examined how internet users in Switzerland apply digital practices to negotiate their use of digital technologies. On a conceptual level, I combined a user perspective, which allowed me to view individuals as active and acting, with a critical data-studies perspective, which allowed me to take into account the social contexts of individuals' digital practices. Applying a socio-technological lens allowed me to highlight the recursive relationship between digital

technologies and individuals' practice, where individuals can exert agency in shaping their technology use. In terms of research design, I applied a combination of qualitative interviews and quantitative surveys conducted in Switzerland. Due to this mixed-methods approach, I was able to investigate digital practices in breadth as well as to explore them in depth. The empirical findings of this dissertation shed light on how individuals employ digital practices to navigate the opportunities and especially the risks that are associated with digital technologies in everyday life. The four empirical articles that I presented focus on four digital practices—internet usage, self-help against algorithmic risks, self-inhibition of legitimate digital communication behavior, and resistance to digital technologies—and investigate the factors that are associated with them. Drawing on these empirical findings as well as a combination of theoretical considerations, I created an integrated conceptual framework of individuals' digital practices. This framework makes a theoretical contribution to the field by mapping how individuals engage with the opportunities and risks that digital technologies entail through their digital practices, which are in turn related to individual and contextual factors such as individuals' socioeconomic background, their imaginaries, their attitudes, their needs, their motivation, and their digital skills. By doing so, it presents a holistic and nuanced view of individuals' digital practices and associated factors. Future research can use this framework to situate empirical investigations of individuals' digital practices and related factors. Moreover, the empirical findings can inform policies that aim at making digital everyday life in the highly digitized Swiss society more inclusive, for instance, by promoting digital skills and hence addressing the reproduction of social inequalities through digital ones.

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Conflict of interest

The author declares no conflict of interest.

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Students and ChatGPT: Insights from the University of Zurich

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Abstract

The widespread adoption of generative Artificial Intelligence (AI) tools like ChatGPT in higher education has sparked global debate about their impact on student learning. While ChatGPT's potential to enhance academic performance is recognized, concerns remain about overreliance and ethical risks. This report presents insights into how students at the University of Zurich (UZH) use and experience ChatGPT in academic contexts. Drawing on data from a global survey initiative, I analyzed responses from 446 UZH students across disciplines. The report outlines patterns of use, perceived cognitive and educational capabilities, emotional responses, and concerns about ethical implications. Quantitative analyses reveal that ChatGPT is widely used for tasks like summarizing, proofreading, and coding, with notable differences by study field and learning setting. Most students perceive ChatGPT as helpful and report positive emotional experiences, yet remain cautious about its reliability and motivational benefits. Frequent users tend to evaluate the tool more positively and express fewer concerns. Our findings highlight a complex balance between opportunity and risk. While generative AI holds promise for enhancing learning and skill development, institutions must provide clear guidelines, foster AI literacy, and ensure ethical integration. These efforts are essential for preparing students to navigate AI-enhanced academic and professional environments responsibly.

Keywords

ChatGPT, Generative Artificial Intelligence, AI in Higher Education, Student Use of AI, University of Zurich

1 Introduction

Generative artificial intelligence (GenAI) is increasingly transforming knowledge work and education, prompting debates about its potential and challenges. Since its release in late 2022, ChatGPT (OpenAI, 2025) has rapidly become a prominent example of how GenAI is reshaping higher education. Students across the globe have integrated ChatGPT into their academic routines, using it for tasks such as writing, summarizing, brainstorming, and translating (Aristovnik et al., 2025; Garrel & Mayer, 2025). With its capacity to generate coherent and context-sensitive, personalized responses, ChatGPT offers substantial support for academic work (Bai et al., 2023). However, its increasing use also raises important questions concerning educational quality, academic integrity, student skill development, and the future role of human instruction (Bahroun et al., 2023; Chan, 2023). With the use of LLMs for learning also come privacy

and security issues, as well as plagiarism concerns (Melina et al., 2014).

The present report provides an overview of how students at the University of Zurich (UZH) engage with ChatGPT – as GenAI's most prominent and widely used tool in the Western world (Fletcher & Nielsen, 2024) – in their everyday academic life. UZH, Switzerland's largest comprehensive university, is internationally recognized for its research excellence and digital innovation.

Building on a global survey initiative (Aristovnik et al., 2025), this report outlines UZH students' usage patterns, perceptions, and experiences with ChatGPT. It examines how students employ the tool for academic purposes, how they assess its capabilities, and what concerns or ethical considerations they associate with its use. In addition, the report highlights students' emotional responses as well as perceived academic and professional benefits. It contributes to a nuanced understanding of the effects of GenAI on learning



and skill development in contemporary higher education.

2 ChatGPT usage among university students

There is a growing body of quantitative research examining the use of artificial intelligence (AI) – particularly GenAI tools such as ChatGPT – by university students. A systematic review by von Garrel and Mayer (2025) identified approximately 50 studies that measured the extent to which students are using AI technologies. These studies provide a comprehensive picture of the widespread diffusion of AI-based tools among student populations across different countries. AI is primarily used for literature searches and reading comprehension, clarification of subject-related questions, explanation of disciplinary concepts, text analysis, text processing, text generation, translation tasks, and exam preparation. These varied applications illustrate the perceived usefulness of GenAI for academic support across disciplines.

However, the consequences of ChatGPT use are still subject to considerable scholarly debate. Yilmaz and Yilmaz (2023a, 2023b) presented contradictory evidence on whether the tool is beneficial or detrimental for students. Shahzad et al. (2025) confirm that GenAI can have a positive impact on students' learning performance in higher education. It offers personalized learning experiences, immediate feedback, and explanations of complex concepts. Students use GenAI to enhance their academic performance. Employing AI in higher education, for example, strengthens students' self-efficacy and creativity – factors that contribute significantly to improved academic achievement. LLMs can also be used to realize effective learning techniques such as repetition and spaced learning (Bai et al., 2023). In contrast, Abbas et al. (2024) found that excessive use of ChatGPT can negatively affect students' personal and academic development. Their findings suggest that students experiencing higher academic workload and time pressure are more likely to rely on ChatGPT. Conversely, students with a strong sensitivity to rewards were less inclined to use it. Notably, frequent use was associated with

increased tendencies toward procrastination, memory decline, and overall reduced academic performance. Similarly, Wecks et al. (2024) reported that the use of GenAI tools had a detrimental effect specifically on students' exam outcomes, suggesting that reliance on such technologies may hinder the acquisition and retention of knowledge required for formal assessments. The most recent meta-analysis by Wang and Fan (2025), which synthesizes findings from 51 studies, concludes that ChatGPT has a strong positive effect on student learning outcomes. Specifically, the analysis shows a large effect on learning performance ($g=0.867$), based on data from 44 experimental and quasi-experimental studies. In addition, it reveals a moderately positive impact on students' learning perception ($g=0.456$), as demonstrated in 19 studies, and a similarly moderate effect on the development of higher-order thinking skills ($g=0.457$), based on nine studies. These results underscore ChatGPT's potential to support both cognitive and affective dimensions of learning.

However, the study by Kosmyrna et al. (2025) shows that using large language models (LLMs) like ChatGPT for essay writing leads to significantly reduced brain activity and cognitive engagement compared to using a search engine or relying solely on one's own knowledge. Brain connectivity decreased in line with the level of external assistance: participants in the brain-only group showed the strongest and most widespread neural activity, those using search engines showed moderate engagement, and the LLM group showed the weakest neural activation. Over the course of four months, LLM users not only performed worse in writing quality and memory tests, but also recalled less from their own essays and reported the lowest sense of ownership over their texts. In contrast, the brain-only group exhibited the highest cognitive involvement, better memory recall, and a stronger sense of authorship. These findings raise important concerns about the long-term impact of LLM use on learning, suggesting that while such tools may offer short-term convenience, they can hinder deep processing, memory consolidation, and meaningful engagement with one's own work. By simplifying the process of obtaining answers in academia, LLMs could

also decrease student motivation to perform independent research and generate their own solutions (Pedró et al., 2019).

3 Research questions

In March 2024, a survey conducted among students at the University of Zurich (UZH) revealed that ChatGPT is by far the most widely used AI tool among the student population (von Däniken, 2024). Building on these initial findings, the present report draws on new survey data to explore students' perceptions, usage patterns, and experiences with ChatGPT in the academic context. Specifically, it aims to provide a more nuanced understanding of how students interact with ChatGPT across different domains of their academic life, including cognitive support, skill development, and career readiness.

From a higher education research perspective, these questions are situated at the intersection of digital transformation, student agency, and institutional adaptation. They are also highly relevant for informing university-level debates on AI policy, teaching innovation, and the evolving nature of academic skills and literacies.

To address these concerns, the report outlines the following research questions, structured into three thematic areas: (1) usage and perceptions, (2) emotional and motivational dimensions, and (3) academic and professional outcomes.

This first cluster addresses students' actual use of ChatGPT and their perceptions of its academic utility. From a higher education perspective, these questions speak to patterns of digital tool adoption, technology acceptance, and the changing nature of student learning strategies in AI-supported environments.

- › RQ1: To what extent do students use ChatGPT for various academic tasks?
- › RQ2: How do students evaluate the cognitive, communicative, and learning-related capabilities of ChatGPT?

The next group of questions focuses on the affective and motivational aspects of ChatGPT use. It explores students' emotional engage-

ment, satisfaction, and concerns – factors that shape learning persistence, user trust, and broader attitudes toward educational technologies. These dimensions are particularly relevant in the context of student-centered learning and responsible AI integration.

- › RQ3: What concerns do students have regarding the use of ChatGPT?
- › RQ4: How satisfied are students with the use of ChatGPT?
- › RQ5: What emotional responses do students experience while using ChatGPT?

The final cluster addresses the perceived and actual educational effects of ChatGPT. It connects students' academic experiences with broader competencies and career readiness. These questions are central to assessing the pedagogical value of AI, its role in skill development, and its implications for the alignment between higher education and future labor market demands.

- › RQ6: To what extent does the use of ChatGPT influence students' academic outcomes, learning processes, and motivation?
- › RQ7: What role do students attribute to ChatGPT in enhancing their writing, language, communication, analytical, and problem-solving skills?
- › RQ8: How do students perceive the impact of ChatGPT on future labor market demands and potential skills mismatches?

4 Method

Aristovnik et al. (2025) implemented a comprehensive, large-scale global survey conducted between October 2024 and February 2025. The questionnaire was available in seven languages – English, Italian, Spanish, Turkish, Japanese, Arabic, and Hebrew – and encompassed a wide range of topics related to the use of ChatGPT. These included sociodemographic characteristics, usage patterns, perceived capabilities, regulation and ethical considerations, satisfaction and attitudes, academic challenges and outcomes, skill development, labor market relevance and skills mismatch, emotional responses, personal

and study-related information, and general reflections. The survey targeted higher education students aged 18 and above who were enrolled at any level of study at a recognized higher education institution. The final dataset comprises responses from 22 963 students across 120 countries and territories. The full dataset is freely available for download (Aristovnik et al., 2025).

For the Swiss subsample, participant recruitment was carried out by the author at the UZH. In 2024, UZH had an enrollment of 14 667 Bachelor's students and 7 782 Master's students (University of Zurich, 2024). The call for participation, including the survey link, was disseminated via the university's official newsletter in December 2024. For the analyses presented in this report, only the UZH subsample is used to address the research questions.

4.1 Sample description

The sample consists of 446 fully completed questionnaires from Bachelor's and Master's students with Swiss nationality enrolled at the UZH. The majority of participants identified as female ($n=263$; 59%), followed by male ($n=170$; 38%). Participants' ages ranged from 19 to 47 years, with a concentration in the early twenties ($M=24.5$). A total of 56.4% of respondents were enrolled in a Bachelor's program ($n=251$), including 3% in their first semester. Meanwhile, 43.6% were pursuing a Master's degree ($n=194$). Additionally, 81% of participants reported studying full-time ($n=361$).

Participants in the survey came from a range of academic disciplines. The largest group studied Social Sciences (Public Administration, Economics, Business, Law, Educational Science, Sociology, Psychology; 43.9%), followed by Natural and Life Sciences (Electrical Engineering, Biotechnical Sciences, Pharmacy, Chemistry, Mathematics and Physics; 20.0%), Arts and Humanities (History and Archaeology, Languages and Literature, Philosophy, Ethics and Religion; 19.3%), and Applied Sciences (Computer Science, Information Technology, Civil Engineering and Geodesy, Mechanical Engineering, Sport, Medicine, Healthcare; 16.8%). This distribution reflects a certain disciplinary diversity, with a clear emphasis on the social sciences.

The majority of participants (60.5%) reported that blended (hybrid) learning best

describes their current mode of study. This is followed by traditional classroom learning (31.4%) and online learning (8.1%).

5 Results

5.1 Extent of ChatGPT use across academic tasks

Among the respondents, ChatGPT was by far the most widely used GenAI chatbot, with 99.1% of valid responses indicating usage ($n=421$). In contrast, other tools were used far less frequently: Microsoft Copilot (16.2%), Google Gemini (14.1%), Perplexity AI (9.4%), Claude AI (6.1%). Most respondents use the free version of ChatGPT (66%), while 24.2% pay for a subscription. A small group (9.7%) uses both versions. The ChatGPT usage varies, with 32.3% reporting considerable use and 27.3% indicating moderate use. Fewer participants use it rarely (11.6%) or extensively (11.4%). The overall experience with ChatGPT was predominantly positive: 60.8% rated their experience as good and 15.3% as very good, while only 5% had a bad or very bad experience. When asked where they first learned about ChatGPT, most participants (40.5%) cited friends and family. This was followed by mainstream media (25.5%), social media (20.2%), and educational or work-related contexts (13.8%).

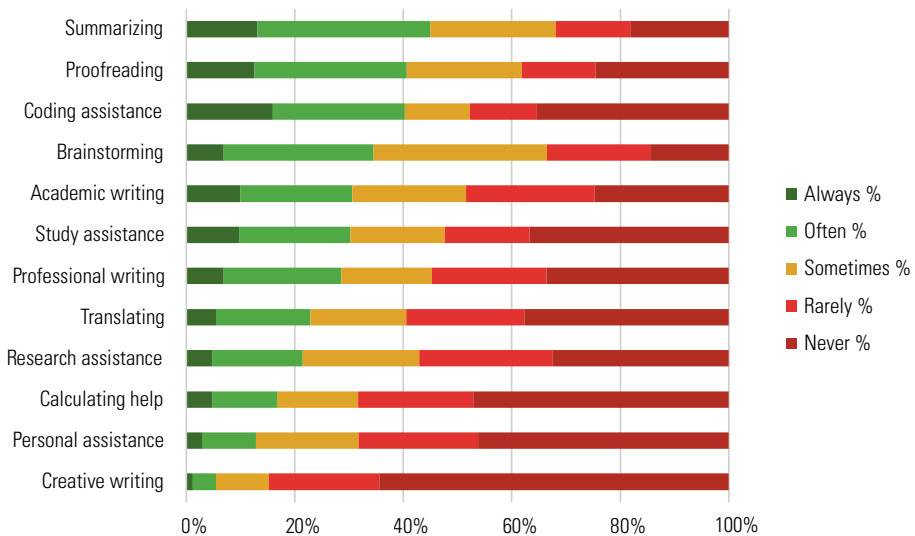
Students use ChatGPT for a wide range of purposes, though with varying frequency across tasks (see Table 1 and Figure 1). Summarizing texts is among the most common use cases: nearly 31.9% of students report using it often, and 13.1% always. Proofreading and brainstorming are also frequent tasks – 28.1% use it often for proofreading and 27.6% for brainstorming. Coding assistance stands out as a key use case for a subset of the respondents: although 35.3% never use it, a combined 40.3% use it often (24.3%) or always (16.0%). Academic writing also sees substantial usage: around 20% use it often, 21% sometimes, and only 24.7% never. Similarly, professional writing tasks, such as composing emails or formal documents, are often (21.7%) or always (6.9%) used by nearly 29% of students, even though one third (33.6%) never use ChatGPT for this purpose. Study assistance (e.g., exam preparation)

Table 1: ChatGPT usage by use case

Use case	Never % (<i>n</i>)	Rarely % (<i>n</i>)	Sometimes % (<i>n</i>)	Often % (<i>n</i>)	Always % (<i>n</i>)
Summarizing	18.1 (76)	13.8 (58)	23.1 (97)	31.9 (134)	13.1 (55)
Proofreading	24.5 (103)	13.6 (57)	21.2 (89)	28.1 (118)	12.6 (53)
Coding assistance	35.3 (148)	12.4 (52)	11.9 (50)	24.3 (102)	16.0 (67)
Brainstorming	14.5 (61)	19.0 (80)	31.9 (134)	27.6 (116)	6.9 (29)
Academic writing	24.7 (104)	23.8 (100)	20.9 (88)	20.7 (87)	10.0 (42)
Study assistance	36.7 (154)	15.7 (66)	17.4 (73)	20.5 (86)	9.8 (41)
Professional writing	33.6 (141)	21.2 (89)	16.7 (70)	21.7 (91)	6.9 (29)
Translating	37.7 (158)	21.7 (91)	17.7 (74)	17.4 (73)	5.5 (23)
Research assistance	32.5 (136)	24.6 (103)	21.5 (90)	16.7 (70)	4.8 (20)
Calculating help	47.1 (198)	21.2 (89)	14.8 (62)	12.1 (51)	4.8 (20)
Personal assistance	46.2 (193)	22.0 (92)	18.9 (79)	10.0 (42)	2.9 (12)
Creative writing	64.4 (270)	20.3 (85)	9.8 (41)	4.3 (18)	1.2 (5)

Note: *n* = 418–421

Figure 1: ChatGPT usage by use case



Note: Sorted by "Always" and "Often".

shows a mixed pattern: 20.5% use it often, 9.8% always, and 36.7% never. Translating is a moderately used feature – 17.4% use it often, 5.5% always, while 37.7% never use ChatGPT for this purpose. Similarly, research assistance shows moderate adoption: 16.7% often and 4.8% always use ChatGPT for this task, with 32.5% never using it. In contrast, calculating help is less frequent: almost half of the respondents (47.1%) never use ChatGPT for mathematical support, and only 12.1% use it often, 4.8% always. Personal assistance (e.g., advice on personal topics) is even less common – nearly half of the participants (46.2%) reported never using ChatGPT, while only 10% use it often and 2.9% always. The least common use case is creative writing (e.g., stories or poems): 64.4% never use ChatGPT for this purpose, and only 4.3% use it often, 1.2% always.

Several significant correlations were found between gender and ChatGPT usage. Specifically, men reported significantly more frequent use of ChatGPT in general ($\rho = -.150$, $p < .01$) and also in several specific domains: creative writing ($\rho = -.153$, $p < .01$), summarizing ($\rho = -.106$, $p < .05$), calculating help ($\rho = -.166$, $p < .01$), study assistance ($\rho = -.115$, $p < .05$), personal assistance ($\rho = -.151$, $p < .01$), research assistance ($\rho = -.125$, $p < .05$), and coding assistance ($\rho = -.199$, $p < .01$). These results suggest that male students tend to use ChatGPT more frequently and across a broader range of academic and personal tasks.

Students' use of ChatGPT differs significantly by field of study, as confirmed by several ANOVAs (all $p < .05$). Social Sciences students reported the most frequent use for a broad range of academic tasks, including academic writing ($M = 2.94$, $p < .001$), professional writing ($M = 2.64$, $p = .010$), proofreading ($M = 3.12$, $p = .025$), brainstorming ($M = 3.09$, $p = .037$), translating ($M = 2.43$, $p = .017$), summarizing ($M = 3.35$, $p = .002$), and research assistance ($M = 2.57$, $p = .006$). In contrast, students in Natural and Life Sciences and Applied Sciences reported significantly higher use for more technical applications. This includes calculating help (Natural Sciences: $M = 2.31$, $p = .001$), study assistance (Natural Sciences: $M = 2.99$, $p < .001$), and especially coding assistance (Natural Sciences: $M = 3.36$; Applied Sciences: $M = 2.91$; $p < .001$).

Students' use of ChatGPT varies significantly depending on their learning environment. Those engaged in online or blended learning report notably higher usage across a range of academic tasks compared to students in traditional classroom settings. Significant differences were found for academic writing ($p < .001$), brainstorming ($p = .002$), summarizing ($p < .001$), study assistance ($p < .001$), and research assistance ($p < .001$), among others. This suggests that digital learning contexts not only expose students more frequently to AI tools like ChatGPT but may also encourage more active integration into everyday study routines.

As expected, general ChatGPT use was strongly and significantly correlated with positive experience ($\rho = .543$, $p < .01$) and with frequent use across all listed tasks, including academic writing ($\rho = .601$), professional writing ($\rho = .547$), proofreading ($\rho = .545$), brainstorming ($\rho = .453$), summarizing ($\rho = .557$), study assistance ($\rho = .453$), and coding ($\rho = .398$), all at $p < .01$. Similarly, positive experience was significantly correlated with nearly every specific use case.

5.2 Students evaluations regarding learning-related capabilities

Most participants agreed that ChatGPT can understand indications (60.9%) and respond in human language (55.2%), with a smaller group strongly agreeing (16.2% and 21.9% respectively; see table 2). A majority also found that ChatGPT provides information efficiently (60.3%) and can summarize extensive information (51.1%) and simplify complex content (54.7%). However, fewer participants believed that ChatGPT can hold a pleasant conversation – only 32.8% agreed and 9.8% strongly agreed, while 39.3% remained neutral. When it comes to reliability, responses were more cautious: only 20.6% agreed that ChatGPT provides reliable information, while 28.1% disagreed and 43.3% chose neutral. Regarding ChatGPT's educational support potential, respondents were more optimistic for online (36.7% agree, 12.7% strongly agree) and blended learning settings (33.4% agree, 12.7% strongly agree), but more reserved for traditional classroom learning, where 40.4% were neutral and only 22.9% agreed.

Table 2: Perceptions of ChatGPT's capabilities

Statement	Strongly Disagree % (n)	Disagree % (n)	Neutral % (n)	Agree % (n)	Strongly Agree % (n)
ChatGPT can...					
... understand indications	1.2 (5)	6.5 (26)	15.2 (61)	60.9 (245)	16.2 (65)
... respond in human language	0.2 (1)	7.2 (29)	15.4 (62)	55.2 (222)	21.9 (88)
... hold a pleasant conversation	5.8 (23)	12.3 (49)	39.3 (157)	32.8 (131)	9.8 (39)
... provide information efficiently	0.7 (3)	6.0 (24)	19.5 (78)	60.3 (242)	13.5 (54)
... provide reliable information	7.2 (29)	28.1 (113)	43.3 (174)	20.6 (83)	0.7 (3)
... summarize extensive information	1.2 (5)	8.2 (33)	18.5 (74)	51.1 (205)	20.9 (84)
... simplify complex information	0.5 (2)	3.7 (15)	18.2 (73)	54.7 (220)	22.9 (92)
... facilitate traditional learning	7.5 (30)	21.2 (85)	40.4 (162)	22.9 (92)	8.0 (32)
... facilitate online learning	3.5 (14)	8.2 (33)	38.9 (156)	36.7 (147)	12.7 (51)
... facilitate blended learning	3.0 (12)	10.0 (40)	40.9 (164)	33.4 (134)	12.7 (51)

Note: $n = 399\text{--}402$

The frequency of general ChatGPT use and positive experience with ChatGPT were positively correlated with perceptions of its abilities across all measured dimensions ($p < .001$).

5.3 Students' concerns regarding ChatGPT use

Only two-thirds of respondents (66.5%) reported that their institution, the UZH, has guidelines or a code of ethics for the use of ChatGPT, while 5% said no, and 28.5% were unsure. In fact, the UZH does provide official guidance on the use of GenAI tools like ChatGPT, including rules for transparency, citation, and academic integrity. 53% agreed that international regulation is necessary, and 45.7% supported government regulation. Even more strongly, 77.1% agreed that ChatGPT should be subject to university or faculty ethical guidelines, and 59.6% supported the same for employer guidelines.

Concerns about ChatGPT's ethical risks were also evident: 40.6% agreed it might encourage students to cheat, 56.4% believed it could lead to plagiarism, 38.9% thought it might threaten academic ethics, and 81% agreed it could mislead with inaccurate information. More moderate concerns were expressed about privacy (39.5% agreement), reduced human interaction (35.3%), and increased social isolation (22.2%). A majority also believed ChatGPT might hinder learning by doing the work for students (49.7%).

Use and positive experience with ChatGPT are significantly negatively correlated with concerns about potential risks. For instance, students who use ChatGPT more extensively are less likely to believe it encourages unethical behavior ($\rho = -.230, p < .001$), cheating ($\rho = -.212, p < .001$), plagiarism ($\rho = -.192, p < .001$), or that it threatens study ethics ($\rho = -.310, p < .001$). Positive experience with

Table 3: Regulation, concerns, and responsibilities regarding ChatGPT

Statement	Strongly disagree % (n)	Disagree % (n)	Neutral % (n)	Agree % (n)	Strongly agree % (n)
Regulation					
International regulation is necessary for ChatGPT	8.4 (32)	14.2 (54)	24.4 (93)	31.0 (118)	22.0 (84)
Government regulation is necessary for ChatGPT	8.9 (34)	17.8 (68)	27.6 (105)	26.0 (99)	19.7 (75)
ChatGPT should be subject to university/faculty ethical guidelines	2.4 (9)	4.2 (16)	16.3 (62)	43.0 (164)	34.1 (130)
ChatGPT should be subject to employer ethical guidelines	2.6 (10)	8.7 (33)	29.0 (110)	36.9 (140)	22.7 (86)
Concerns					
ChatGPT might encourage unethical behaviour	9.7 (37)	30.0 (115)	24.8 (95)	27.9 (107)	7.6 (29)
ChatGPT might encourage students to cheat	8.1 (31)	25.6 (98)	17.0 (65)	33.2 (127)	16.2 (62)
ChatGPT might encourage students to plagiarize	6.3 (24)	17.5 (67)	19.8 (76)	40.2 (154)	16.2 (62)
ChatGPT might threaten the ethics of the study	8.4 (32)	22.2 (85)	30.5 (117)	26.6 (102)	12.3 (47)
ChatGPT might mislead with inaccurate information	1.3 (5)	5.0 (19)	12.8 (49)	49.9 (191)	31.1 (119)
ChatGPT might invade privacy	6.3 (24)	20.9 (80)	33.4 (128)	23.8 (91)	15.7 (60)
ChatGPT might reduce human interaction	7.3 (28)	34.5 (132)	23.0 (88)	28.5 (109)	6.8 (26)
ChatGPT might replace formal education	26.1 (100)	41.3 (158)	12.5 (48)	17.0 (65)	3.1 (12)
ChatGPT might increase social isolation	14.4 (55)	37.6 (144)	25.8 (99)	18.8 (72)	3.4 (13)
ChatGPT might hinder learning by doing the work for students	7.9 (30)	20.2 (77)	22.3 (85)	33.2 (127)	16.5 (63)
Responsibilities					
Students should consult with professors about using ChatGPT	5.5 (21)	18.3 (70)	23.3 (89)	40.6 (155)	12.3 (47)
Students should disclose their use of ChatGPT to professors	4.2 (16)	13.4 (51)	24.9 (95)	33.6 (128)	23.9 (91)
Students should report unethical use of ChatGPT by peers	21.1 (80)	23.7 (90)	32.4 (123)	16.6 (63)	6.3 (24)
Students should take measures to protect their personal information	0.8 (3)	1.8 (7)	15.8 (60)	50.3 (191)	31.3 (119)

Note: $n = 379\text{--}381$

Table 4: Satisfaction regarding ChatGPT

Item	Strongly disagree % (n)	Disagree % (n)	Neutral % (n)	Agree % (n)	Strongly agree % (n)
I find ChatGPT more useful than Google or other web search engines	8.0 (30)	22.3 (84)	26.6 (100)	30.9 (116)	12.2 (46)
It is easier for me to interact with ChatGPT than with my professors	18.4 (69)	26.6 (100)	16.8 (63)	26.9 (101)	11.4 (43)
It is easier for me to interact with ChatGPT than with my colleagues	34.8 (131)	34.3 (129)	17.6 (66)	10.9 (41)	2.4 (9)
The information I get from ChatGPT is clearer than the one provided by my professors	15.4 (58)	25.3 (95)	32.7 (123)	19.9 (75)	6.6 (25)
I am satisfied with the level of assistance provided by ChatGPT	2.4 (9)	8.8 (33)	23.7 (89)	56.4 (212)	8.8 (33)
I am satisfied with the quality of information provided by ChatGPT	7.7 (29)	23.9 (90)	28.5 (107)	37.2 (140)	2.7 (10)
I am satisfied with the accuracy of the information provided by ChatGPT	12.0 (45)	31.1 (117)	29.8 (112)	25.5 (96)	1.6 (6)
I have the impression that using ChatGPT is under my control	0.5 (2)	7.7 (29)	14.9 (56)	58.1 (219)	18.8 (71)
Using ChatGPT is interesting to me	2.1 (8)	5.6 (21)	12.7 (48)	54.9 (207)	24.7 (93)
Being able to use ChatGPT is important to me	9.0 (34)	15.1 (57)	23.9 (90)	36.6 (138)	15.4 (58)

Note: $n = 376\text{--}377$

ChatGPT also negatively correlates with believing it misleads ($\rho = -.324, p < .001$), invades privacy ($\rho = -.182, p < .001$), or hinders learning ($\rho = -.192, p < .001$).

In terms of responsibility, the vast majority of students (81.6%) emphasized the importance of protecting their own data when using ChatGPT, highlighting an awareness of personal data security. A smaller but still significant share agreed that they should consult professors about using ChatGPT (52.9%) and disclose its use (57.5%). Only 22.9% believed they should report unethical use by peers.

5.4 Students' overall satisfaction with ChatGPT

Over 43% agreed that it is more useful than Google or other web search engines, while around 30% disagreed and 27% remained neutral. When it comes to communication, students were more divided: about 38% found

it easier to interact with ChatGPT than with professors, whereas 45% disagreed. In comparison to peers, only 13% found ChatGPT easier to interact with, and nearly 70% disagreed. Regarding content clarity, 26% perceived ChatGPT's explanations as clearer than those provided by professors, while 41% disagreed and 33% were undecided. Students expressed relatively high satisfaction with ChatGPT's support: over 65% were satisfied with the level of assistance, and nearly 40% with the quality of information. However, satisfaction with accuracy was more cautious, with just 27% agreeing and 43% expressing dissatisfaction or neutrality. Overall, students reported feeling in control of their use of ChatGPT (77%), and most considered it both interesting (80%) and important (52%) for their academic work.

Both use frequency and positive experience correlate strongly with each satisfaction item ($p < .001$).

5.5 Emotional responses associated with ChatGPT use

The emotional responses to using ChatGPT were diverse but leaned predominantly positive. Many participants reported feeling calm (51.1% often, 10.7% always), curious (48.2% often, 13.1% always), or happy (22.0% often, 0.3% always) during use. A significant share also felt hopeful (31.1% often) or relieved (22.3% often). In contrast, negative emotions were reported much less frequently. Only 3.7% often felt sad, 5.5% anxious, 5.5% ashamed, and 8.2% angry. Feelings of boredom were also relatively rare, with just 7.3% reporting they often felt bored. Notably, excitement (22.3% often) and surprise (20.4% often) were fairly common, while feelings like pride were less so (only 6.4% often felt proud). Confusion (25.9% often) and frustration (22.0% often) occurred quite occasionally, suggesting some challenges with comprehension or usability for more than one-fifth of the users. Overall, the data indicate that ChatGPT use is associated with more positive than negative emotional experiences, though occasional moments of confusion and frustration are not uncommon.

5.6 Influence of ChatGPT on learning, motivation, and academic outcomes

Nearly half of the students agreed (agreed and strongly agreed) that ChatGPT supports everyday life (49.1%) and improves access to knowledge (48.9%). A majority saw benefits for their general (51.1%) and specific (48.6%) knowledge. Many found it helpful for study efficiency (46.6%) and completing their studies (44.2%), though fewer agreed it boosts motivation (24.7%) or classroom engagement (15.9%). Over one-third felt it helps meet deadlines (36.3%) and improves assignment quality (38.5%).

Students were somewhat divided on whether ChatGPT improves academic outcomes. While 26.4% agreed it could improve their grades, 24.5% disagreed, and 37.1% remained neutral. Similar patterns appeared regarding its usefulness outside the classroom (33.0% agree, 25.5% disagree) and for internships, where skepticism was more pronounced – only 10.7% agreed, while 43.2% disagreed. A majority believed that ChatGPT enhances their learning experience (50.8%) and helps improve skills (35.2%). However, its role in personal development was met with

more disagreement (33.2%) than agreement (17.6%). In contrast, academic development received more support, with 40.4% agreeing. Perceived effects on study satisfaction and employability were more mixed: 27.7% agreed ChatGPT increases satisfaction, while 24.2% disagreed; for employability, only 16.5% agreed, while 33.8% disagreed.

5.7 ChatGPT's role in developing skills

The strongest agreement was found for academic (38.4% agree, 13.9% strongly agree) and professional writing (40.8% agree, 14.5% strongly agree), with more than half of respondents perceiving a positive impact of ChatGPT use. Similarly, foreign language proficiency was viewed positively by 58.9% (47.0% agree, 11.9% strongly agree). In contrast, fewer participants believed ChatGPT helps with typing proficiency (only 36.0% agreed or strongly agreed), native language proficiency (25.1%), or interpersonal communication (just 10.1%). Around 41.9% saw benefits for digital communication, 36.8% for digital content creation, and 30.3% for information literacy. Meanwhile, views were notably less favorable for decision-making (only 15.2% agreed / strongly agreed) and critical thinking (20.7%), both of which had high disagreement rates (40.1% and 33.7%, respectively). Support was higher for data analysis (55.1%) and programming skills (62.9%), with the latter receiving the most “strongly agree” responses (22.7%). Finally, AI literacy was seen as positively impacted by 52.1% of respondents.

5.8 Perceived impact of ChatGPT on future labor market demands

A majority (64.8%) agreed that ChatGPT will require employees to acquire new skills, and 61.4% believed it will necessitate knowledge about AI. Similarly, 76.5% expected increased demand for AI-related skills, and 62.2% thought the nature of jobs would change. While 47.3% agreed that ChatGPT would improve productivity and 34.3% believed it would facilitate remote work, fewer respondents expected it to improve innovation (only 23.0%) or reduce workload (33.4%). Perceptions were split on job creation and loss: 37.3% thought ChatGPT would reduce jobs, while 46.4% believed it would create new ones. However, 42.2% also expected it to increase inequality between younger and older

employees. Skepticism was strongest regarding ChatGPT's ability to resolve structural issues like skills gaps or shortages. Only around 20% agreed it could reduce under-skilling or skills obsolescence, and about 32% believed it could close skills gaps. Most respondents remained neutral or disagreed with these statements.

6 Discussion

Building on a global survey initiative (Aristovnik et al., 2025), this report explores UZH students' usage patterns, perceptions, and experiences with ChatGPT. The findings show that the surveyed UZH students generally perceive ChatGPT as a helpful tool for academic tasks. They appreciated its ability to understand input, respond naturally, and simplify complex content – aligning with research on AI's potential to support learning (Shahzad et al., 2025; Wang & Fan, 2025). The results underscore that students engage with ChatGPT for a wide array of academic and personal tasks (see also Garrel & Mayer, 2025), though usage patterns vary considerably depending on task type, background, and learning context. While certain applications, such as summarizing, proofreading, and brainstorming, were relatively common, others – like creative writing, translation, or personal advice – were used more selectively. Usage patterns also reflect broader contextual differences; e.g., the field of study plays a role: UZH's Social Sciences students were most active in applying ChatGPT to academic writing and research-related tasks, while students in Natural and Applied Sciences leveraged it more for technical tasks like coding. Furthermore, UZH's students in online or blended learning environments consistently reported higher usage, indicating that digital settings may foster a more active and diverse integration of AI tools. The strong correlations between general use and positive experience – as well as between experience and frequency of task-specific use – highlight a reinforcing dynamic: the more UZH's students use ChatGPT and benefit from it, the more they tend to apply it across various academic contexts. Given that the report showed male students use ChatGPT more frequently and across a broader range of tasks, there is

a particular need to support female students in developing AI-related skills and confidence to ensure equitable access to these potential academic benefits.

However, a particularly noteworthy finding is also that a substantial share of UZH's students reported never using ChatGPT for the academic tasks explored. This deserves a nuanced interpretation: non-use of AI should not be seen as a disadvantage by default. Some students may consciously choose to avoid AI – similar to opting out of social media or smartphones – as a form of digital disconnection or critical resistance. It's important to recognize that meaningful academic engagement is still possible without AI, and that alternative approaches remain valid – and at times even more effective and of higher quality. This perspective is supported by the already mentioned findings from Kosmyrna et al. (2025), which show that using LLMs like ChatGPT reduces brain activity, memory, and sense of authorship compared to working without AI. While such tools offer short-term convenience, they may undermine deep learning and intrinsic motivation (see also Pedró et al., 2019).

The survey results showed that UZH's students' emotional responses to ChatGPT were predominantly positive. This suggests that, beyond its cognitive utility, ChatGPT may also provide a psychologically supportive learning environment for some students. At the same time, occasional reports of frustration or confusion indicate that the tool is not always intuitive or satisfactory in practice.

Despite overall positive views, UZH's students were more cautious in their assessments of ChatGPT's reliability, accuracy, and capacity to support motivation, classroom engagement, or interpersonal development. These concerns mirror the broader academic debate: some researchers caution that overreliance on ChatGPT may lead to negative outcomes (Abbas et al., 2024; Weeks et al., 2024). While students recognized ChatGPT's learning support, they remained ambivalent about whether it actually improves their grades or motivation.

UZH's students also expressed substantial concern about the ethical and educational implications of ChatGPT. Many feared that the tool could encourage cheating, plagiarism, or dependency, and the majority

supported (stronger) regulation – especially through university or faculty-level ethical guidelines. These concerns were less pronounced among frequent and experienced users, who seemed to view ChatGPT more as a helpful resource than a threat. This finding adds complexity to the current discourse: while critics warn that AI tools may undermine academic integrity (Yilmaz & Yilmaz, 2023a, 2023b), students who engage with ChatGPT regularly may develop a more differentiated perspective on when and how to use it responsibly.

In terms of its perceived role in the labor market, UZH's students expected ChatGPT to reshape future job requirements, particularly by increasing demand for AI-related skills. However, they were more skeptical about whether it would improve innovation, reduce workloads, or solve structural challenges such as skills shortages. These results reflect broader societal uncertainties about AI's impact on work and education – and suggest that while students recognize the importance of acquiring AI competencies, they remain cautious about the broader implications.

Compared to the general population (Latzer & Festic, 2024; Fletcher & Nielsen, 2024), students use ChatGPT more frequently overall – and also more intensively across specific academic tasks. This aligns with findings by Latzer and Festic (2024) for Switzerland, which show that younger and more highly educated Swiss internet users feel more comfortable using AI, perceive these tools as more useful, and are more optimistic about their impact on our lives than older and less educated people.

The fact that less than one-fifth of UZH's respondents first learned about ChatGPT in educational or work-related contexts highlights a gap in formal AI education. While friends, family, and media play an important role in raising awareness, it should not be their responsibility to introduce students to transformative technologies like GenAI. This points to a need for schools and universities to proactively integrate AI literacy into their curricula. Educational institutions should not only inform students about tools like ChatGPT but also foster critical reflection on their use, limitations, and ethical implications. Otherwise, there is a risk that learners will devel-

op superficial or uncritical understandings based on informal or commercial sources.

An in-depth understanding of how students engage with GenAI tools such as ChatGPT is essential for educators, policymakers, and students themselves. Such understanding forms the basis for developing effective strategies that support the meaningful integration of GenAI into higher education while also addressing its potential for misuse (Abbas et al., 2024). As highlighted in recent research (e.g., Wecks et al., 2024), educational institutions bear a central responsibility in this process. They must provide guidance for instructors on how to teach the responsible and reflective use of AI technologies and develop policy frameworks that minimize associated risks while maximizing their pedagogical value. Initial steps in this direction have already been taken at the UZH. For example, concrete recommendations for the use of GenAI in university teaching have been published (University of Zürich, 2025a), and the Extended Executive Board has adopted guiding principles that address the opportunities and risks of these technologies in both teaching and research contexts (University of Zürich, 2025b). In addition, several departments and institutes have begun to draft their own policies to further support responsible implementation. However, the results also indicate a notable gap in awareness regarding whether the UZH has guidelines or a code of ethics for the use of ChatGPT. To ensure responsible and informed use, existing policies need to be communicated more clearly and made easily accessible to students.

However, the fact that only two-thirds of respondents reported that their institution, the UZH, has guidelines or a code of ethics for the use of ChatGPT – while one-third were either unsure or stated that no such guidelines exist – reveals a significant gap in awareness. To promote responsible and informed use, existing policies must be communicated more clearly and made easily accessible to students. For UZH, this finding points to a potential need for improved communication and may also call for further development of AI-related guidelines.

The development of policies must be understood as part of an ongoing process. Institutional policies and recommendations will

need to be continuously reviewed and adapted in light of the rapidly evolving technological landscape. At the same time, greater emphasis must be placed on equipping students to use GenAI tools competently and productively. This involves not only technical proficiency but also critical awareness of the tools' limitations and ethical implications, as well as the ability to integrate them meaningfully into academic work (see also Chan et al., 2023). Preparing students in this way is essential to ensure that GenAI becomes a tool that enhances learning rather than undermining it. Students should develop proficiency in using GenAI for their careers, reflecting the growing need for AI literacy and preparing them for an AI-driven workplace (Chan et al., 2023).

From a higher education research perspective, the findings indicate that ChatGPT is becoming an integral part of students' learning and academic work. Its use extends beyond isolated tasks and increasingly shapes how academic practices are organized and experienced. At the same time, students face considerable uncertainty regarding ethical issues, institutional guidelines, and their own competence in using AI tools. These tensions point to key challenges for universities: to promote the reflective and equitable use of AI while establishing clear and supportive frameworks that provide guidance, foster critical engagement, and generate educational value.

6.1 Limitations

There are several limitations to the insights presented in this report. Due to the voluntary nature of participation in the survey, self-selection bias cannot be ruled out – students with a strong interest in GenAI may be over-represented. The cross-sectional design limits causal interpretations. While the sample stems from the UZH, findings may not generalize to other institutions. Additionally, the reliance on self-reported data introduces the risk of social desirability bias. The English-language questionnaire may also have affected comprehension among non-native speakers. Finally, the quantitative design does not capture deeper qualitative insights into students' motivations or contextual factors.

Author's note on AI use

This manuscript was revised in its entirety using ChatGPT 4.0 (OpenAI) for grammar and language editing. The author critically reviewed all content.

Conflict of interest

The data used in this report were collected from students at the University of Zurich, where the author is currently employed. This institutional affiliation did not influence the data collection, analysis, or interpretation of results. I declare that there is no conflict of interest related to the content or outcomes of this research.

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