Communication in the Workplace: What Can NC State Students Expect?

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Section 1. Introduction

The Professional Writing Program at North Carolina State University has a longstanding tradition of researching perceptions and practices of professional writing among employees in our students' social networks. This report is the sixth iteration of an assessment project that was conducted in similar forms in 1996, 2001, 2006, 2012, and 2017.

It is rare for a 5-year period to involve as many cultural, economic, and workplace shifts and challenges as the years between 2017 and 2022. The COVID-19 pandemic ushered in widespread communication changes as businesses, universities, and government agencies rushed to remote work to reduce disease transmission. The turn to remote and "boundaryless work" had already shifted many professional writers' communication practices over the past 15 years; however, pandemic conditions changed remote work from a trend to a reality touching nearly every organization and household. Meanwhile, essential workers and employees in service roles found themselves communicating behind masks with anxious customers, clients, and patients. Pandemic conditions also coincided with public outcry over racial injustice and police brutality, following the murder of George Floyd in May 2020.

As in previous years, we analyze the role of writing practices in business, science, and technical work, including in education, engineering, finance, management, marketing, programming, and research (among other fields). Our project draws from interviews conducted by Professional Writing students, as well as surveys filled out by their interview participants. This year we pay greater attention to how pandemic conditions affected how, when, why, and where professional writing took place and the emotions that work invoked. In this introduction, we discuss our project approach and methods, before analyzing our survey and interview responses. The three sections of the report focus on rhetorical situations and genres for professional communication, effects of the COVID-19 pandemic on professional communication, and employees' perceptions of effective writing in the workplace.

Project Approach and Methods

This report is the product of a large-scale research collaboration between students and faculty in the Professional Writing program at NC State. In Spring Semester 2022, Professional Writing faculty used a shared assignment that asked students to conduct one interview with an employee who held a position they hoped to have in about five years. The interview used 10 questions (see Appendix A) to gather informal perceptions about the role, value, and media of writing in professional life. Students wrote reports that provided us with responses to the questions and accounts of their discussions, which often included verbatim quotations from those interviewed. Faculty analyzed this qualitative data using a coding scheme focused on rhetorical situations for professional writing, qualities

of effective communication, pedagogical recommendations, and effects of the COVID-19 pandemic. We coded about 25% of the reports we received in order to arrive at understandings about each of these major themes.

The assignment also encouraged students to invite participants to take a shared survey that collected additional detailed information about writing roles, practices, and technologies (see Appendix B). We retained most of the questions from our 2017 study, but made focused changes to our survey protocol to adapt to technology and writing changes over the past 5 years. As a result, this year's report includes information about the prevalence and role of remote professional writing and the technologies that supported it.

Survey and Interview Participants

After cleaning the data to remove blank or unfinished attempts, we analyzed responses from 611 participants who completed our survey of employees. Participants identified as having job titles across many fields associated with business, science, and technology including Education (8%), Engineering (27%), Finance Accounting and Banking (14%), Management (6%), Marketing and Sales (10%), Programming (5%), and Research (6%). This breakdown across fields is generally consistent with previous reports; however, we find a larger percentage of participants identified with "Other" this year. Almost a quarter of our participants (23%) did not identify themselves as involved with any of the fields above. Based on participants' self disclosed job titles, we deduce that many participants worked in professions related to medicine, design, human resources, and real estate.

Figure 1.1 Professional Fields of Survey Participants
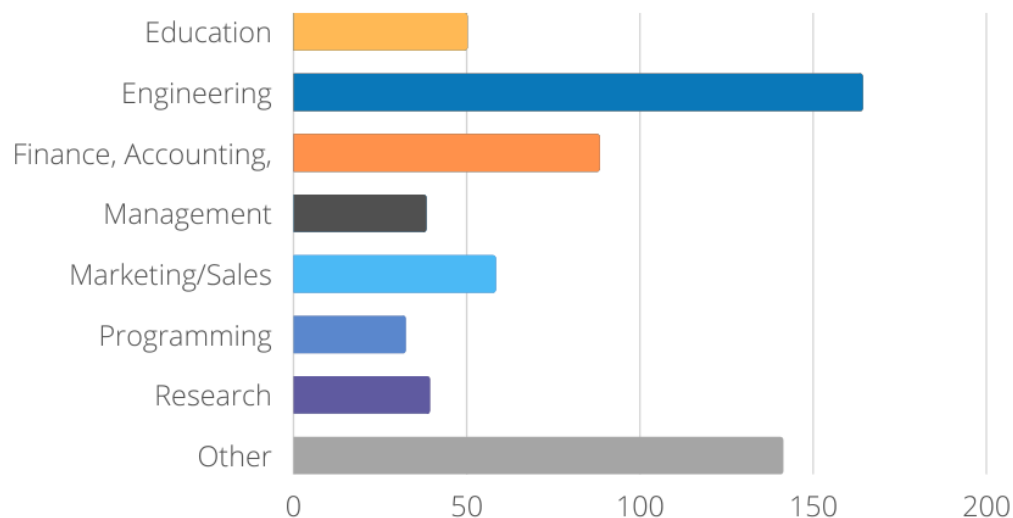
Most professionals surveyed in this project worked for organizations with more than 500 employees (56%), while 24% worked for companies that employ fewer than 50 people. These numbers are consistent with those of the prior report, with a

slight growth trend toward very small companies. Our participants were also evenly split between working for private and public organizations (i.e., 50.33% private and 49.67% public). As was the case in our last iteration of this project, just over 60 percent of participants' highest educational level was a Bachelor's degree (62%), while 20% held a Master's degree as their highest level of education. 12% of participants held a Ph.D, Ed.D, M.D., or J.D degree. In these numbers, we see a slight trend toward higher levels of education attained when compared to the previous study. Fifty-six percent of participants completed a course in technical, business, or science writing to prepare them for their careers, which is a slight trend downward from 60% in 2017. This change may be attributable to the broader range of professional fields represented in the study.

Report Overview

We have divided the results of this report into three sections following this one. Section 2 offers an overview of the kind of rhetorical situations, audiences, and genres that participants associated with their professional work. This section provides an overview of the most common situations and functions of writing reported by participants. Section 3 focuses on the effects of the COVID-19 pandemic on professional communication practices. Section 4 discusses what qualities and characteristics participants understand as leading to effective professional communication. We end with a brief conclusion and call for future research.

Section 2. Rhetorical Situations and Genres of Professional Communication

Professionals today write for many internal and external audiences and across many text and information types. While professionals wrote traditional documents such as memos, letters, and proposals, many also wrote on platforms that facilitated informal, fast-paced exchanges. By internal audiences, we refer to audiences that exist within an organization. Common internal audiences for professional communication included colleagues such as supervisors and coworkers. By external audiences, we refer to audiences outside a professional organization who are involved in a communication exchange. External audiences for professional communication commonly included clients, customers, or other stakeholders.

Overall, the kinds of writing that professionals preferred, found acceptable, or did not use varied considerably according to the kind of audience they were addressing. Table 1.1 indicates which forms of written communication participants preferred for common professional communication audiences.

Table 2.1. Written communication preferred

Writing Type	Supervisors	Coworkers	Clients or Customers	Other Stakeholders
Email	66%	59%	67%	60%
Social Media	2%	3%	4%	3%
Business Communication Apps	22%	28%	6%	7%
Chat/IM/Text messages	23%	33%	10%	9%
Short internal docs (memos)	22%	19%	13%	13%
Short external docs (letters)	14%	11%	21%	17%
Long docs (reports, proposals)	22%	14%	26%	24%

As in our last report, email remains the most common or reliable platform for professional communication in terms of versatile use across audiences; however, we see a slight drop in its preferred use for supervisors and coworkers. In 2017, 71 percent of participants preferred email for writing to colleagues, compared with 66 percent in 2022. Similarly, in 2017, 67 percent of participants chose email for reaching out to coworkers, compared with 59% in 2022. As in previous years, we see that long-written genres, such as reports and proposals, remain essential for many communicators, and yet some participants never use these genres at work.

We saw the most significant change this year in a preference for business communication platforms that allowed for fast-paced and ephemeral

communication among coworkers and their managers. We did not include this category in the 2017 survey, and thus cannot directly compare the use of business applications today to five years ago. Still, we note that 22 percent of participants preferred "business communication applications" for interactions with supervisors in this year's survey, and 28 percent favored it for interactions with peers.

Moving to written communication types acceptable for workplace communication (Table 1.2), a broader spectrum of writing types emerged as useful. Again, the fast-paced communication of chat, IM, and text messaging was understood as acceptable for communicating to supervisors and coworkers by over half of participants. Still, those percentages dropped off considerably for external audiences such as clients, customers, and other stakeholders. When we analyzed the forms of communication not used (Table 1.3), we found that most participants have not yet incorporated social media into workplace communication.

Table 2.2. Written communication acceptable

Writing Type	Supervisors	Coworkers	Clients or Customers	Other Stakeholders
Email	29%	37%	24%	25%
Social Media	8%	19%	18%	11%
Business Communication Apps	28%	27%	19%	19%
Chat/IM/Text messages	57%	54%	41%	35%
Short internal docs (memos)	54%	57%	39%	42%
Short external docs (letters)	42%	44%	50%	44%
Long docs (reports, proposals)	53%	58%	46%	46%

Table 2.3. Written communication not used

Writing Type	Supervisors	Coworkers	Clients or Customers	Other Stakeholders
Email	6%	4%	9%	16%
Social Media	91%	78%	77%	86%
Business Communication Apps	50%	46%	75%	74%
Chat/IM/Text messages	21%	13%	50%	57%
Short internal docs (memos)	24%	24%	47%	45%
Short external docs (letters)	45%	46%	29%	39%
Long docs (reports, proposals)	25%	28%	28%	30%

Extending Understandings of Professional Audiences

Our survey categories provided us with a sense of how employees were using both traditional and emerging platforms for writing in the workplace. However, these broad categories did not capture the specific audiences to which employees wrote or explain how different audiences changed professionals' writing requirements. To better understand these issues, we turned to qualitative data from interviews.

Clearly, attention to audience drove professional writers' choices. For example, one participant used a helpful spatial metaphor to describe how different audiences shaped writing situations. When communicating "upward" to supervisors, the participant emphasized "predicting what they're going to ask and want to know, and proactively addressing that" (ENG 332). When communicating "downward" to someone the writer was supervising, the writer addressed the importance of task orientation, or "break[ing] down the specific task and [providing] directions" (ENG 332) in a way that built on their knowledge of the employee's strengths. Finally, what the writer called "horizontal" communication to peers was often the least formal form of communication, as writers could more safely assume shared context and understanding with their most immediate colleagues.

Figure 2.1 Selected audiences for professional writing

Figure 2.1 visualizes just a few commonly discussed audiences for professional writing. In the next section, we discuss how professionals addressed these audiences and how their writing functioned within the workplace.

Genres of Professional Writing and Their Functions

Qualitative data also helped us understand the kinds of writing that professionals did at a more specific level than the categories in our survey. We refer to typified forms of writing as genres. Genres were described by many participants based on their structure and length rather than their content, emphasizing templates and structure over the communicative practices or functions these writing types played in the workplace.

Some participants linked genre choice to intended audiences. For example, the following participant in the finance field describes how documents were shaped by audience needs:

> Our biggest documents that we write are **financial statements** and [..] some of them go to the local government commission, some of them go to banks for people to get bonds, some of them are just for the company, so just the owners are who's going to be reading them. And they vary in length from 5 to 10 pages to 150 pages. [...] Other writing would be **IRS letters**, department of revenue, any correspondence like that. And those are typically a few paragraphs, just stating what the issue is, how to resolve it, what needs to be changed, and then the tax and authority is the reader for those. And then **emails**, they're pretty much to clients, or to [coworkers], I might send [a coworker] an email saying I've looked at so and so's information, we're missing this, or I need to clarify this, different stuff like that, or straight to the client the same type of information, so those are more informal. With **audits**, we sometimes talk to, like we could email a bank or somebody and say, 'please confirm the balance of this.' We also do **confirmation letters**, that's a form of written communication we do too, and those go to banks or people that you get revenue from, and they're pretty standard letters also, just asking the institution to confirm balances most of the time. (ENG 332)

Another participant reported similarly, identifying genres by name and describing them by length, formality, and audience:

> My writing mostly consists of **emails** every day and **requirements and use cases** mostly in the beginning stages of any project our team takes over. Requirements are usually a paragraph long. The use cases are basically trying to understand customer requirements and writing them more formally to make it easier for professionals to understand. The use cases are usually half a page long, around two paragraphs each depending on how big of a requirement it is. The emails are mostly to the rest of my teammates and my

higher-ups. They vary drastically in length depending on the subject of the email. (ENG 331)

Across different writing types, the emphasis on "standard" letters and "not writing [documents] from scratch" suggested that genre played an important role in saving time and effort. The discussion on length and formality within both reinforced the commonly held prioritization of concise and audience-specific communication. In Figure 1.2, we visualize just a few commonly used genres that participants repeatedly mentioned in interviews.

Figure 2.2. Selected genres for professional writing

DOCUMENTING & RECORDING
Diagrams or Models
Simulations
Financial Reports
Presentations
Monthly status reports
Technical reports
Excel Spreadsheets
Contracts
Performance memos

COLLABORATING & PROPOSING
Memos
Permit/construction documents
Design documents
Designation letters
Proposals/grants
Purchase orders
Authority for Capital Expenditures (AFCE)
Monthly status reports

SELECTED GENRES

SUPPORTING OTHERS" WORK
Specifications
Product documentation
Customer User Guide
Guidance for team
Quality of service or product
Instructions
Performance/ peer reviews

CONNECTING & NETWORKING
Meetings
Conferences
Emails
Technical reports
Designation letters
Executive Summaries
Articles
Research Papers
White papers
Updates
Social media

Interviews also indicated how writing functioned within organizations, including how the social context of organizations created the need for particular kinds of texts. In this section, we describe several different functions of professional writing described by participants and the conditions of the writing situations that shaped those functions.

Writing to Record or Document

Professional writing serves to record or document work or processes. Participants referred to professional writing as "communicating important details," "provid[ing] a reviewable record," and serving as "sources of future reference" (ENG 331). Computer programmers, medical clinicians, and engineers particularly focused on

the documentary function of writing. As one medical field participant noted, medical records were important for other healthcare providers, for legal protection, and for communicating to patients. A military officer working with aircraft similarly described the function of logbook entries that identified problems and maintenance. As they put it, "**aircraft logs** are mandated, so you must provide specific numbers and specifications, what type of maintenance is being taken and how it is resolved and if it's being signed off to fly" (ENG 332).

Computer Science-related participants described using a wide variety of informal and formal documentation genres and stressed the importance of accuracy and clarity for recording coding details. As one participant noted, "No documentation is better than bad documentation" (ENG 331). Effective documentation allowed workers to work collaboratively and over time, sometimes on multiple projects simultaneously: "Often we won't continue on the same work or project for a while, so it's very important to document what you did and why, so other people can pick up where you left off or you don't have to re-work everything you already did just to understand it" (ENG 331).

Effective documentation is also assessed within organizations. For example, "Maintaining documentation is assessed by how many people run into issues/are able to use the documentation easily. (Documentation and Boards assessed by their usability, how well/easily they can be used by people)" (ENG 331). Deviating from a company's standard documentation practices can result in miscommunication and detrimental results. For example, if "Somebody failed to test properly and it made it into [the] documentation, [it could] cost 6-8 months and hundreds of thousands [of dollars]" (ENG 331).

Documentation appears to be a means to prevent catastrophe for many participants, and a mark of effectiveness is a lack of follow-up, or as one participant put it, "implementation without questions" (ENG 331). For example, "Documentation should explain things well and be understandable. Readers should not have too many questions after. Information could be siloed." Documentation also establishes a solid foundation for productive discourse: "Having written documentation and interpreters was crucial for both parties to have the same understanding" (ENG 331).

Historically, many IT participants have reported low written communication rates in their typical work week. However, those same participants also reported extensive time spent on code documentation, something they perceived as part of the coding process rather than as a form of written communication. This year's data reflects a shift in this mentality, as many participants pointed to reading or writing documentation as a critical part of their weekly communication practices.

Writing to Coordinate or Collaborate

Professional writing also serves as a medium for coordinating or collaborating, sometimes at the same time that it documents work. **Email** remained an important kind of writing for coordinating various kinds of interpersonal and organizational communication in professional spheres. We note that email appeared to function more broadly than a genre: it was described as a platform that professionals adapted into particular forms that varied with organization and field. Other kinds of project management platforms similarly functioned to facilitate the exchange of information that helped teammates stay on the same page about work to be completed. While this kind of writing ranged from interpersonal communication (emails, **chats**, etc.) to **formal reports**, it helped teams arrive at shared understandings about tasks, problems, solutions, and plans. This kind of writing was also important for clients or vendors.

Describing collaborating with colleagues, one participant offered the example of "a document that listed the different tasks to be completed so people could pick up the next task once they completed their current one" (ENG 331). Another participant in tax accounting discussed the importance of reports that enable a shared understanding with clients of "what the issue is, how to resolve it, what needs to be changed" (ENG 332).

Writing also coordinated work by offering participants in technology fields a space for articulating needs, conditions, requirements, and use cases that would affect the timeline or approach to solving a problem. In other cases, writing was the medium through which problems were solved, as teammates exchanged ideas and communicated possible solutions. In this vein, one participant suggested that writing was used for "testing out the technical workings of ideas" (ENG 331).

Writing to Propose Solutions or Plans

Professional writing served a dialogic function in proposing solutions, funding, plans, or actions for internal and external stakeholders. Many participants in research or non-profit fields were involved in large-scale funding proposals. As one described, "I am frequently participating in **proposals** with large donors and clients in an international development community in order to win and perform large-scale development projects in developing countries" (ENG 332). Others described internal proposals that argued for particular projects or solutions within an organization. One participant from a well-known multinational tech and commerce company described that the practice was to "write documents, like in Word, full documents, and they could either be short, like one page, or they could be six pages. And I mean, they're pretty thick and pretty intense" (ENG 331). These documents provided detailed information about proposed projects and were circulated "for review, people comment on them, and that kind of thing."

Writing to Support Others' Actions and Learning

Professional writing also supported others' actions or learning. One participant remarked that readers of professional writing are typically "reading to figure out how to do something" (ENG 332). "As one participant put it, "I often write **how-to instructions** on different technical processes. These are typically numbered lists 1-2 pages long. The audience can be users internal or external to my company" (ENG 331). Similar genres directed to external audiences included **user guides**, **cheat sheets**, **knowledge-base articles**, and many others. Within organizations, some writers, particularly in management roles, also wrote to provide teammates or employees with support for their own learning. This kind of writing ranged from writing to assess others' performances, to providing feedback on others' writing, to writing "**training content and conversions**, and **template** teaching others how to write" (ENG 332).

Writing for Engagement, Outreach, Connecting, or Advancing Professional Knowledge

Professional writing also added knowledge to professional, disciplinary, and public conversations. Many participants working in science and research had direct public engagement responsibilities, including "educating the general public on how to best protect their biodiversity," "communicat[ing] to the public who may not know as much about forest management in an educational standpoint," and "spreading awareness about conservation, and that requires communicating to people of various backgrounds in order to portray that mission" (ENG 333). These participants mentioned a range of genres, including **articles, websites,** and **social media posts**. For example, an academic researcher in science noted the importance of Twitter for sharing results within scientific communities: "**Twitter** has really exploded in the last five years... Actually, a lot of people don't even look at the literature, they just look at Twitter" (ENG 333).

Engineers and scientists also discussed contributing to knowledge through journal articles. For example, one participant described how "we have a few well-known engineers who are great at what they do and known by AIAA, and their **[research] papers** are shared all over the world and seen as the gold standard of whatever tests or research they're doing" (ENG 331). Writers also communicated for networking. As one participant described, it is "extremely important to be proactive [...] The recruiting process is online now, and connecting with other people [is essential] for networking" (ENG 331). Connecting with others within organizations was also a highly valued skill: "Socializing is a communication skill that you should also have because it just makes you a better team member and employee. Building relationships and, of course, making sure to remain professional is essential" (ENG 332). Several participants mentioned the importance of LinkedIn as a platform for recruitment and sales in addition to networking: "**LinkedIn** has been highly utilized not only for recruiting employees but networking for sales as well" (ENG 333).

Section 3. Effects of the COVID-19 Pandemic

In late 2019 and early 2020, COVID-19 dominated headlines in almost every country around the world. At the same time, the business world experienced a communication renaissance as companies struggled to keep their businesses and livelihoods afloat in the face of social distancing and employee illness and death. Businesses and their communication styles had to adapt quickly in order to do what was possible to achieve work goals. As one respondent stated, "COVID is the most profound business interruption in the generation" (ENG 332). This section of the CIW 2022 Report reflects on the negative and positive changes participants experienced as a result of COVID's effect on workplace communication. As part of this discussion, we introduce our survey findings on oral communication, electronic media use, and locations for writing, which are closely related to the impact of the pandemic on both individuals and organizations.

Surveying Oral Communication, Device Use, and Work Location in the Midst of a Pandemic

Every iteration of the CIW report asks professionals to reflect on how traditional professional communication formats, such as phone calls or face-to-face conversations, compare with newer technologies, such as video conferencing for interactions with supervisors, coworkers, clients or customers, and other stakeholders. Our reports have also asked for reflection on the use of different digital devices in workplace contexts, as well as how common electronic media genres are integrated into work practices. This year we added a question about employee's work locations. To provide context to our discussion of the effects of the pandemic, we begin with these findings.

Oral Communication

The findings of this year's study demonstrated the importance of oral communication in the workplace, even in spite of the challenging context for spoken communication. Communicators continued to speak with internal and external audiences in formal and informal settings for a variety of purposes, which include collaborating and problem-solving with coworkers and other stakeholders, presenting information or proposals to clients and supervisors, and building relationships and networking.

Since the previous CIW survey, there was an increase in the amount of oral communication that took place virtually via remote meetings and remote presentations. Table 3.1 shows that our participants preferred speaking in person with most audiences, but particularly with supervisors and colleagues. The only exception was other stakeholders, with an almost equal number of participants preferring remote meetings to in-person communication when speaking with this

group (33.27% preferring remote meetings versus 33.00% preferring in-person oral communication).

As Table 3.2 details, more than half of participants found **phone calls** (62.43%) or remote meetings (51.37%) to be acceptable forms of oral communication with clients and customers. Most related to the pandemic, a sizable percentage of respondents have integrated teleconferencing software into oral communication repertoires, with many finding remote meetings to be a preferred medium for speaking with supervisors (38.76%), coworkers (38.25%), clients or customers (34.57 percent), or other stakeholders (33.27%).

Table 3.1. Oral communication preferred

Communication Type	Supervisors	Coworkers	Clients or Customers	Other Stakeholders
In Person	56.20%	58.59%	44.51%	33.00%
Phone	23.83%	23.78%	23.87%	17.86%
Remote Meetings	38.76%	38.25%	34.57%	33.27%

Table 3.2. Oral communication acceptable

Communication Type	Supervisors	Coworkers	Clients or Customers	Other Stakeholders
In Person	29.46%	30.27%	37.45%	40.32%
Phone	63.67%	66.28%	62.43%	57.14%
Remote Meetings	51.55%	54.17%	51.37%	46.46%

Table 3.3. Oral communication not used

Communication Type	Supervisors	Coworkers	Clients or Customers	Other Stakeholders
In Person	14.34%	11.13%	18.04%	26.68%
Phone	12.50%	9.94%	13.70%	25.00%
Remote Meetings	9.69%	7.57%	14.06%	20.28%

In the 2018 study conducted before the COVID-19 pandemic, we utilized the term "teleconference" to describe communication conducted synchronously through digital platforms. In this study, we used the term "remote meetings." While acknowledging some participants might have understood these as different forms of communication, comparing the two offers an interesting observation of how COVID-19 impacted the use of remote, digital conversations.

Data from our 2018 study compared with data from our 2022 study illustrates a marked difference in the prevalence of **teleconferences/remote meetings**. In 2018, teleconferences were preferred as a form of oral communication with supervisors by only 16% of respondents and considered acceptable by 57% of respondents. In 2022, remote meetings were preferred as a form of oral communication with supervisors by 38.76% of respondents. This pattern of increased preference for remote meetings as a form of oral communication is reflected across several audiences including coworkers (38.25%), clients or customers (34.57%), and other stakeholders (33.27%) (Table 3.1, Table 3.2, and Table 3.3). Interestingly, remote meetings with supervisors were only considered acceptable by 51.55% of respondents, which reflected a decrease from 2018 (57%) (Table 3.2). In 2018, 27% of respondents said that teleconferences were not used as a form of oral communication with supervisors. In 2022, this percentage dropped to 9.69% (Table 3.3).

Our results also indicated an increased preference for remote meetings has been accompanied by a decreased preference for **in-person communication** in the years since the pandemic. Though the majority of respondents still prefer communicating in person, the amount has dropped considerably. In 2018, 76% of respondents preferred to talk with supervisors through in-person communication. In 2022, only 56.20% of respondents preferred to communicate with supervisors through in-person communication (Table 3.4). While it is clear from this quantitative data that preferences for remote meetings and in-person communication have changed, it's also clear from our qualitative data that respondents have mixed feelings about these changes.

Table 3.4 Oral communication preferred - 2018 versus 2022

Communication Type	Supervisors 2018	Supervisors 2022	Coworkers 2018	Coworkers 2022	Clients or Customers 2018	Clients or Customers 2022	Other Stakeholders 2018	Other Stakeholders 2022
In Person	76%	56.20%	81%	58.59%	53%	44.51%	38%	33.00%
Phone	21%	23.83%	23%	23.78%	33%	23.87%	21%	17.86%
Teleconferences/Remote Meetings	16%	38.76%	16%	38.25%	18%	34.57%	15%	33.27%

Table 3.5 Oral communication acceptable - 2018 versus 2022

Communication Type	Supervisors 2018	Supervisors 2022	Coworkers 2018	Coworkers 2022	Clients or Customers 2018	Clients or Customers 2022	Other Stakeholders 2018	Other Stakeholders 2022
In Person	20%	29.46%	18%	30.27%	34%	37.45%	34%	40.32%
Phone	71%	63.67%	74%	66.28%	57%	62.43%	51%	57.14%
Teleconferences /Remote Meetings	57%	51.55%	58%	54.17%	51%	51.37%	47%	46.46%

Table 3.6. Oral communication not used - 2018 versus 2022

Communication Type	Supervisors 2018	Supervisors 2022	Coworkers 2018	Coworkers 2022	Clients or Customers 2018	Clients or Customers 2022	Other Stakeholders 2018	Other Stakeholders 2022
In Person	4%	14.34%	1%	11.13%	13%	18.04%	29%	26.68%
Phone	8%	12.50%	4%	9.94%	10%	13.70%	29%	25.00%
Teleconferences /Remote Meetings	27%	9.69%	27%	7.57%	31%	14.06%	38%	20.28%

Technological devices

Participants in our study emphasized the importance of **digital and electronic media** to the ability to conduct work during the pandemic. One educator expressed media that were important to a common sentiment when suggesting,"Through COVID, technology was the only way we were able to do our jobs and effectively communicate" (ENG 333). In the survey data, this focus on technology can be seen in the varied electronic media our participants used, which we discussed in the prior section. Here, as with our focus on oral communication, we wish to highlight the shift in the use of common media for different audiences between the years of 2018 and 2022.

Table 3.7 Written communication Preferred Across Electronic Media 2018 to 2022

Writing Type	Supervisors 2018	Supervisors 2022	Coworkers 2018	Coworkers 2022	Clients or Customers 2018	Clients or Customers 2022	Other Stakeholders 2018	Other Stakeholders 2022
Email	71%	66%	67%	59%	66%	67%	51%	60%
Social Media	2%	2%	3%	3%	4%	4%	2%	3%
Chat/IM/Text messages	13%	23%	26%	33%	6%	10%	3%	9%
Business Applications	N/A	22%	N/A	28%	N/A	6%	N/A	7%

Some of the most drastic differences between survey results in 2018 and 2022 are around the use of **chat, IM, and text messages** as either a preferred or acceptable media choice for internal audiences. As Table 3.7 indicates, chat rose from being a preferred medium for communicating with supervisors 13% to 23% and from 26% to 33% finding this a preferred way of talking with colleagues. We did not survey employees regarding the use of business technologies such as **Slack** or **Google Teams** in 2018, but found that over a fifth of participants preferred these communication channels for interacting with internal audiences.

Survey results also illuminated the importance of digital devices that supported mobile, flexible work in a landscape where offices needed to adapt to social isolation protocols. **Laptops** were the dominant device used for professional communication by participants this year. Nineteen percent of participants reported using laptop computers for 91% -100% of their work weeks, up from 12% in 2018. With laptops becoming more common, **desktop computers** also trended down in use. Forty-four percent of participants reported using desktop computers for between 0 and 5 percent of their work week in 2018, whereas 57% percent of participants reported using desktop computers for between 0 and 5 percent of their work week in 2022. Similarly, **tablets** have become rarer than we might have expected given their popularity 5 years ago, with 84% of respondents using them for less than 5% of the week (as compared with 78% in 2018) .

Finally, employees indicated extreme variation in **locations** from which they are working. 22% of employees surveyed told us that they work 91 to 100 percent of their work week in their **homes**, whereas only 11% of employees work 91 to 100 percent of their work week in a **formal office space**. 25% of employees work only 0-5% of the time in the office. Almost all employees experienced their work week as distributed across work locations, including substantial work done in **transit or public locations** outside their office spaces.

Professionals Reflect on the Pandemic's Impact

While our survey traced trends in communication change between 2018-2022, interview participants directly discussed the COVID-19 pandemic's complex impact on communication practices in the workplace. In this section, we reflect on changes to workplace communication as a result of the pandemic, focusing on the adjustment period, changing communication patterns, new technologies, and the possibility of more lasting changes as a result of widespread adaptations.

An Adjustment Period

The COVID-19 pandemic in business meant an immediate **move to accommodate social distancing**. These changes affected different industries in different ways. One respondent explained, "IRB shut down new research for 16 months. Lab animals and cultures had to be re-approved to continue, which was slim especially if they weren't essential, funded, or nearing completion" (ENG 333). COVID also dampened entertainment, travel, and education, leading many to pick up other jobs to pay bills. School, concerts, and events were held over Zoom and VLA so that performers and/or teachers could still reach audiences (ENG 331). Meanwhile, the medical industry and other essential workers had to maintain their practices, but with adjusted expectations and interactions.

In white-collar industries, the pandemic meant an adjustment to **remote work and online communication**. Since most professionals could no longer rely on face-to-face communication in the early days of the pandemic to clarify errors, they were challenged to overcome barriers to communication to ensure teams ran effectively. For most companies, this meant a quick shift to new technology platforms to support virtual communication strategies, which in some cases included innovative ways to solve problems and make communication more efficient and more engaging and user-friendly.

The change allowed for more time efficiency but impacted the building of strong working relationships (ENG 332). As one professional observed, "[The pandemic] has challenged us to think of all ways to communicate rather than just the usual one or two. We needed to find ways to adapt to the inclusion of more **virtual communication** due to social distancing guidelines, since many of our efforts are hands-on" (ENG 333).

Professionals found the technological shifts of this adjustment period less disruptive when their **companies already had virtual capabilities** before the pandemic started. As one respondent stated, We never fully closed or anything so we didn't have to do a ton of evolving, but [employees] . . ..could take their laptops home if they needed to. We downloaded a software on laptops called **LogMeIn,** and we got a cloud-based audit program, which actually we started just before COVID" (ENG 332).

For many businesses, however, the move to social distancing was not this smooth. The changes challenged different workers differently, and some respondents noted that **older workers who were not familiar with programs like Zoom found the shift to be more stressful**: "The old face to face stopping by the office was no more…this put major stress on older workers who weren't as familiar with programs such as Zoom" (ENG 332).

Companies that touted "no cubicles" or open-office layouts couldn't maintain that structure, and many with environments more conducive to isolation had employees taking on roles as caregivers for children or elders in their households. Other kinds of workplaces were closed due to mandates. Some businesses were able to make the switch to remote working/teleworking, or in some cases, even staggering shifts. Some employees learned that online communication could effectively support efficient remote work from anywhere. However, the pandemic prevented others from completing critical aspects of their job.

Changing Communication Patterns

Aligning with our survey results, the pandemic has been associated with a move toward increased **work from home**. One primary benefit of remote work was a better work-life balance. One respondent noted that working from home carried benefits for employers, employees, and customers:

> Before the pandemic hit most of my managers weren't on board with people being out of the office. Now with being in the pandemic for over 2 years that isn't an issue anymore. People have proved that they can work efficiently while not in the office. This has raised employee satisfaction and trust within the company. In return, the level of quality for the customers has increased. (ENG 332)

Other respondents discussed a spike in employee productivity, perhaps resulting from employees' satisfaction with being able to work while spending more time with their families.

While many saw the increased flexibility of remote work as a positive, this movement also meant **a decrease in the ability to communicate in person**. For some, the pandemic completely took away the personal nature of their businesses and their communication. As one interviewee stated:

> People have stopped using face to face communication, [and] phone calls are not too easy to communicate. People prefer to use email or text which creates a lot of misunderstanding with one another. In the past 2 years, COVID has created a lot of restrictions for travel which has impeded my own face to face communications. This created a lot of technology to communicate but the technology made it harder to better communicate. We have lost the personal touch and that makes it harder to convey what you mean. Because of all these my company and others have cut funding for

face-to-face communication because of this technology which makes it harder to interact with the projects face to face. (ENG 331)

Many interviewees expressed frustration and irritation that the pandemic created "extra effort to connect" (ENG 331). They believed that social distancing and teleworking made it hard to speak to coworkers and clients. One interviewee summed it up nicely by saying: "You can't just go over to the next cubicle and talk to your coworker. [...] Sometimes it's harder to get ahold of people 'cause -- you know -- while they're working remote and sometimes they have to deal with stuff at home" (ENG 332).

One result of the prevalence of working in social isolation was **the prevalence of written communication** for informal and formal workplace exchanges. As one profession put it, "online communication was a lot more prevalent and there were little to no face-to-face interactions. This made written forms of communication being effective really important" (ENG 331). Another respondent observed that **written communication also led to greater accountability**:

> Everything is in writing which is great because you can't tell me one thing and act like you told me a different thing. The amount of communication is increased, and quality is increased because there isn't the opportunity to just say something in passing in the hallway. You have to make an effort to contact people. There's less passive contact with people, so it's much more directed. (ENG 333)

Some respondents discussed the **benefits of remote meetings**, which were often related to convenience and a reduced need for travel. For example, one respondent stated, "At first, a lot of us that had been doing the face-to-face were resistant to [online meetings], but now find that it is more comfortable and saves time and driving" (ENG 332). Another felt that, "[Zoom] enabled more networking opportunities with out-of-state and international people who would otherwise have been difficult to connect with" (ENG 333).

Several other respondents pointed out the benefits of the visual aspect of remote meetings: "Zoom has made it easier than ever to talk with people in other states and countries and get to show each other the exact garments we are speaking about, whether by sharing a screen or holding up an item" (ENG 332). As one respondent observed, "I think overall that increase in comfort has led to better communication overall, but it's also led to things being a little bit less formal, which can be good or bad" (ENG 331). Finally, one respondent noted that a shift from in-person oral communication to remote meetings has led to "a more open line of communication with the corporate office" (ENG 332).

Perhaps because the COVID-19 pandemic has expanded the remote workplace and limited opportunities for in-person communication, our qualitative data included several statements about the **importance of informal oral**

communication in the workplace. One respondent noted that, "Keeping in touch with the people [I was] working with and talking about how [we] were going to communicate during this pandemic was important…" (ENG 332). Another said, "It's very important to try to talk to your co-workers and get to know them. Socializing is a communication skill that you should also have because it just makes you a better team member and employee. Building relationships and of course making sure to remain professional is essential" (ENG 331). As the previous quotation suggests, the need to balance informality and professionalism was also a theme from respondents:

> I think people are becoming more familiar with technology and so I think overall that increase in comfort has led to better communication overall, but it's also led to things being a little bit less formal which can be good or bad. I mean obviously I would just say you need to read the environment, read the room before you send an informal email. (ENG 331)

Other respondents noted **significant drawbacks to the increased prevalence of remote meetings**, including an increase in ineffective communication. One respondent explained that conducting a remote meeting "leads to more speaking, but is not always beneficial to communication or time" (ENG 333). Another suggested that remote meetings have made communication more intrusive: "increased use of technologies such as Zoom [has] made communication more annoying" (ENG 333). Another respondent stated that, "the increased ability of people to get in contact with him at any point in time…makes him lose focus" (ENG 331). While this respondent implies a loss of focus on other work tasks, others observed a lack of focus within remote meetings themselves. For example, one respondent stated, "people pay less attention and it requires more follow ups to actually get things done" (ENG 331). Another said, "I think people not being 100% focused, maybe as if they're in the office, I think that hurts good communication" (ENG 331).

Other respondents' concerns about remote meetings focused on barriers to collaboration: "meetings have turned into a seminar setting that does not allow ideas to flow as smoothly" (ENG 332). These barriers to collaboration might reflect **a difficulty in building relationships with colleagues** through remote meetings. One respondent stated, "…it is harder to integrate into new groups, get to know people, learn through observation, and create a strong team dynamic when working remotely" (ENG 333). This is in line with the experience described by another remote worker who responded to our survey: "There are also barriers to effective communication when working virtually, such as a lack of face-to-face interaction. [I have] yet to meet many of [my] coworkers because [I am] still working virtually, which incorporates a challenge" (ENG 332).

Still another reflected, "There's the inability to communicate to build interpersonal connection, that would translate into more effective collaboration in the workplace. And it's so difficult to replicate that in a virtual environment" (ENG 331).

Another said, "The change [to remote meetings] has allowed for more time efficiency but has impacted the building of strong working relationships" (ENG 332). Perhaps relatedly, several respondents lamented remote meetings in which participants kept their cameras off: "...when the other person has their camera off. It is not very effective communication, and it bothers me to speak to a blank screen. I like to see who I am speaking to" (ENG 333). Not being able to see colleagues in remote meetings may make it more difficult to build relationships with them.

New Communication Technologies

During the pandemic, professionals became increasingly comfortable with and reliant on **technologies**, for better and worse. Most of the technologies that participants discussed were not new in and of themselves, but companies took steps to integrate technologies that facilitated archiving and storage, word processing and authoring, presenting, and managing data. **Whatsapp** and **Slack** were frequently mentioned for organizing informal communication among colleagues, the latter serving as a message board and voice chat. One software not mentioned in the 2018 Communication in the Workplace report is **Box**, a cloud-based content management, collaboration, and file sharing software. Some software are industry specific such as **Relativity** (legal), **Docusign** (legal), **SolidWorks** (engineering), **CAD** (engineering), and **Doxygen** (programming). The **Microsoft Office Suite** is still widely used, which includes Word, Excel, PowerPoint, OneNote, and SharePoint. Other technologies that remain vital to workplace productivity are **Adobe Acrobat** and **Wiki**. Regardless of the platforms respondents were using, one benefit to these new technologies has been less printing of workplace documents.

One difference that we did not see in our results was a substantial change of preference for phone communication. A couple of respondents focused specifically on **the obsolescence of desk or land-line phones** in offices. For example, one respondent stated, "Never-never landlines anymore. So, make sure you bold/underline that, like, tell people no desk phones!" (ENG 332). Another respondent said, "before the pandemic started she was given a company desk phone for oral communication but since everyone went home those have become obsolete" (ENG 333). A third comment specified that telephone conversations have largely been replaced by mediated visual, aural, and written communication: "The telephone has been nullified for only emergencies, whereas now it is email, text, WhatsApp, Slack" (ENG 333).

Of course, **Zoom, Microsoft Teams, and other synchronous video meeting technologies** played a vital role in helping organizations navigate the COVID-19 pandemic. One writer summed up this well:

The biggest thing that has really only occurred over the past two years is the use of Zoom, Webex, and Microsoft Teams. Visually, a lot is online now. When I communicate with other employees and clients, we use one of the platforms mentioned. Nothing is really in person anymore. All of our meetings are also over Microsoft Teams. That has really been the only way technology has changed the way we communicate at work recently. I still remember when you sent by paper mail, and a fast response was two weeks. (ENG 331)

Notably, participants discussed the importance of these programs, both in terms of their visual capacity, but also their integrated chat and instant messaging features.

Respondents reflected particularly on the advantages of **immediacy** related to informal communication with colleagues. The "introduction of IM on microsoft teams has helped out a lot" to make "simple communication speed . . . a lot faster" (ENG 331). For meetings and communication with colleagues, the availability of video in Zoom allowed for helpful **visualizations**. For example, a respondent stated, "We share our screens all the time…like you can communicate verbally over the phone that's one thing, but to have that visual aspect of had links and see your screen is helpful" (ENG 332), and another respondent said, "[a remote meeting] allows her to make connections by seeing a person without having to meet with them in-person" (ENG 332).

They also emphasized the **flexibility and efficiency** of communicating with external colleagues and clients via Zoom, rather than traveling to them: "many platforms are taking on a critical role in internal and external communication across industries. It is more comfortable and saves time and driving" (ENG 332).

Discussing the importance of Zoom for making events accessible to global colleagues, one participant noted, "Researchers from all over the world can now participate in these discussions without needing to travel or be physically in that location. This has broadened the audience and online communication should be a focus of study. There is also more flexibility in working from home scenarios" (ENG 333).

Participants working across different fields including research and business indicated that Zoom conversations allowed new global connections to be formed, **improved cross-cultural communication,** and allowed for "mak[ing] long-distance conversations more natural" (ENG 331). In general, one professional stated,

Video conferencing Professionals most concerned with time and efficiency often saw the move to more written informal communication as primarily improvements. I found that email communication became more important

and quicker, and that virtual meetings on Teams or Zoom were more efficient than meeting in person. (ENG 333)

While Zoom and other teleconference software had many advantages, they also brought challenges. For example, **issues of privacy, confidentiality, surveillance, and blurring of boundaries** resulted from the widespread adoption of these technologies for work. For example, some employees experienced "Zoom bombing," in which a hacker would find an unprotected Zoom link and then insert him or herself into the meeting, take over the screen, and bombard the meeting attendees. Beyond this, the virtual presence of work in remote locations meant workers were "**challenged with boundaries**" (ENG 332) related to what to show on screen, how to protect sensitive information, and how to deal with personal issues at home. At other times, meeting hosts ended up looking at a sea of blank screens because everyone had turned off their video feed.

Long-lasting Impacts

One of the open questions about the impact of the COVID-19 pandemic involves whether and how the changes we have discussed will have longer-term impacts on the business world. Participants were keen to reflect on **the loss of learning and training** that has accompanied social distancing, particularly for younger employees. For example, one interviewee stated, "I am definitely worried about our future leaders who have gotten so used to the COVID workplace and haven't had time to really hone their soft skills" (ENG 332, ENG 333). Still others expressed concerns about what students were losing as a result of the move to online education. As one report noted, many students have lost confidence in their interpersonal skills as a result of social distancing, and may need support to get started with workplace conversations (ENG 332).

In general, participants worried about **the long-term effects of social distancing and remote work and learning on younger generations**. This concern amplified a worry voiced in previous CIW studies about the way younger workers approach oral and nonverbal interpersonal communication. Many respondents see rising technology use interfering with development of confident oral communication skills. One respondent suggested that "all of the technology used with this generation can potentially draw away from face-to-face skills, looking people in the eye when talking and shaking their hand" (ENG 332). Similarly, another stated, "There is a large generational gap in the way that college students communicate versus an older person. Technology has made it easier for the college generation to speak in more slang but also more with a calm or sarcastic tone" (ENG 332). This respondent suggested that younger communicators should "practice a formal tone when speaking or writing to their higher ups or advisors in the workforce" (ENG 332). In regard to interviews, one

respondent also noted that, "the younger generation lacks the skills to talk to adults in a professional field" (ENG 332).

Participants also understand many businesses to be in a liminal stage of trying to negotiate whether they will **retain remote work scenarios** for employees. One respondent summarized this in their statement: "Now, two years into the pandemic, my office will probably never go back to how it was before COVID-19. Almost all of my work is able to be done virtually, and my company can more easily work with people in other locations in the world" (ENG 332).

Respondents also see some more positive changes in the increased reliance on technology: it has forced some industries to work harder on making their online resources and communication platforms more usable and useful. As one participant described, organization leaders are "putting more emphasis on making virtual portals and web pages more engaging" (ENG 331).

Section 4. Practices and Qualities of Effective Writing

Professionals recognized that writing is required to complete their jobs effectively and successfully. Overall, professionals perceived that the quality of their writing mattered to the performance of their jobs, and 71 percent of professionals rated writing as extremely important or very important to job performance. Only two percent of participants reported that the quality of their writing was not at all important.

Figure 4.1. How important is the quality of your writing to the performance of your job?
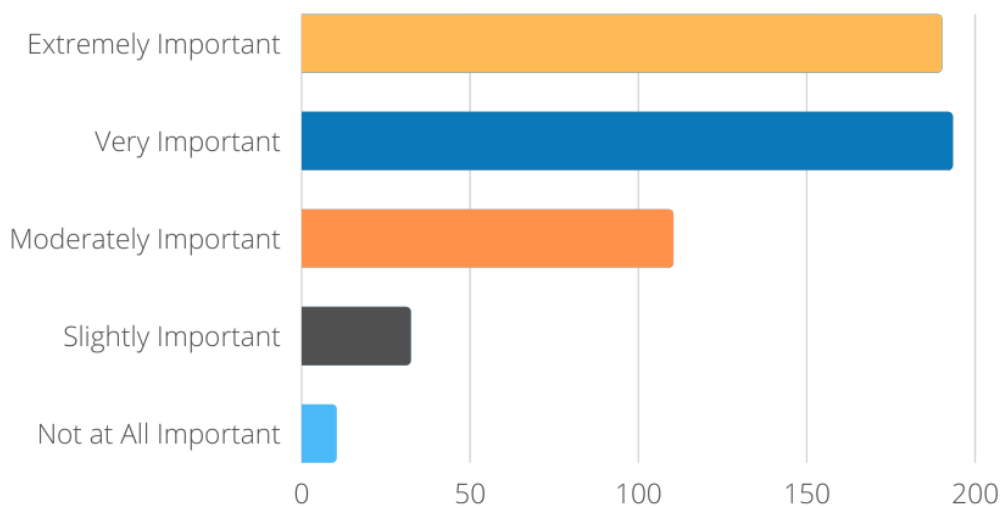
Over 92% of participants described writing as extremely, very, or moderately important to their job.

Professionals also indicated that written communication was important to career advancement. 79 percent of participants reported that oral and written communication were included in their performance appraisals, and 88 percent responded that writing was extremely, very, or moderately important to their career advancement. Additional information regarding how different professions responded to these questions is included in Appendix C.

Figure 4.2. How important is writing to your career advancement?

Over 88% of participants described writing as extremely, very, or moderately important to career advancement.
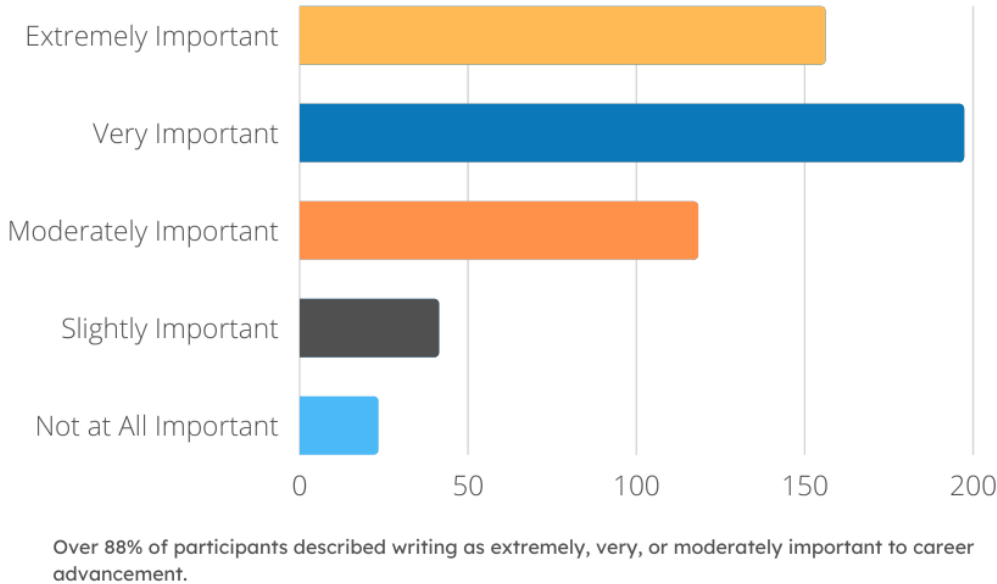
Participants also reflected on how much time they believe they spend writing. Sixty percent of participants believed they spent between 11 and 50 percent of their work week writing, and over 20 percent reported spending more than half their total time in the work week in writing. Participants also reflected on their perceptions of how much time they spend collaborating with others in planning and writing documents with others. Again, participants perceive themselves to spend a meaningful amount of time during their work week writing collaboratively. As with the data on writing importance, more information about how different professions responded to this question is available in Appendix C.

In interviews, professionals discussed the importance of effective communication and reflected on qualities of effective writers and writing through all stages of the writing process from planning to drafting to revising/editing documents. Professionals also indicated that collaboration is central throughout the writing process in professional contexts. With the impact of the pandemic necessitating remote collaboration and the increase in global communication, professionals also highlighted the importance of strong audience and cultural awareness for effective communication. Professionals noted the costs of ineffective writing including wasted time to correct inaccuracies and the loss of business opportunities and publications. In the remainder of this section, we discuss how our participants discussed the knowledge needed for effective writing in the workplace, including their reflections on the importance of good writing in their jobs and their advice for new employees.

Genre Knowledge and Effective Writing

Since genres evolve as a typified response to recurrent situations (Miller, 1984), knowing the genres of communication integrated into a given field is essential to participate in professional discourse communities. As we've referenced in the past, "understanding the genres of written communication in one's field is, therefore, essential to professional success" (Berkenkotter, 1995, p.1). Interview participants had complex ways of discussing the importance of being knowledgeable about accepted genre conventions within their organization and field.

For example, one participant mentioned that the fundamentals of writing within their organization "hadn't changed much" over time (ENG 332). Another participant emphasized that "**writing is based on the effectiveness of successful communication**... It's very important to fact check and write down the correct information professionally" (ENG 332). According to one participant, "Benefits of accurate and clear communications lead to less questions and easier implementation. Ineffective communications will cause confusion, lack of confidence in leadership, and overall poor results" (ENG 332).

Many participants viewed genres as a framework or structure for their communication, and connected knowing genres to their audience and purpose. To avoid this confusion, companies rely on genres—with many supplying templates to employees—to ensure consistency across communication. As one participant describes, "There is not much variability in the writing at [company name], because everything is standardized. For that reason, everything is done in a similar fashion regardless of who is doing it. This helps to eliminate communication error" (ENG 331).

Understanding Stages of the Writing Process

Professionals also recognize that writing in their fields is not a linear or singular process, and they provide insights about how to approach each stage of the writing process to achieve effective communication. One professional summarized the process well by stating, "**Good writing is rewriting**" (ENG 331).

The qualitative data gathered from interviews with professionals revealed that they realize early in their careers that they will be writing and communicating a lot in their careers. Many professionals discussed the importance of learning how communication takes place within an organization. One professional noted that it was imperative to "**learn from others**" when approaching the writing process (ENG 332).

One theme that repeatedly emerged in the professionals' discussions of effective writing was the **importance of listening**. One professional stated, "Even though it is not direct communication with someone, listening to what others are telling you carefully can be the difference maker in how long certain things take to be

completed" (ENG 331). Another engineer noted that "One of the most practical skills for young professionals out of college to acquire is to listen more than they speak" (ENG 331).

As professionals engaged in the stages of the writing process, they realized that they were interacting with others to improve their writing, as well as the writing and communication of other professionals.

Planning

A common theme throughout the professional interviews was that **planning involves preparation**. One engineer noted it was important to "Have everyone on the same page so everyone knows what's going on" (ENG 331). Preparation activities include "reading to learn" as one professional noted (ENG 331). Another professional stated, "Consequences of ineffective writing can show who is prepared and who is not. That could be just for the meeting we are in, or it can mean for the job in general" (ENG 331).

One component of effective planning included **audience awareness.** One professional provided the following advice, "One tip I would give you would be to understand who and how people communicate. It is important because there are different levels of communication, sometimes you may need to explain a problem to someone who is not an engineer, so you must change the language for them" (ENG 331).

Professionals recognized that their planning efforts moved from individual efforts of preparation to collaborative planning activities, such as meetings with others. Planning meetings often resulted in a written text (e.g., email exchanges that document what was discussed in a meeting, or document sharing of outlines and drafts.) When asked about the process of developing a document, a programmer responded, "It is collaborating and always involves a different team" (ENG 331).

Considering the appropriate genre to use was also a key part of the planning process. As one professional noted,

> Critical thinking is used to analyze which type of communication would be best to use depending on the situation. Each situation can have variables that affect the type of communication, these variables can be things like the comfort level with the correspondent, the subject of what needs to be communicated, and the level of detail that needs to be communicated. (ENG 332)

Drafting

Drafting was described as a more defined written form of planning. One manager provided a practical illustration of how planning activities evolve into drafts and longer documents, "For example, texts are used for short bursts of questions,

coordination, clarification or one to one ideas or workflow. Teams [are] used for more active meeting participation with formal visual or document driven tasks" (ENG 332).

Creating drafts ensured that work progressed as one professional stated, "Often we won't continue on the same work or project for a while, so it's very important to document what you did and why, so other people can pick up where you left off or you don't have to re-work everything you already did just to understand it" (ENG 331).

The process of drafting began individually with written words that then evolved into a shared document with many others contributing ideas. More than one draft was usually created as new ideas were generated and before the process of editing or revising for correctness began. One professional stated, "For colleagues it's usually one maybe two drafts, because it's about the content, not about how pretty it looks" (ENG 331). Many professionals reiterated that multiple drafts and versions of documents are not uncommon, and one manager noted, "We write a lot of documents, full form, full fledged documents, send them around for review, people comment on them, and that kind of thing. We press out, you know, multiple versions" (ENG 332).

Participants recognized that good drafting skills provided efficiency and saved time and money. One professional noted, "An effective writing can shorten the approval process, save text modification time, and avoid secondary modification. It is very important in the workplace" (ENG 332).

Revising and Editing

Professionals noted that they spent a significant amount of their writing time on revising and editing. One manager noted that his organization included "lots of reviews" for documents (ENG 332). A researcher also stated, "Writing goes through multiple reviews within the organization by editors, communications teams, and the research team before being published" (ENG 333). **Revising often involves addressing content-related concerns.** An engineer expressed the purpose of revision, "We send drafts where we all put input and improve. However, we are mostly focused on the ideas we are trying to convey" (ENG 331).

The size of an organization could determine the type of revision that takes place. Many large companies used technical writers for review. One programmer stated, "Now there are technical writers that go over all the partner or customer facing documentation and correct it for general grammar or how effective it is at conveying the information. There are always at least two people who go over the important documents" (ENG 331). However, most professionals noted that they practiced both self-editing and peer-editing on a regular basis.

Self-Editing

Because professionals recognized the benefits of writing effectively, they spent time editing for clarity, accuracy, and correctness. Personal benefits can result from effective writing, such as receiving needed information to complete a job, as well as recognition. One professional noted, "If you send something that is not communicated effectively, you could get back a wrong answer or incomplete information. Good communication opened up more opportunities for success" (ENG 331).

Inadequate self-editing could also cost other people time by creating confusion. One professional stated, "If you write a bad document you waste everyone's time, sometimes to a large degree. The more formal the document, the worse it is" (ENG 331).

Self-editing involved paying attention to details and the accuracy of information. One researcher stated, "It is very important to go back and look over what you wrote to look for mistakes. You don't want others to look back at it and say "What is this? This is wrong" (ENG 333).

Many professionals stated that it is an important skill to develop to be a good self-editor. One manager stated, "In order to be successful, strong attention to detail is incredibly important. You must be your own editor in order to leave no grammatical or spelling errors in documents" (ENG 332). An engineer also stated that others' confidence in the accuracy of information is determined by its correctness, "Poor grammar and technical writings creates a lack of confidence in documents and reports" (ENG 331).

One professional provided the following advice for developing self-editing skills, "You should write with proper grammar and be able to convey your message in a concise manner. Poor grammar can give you a bad look. You should be able to write without relying on spell check and grammar check, because sometimes those tools don't work exactly as they're supposed to" (ENG 332).

Peer-Editing

As will be discussed in the following section, collaboration was a key component to effective writing and **peer-editing was something that professionals mentioned frequently as an important part of the writing process**. Peer-editing sometimes involved informal approaches, as one researcher noted, "Any oversight of documents has to be self-initiated with peers, which can be difficult" (ENG 333).

Other organizations had more established methods for peer-editing involving multiple reviewers and reviews. One professional stated, "When we review reports,

we give feedback and proofread them. Reports and documents go through three or four people after me" (ENG 332).

The importance of peer-editing to ensure accuracy was especially important when writing documents for approval and as illustrated in the following quote: "With published work it needs to be peer reviewed several times because managers need to approve it, and organizations need to approve it" (ENG 331).

Effective Collaborative Work

When professionals discussed writing on-the-job, they frequently mentioned collaboration as an important part of each stage of the writing process. One engineer stated, ""Collaborating is mostly all we do. Usually, we are getting plans from the project manager to work with them to lay out and coordinate the system. The goal is to have a unified design." (ENG 331)

Many professionals noted that **effective communication leads to effective collaboration**. One professional noted, "You know you have effectively communicated an idea when follow ups happen, and when answers are given quicker." (ENG 331)

The impact of the pandemic was a central theme in the discussion of collaboration in the workplace. Professionals had to adapt and use other methods to replace face-to-face methods of collaboration. The virtual environment impacted both how internal collaboration occurs between peers and managers, as well as external collaboration with clients, customers, and stakeholders. Professionals noted both positive and negative aspects of **virtual collaboration.**

One professional noted that a virtual environment facilitates communication and collaboration, "The emergence of platforms like WebEx and Zoom have really made it a lot easier for members of our team to communicate with one another. We are able to have live meetings to discuss current tasks that we are assigned to, and being able to do this live with these platforms allow us to better connect with each other" (ENG 331).

The negative side of virtual collaboration centered on the lack of personal connection. Many professionals noted the impact of the decrease of spontaneous communication when ideas could be generated through informal, unscheduled discussions. One professional expressed the impact of the lack of personal connect by stating, "There's the inability to communicate to build interpersonal connection that would translate into more effective collaboration in the workplace. And it's so difficult to replicate that in a virtual environment" (ENG 332).

Internal Collaboration

Professionals recognized that they cannot and do not complete their jobs alone. In fact, many professionals realized that they benefited from the work that others

had completed so collaboration began with preparation in the planning stage. One professional stated, "I also have to look at what others have done and read their reports before I start my own work" (ENG 331). Also, one engineer echoed that sentiment by stating, "People read what I have written to learn what they can use in their research or work" (ENG 331).

Internal collaboration may occur differently based on an organization's structure and culture, as one professional noted, "Different companies have different ways of communicating. So be able to use different software platforms, so that you can communicate between different age groups, departments, and people" (ENG 331).

Learning how collaboration occurs and what tasks are expected can facilitate document creation and communication. One engineer stated how internal collaboration occurred in the workplace, "We have it easier to integrate and show stuff to different departments especially with Microsoft Teams. We can share a document, edit the document, and talk about it with everyone being able to see it clearly" (ENG 331). Also, one programmer noted a specific example of how collaboration was used for writing instructions, "Yes, we collaborate on slides for a presentation or how-to instructions. I will write some instructions and have someone else look over them/try them out and let me know if they experience any problems, and I will do the same for my colleagues as well" (ENG 331).

As noted earlier, peer editing is an important part of ensuring correctness and completeness in documents. One researcher noted that self-editing can facilitate peer-editing in internal collaboration, "It is best to do the most thorough review you can of your own documents, and be sensitive to who you are asking to give their time to editorial fixes" (ENG 333).

Professionals noted the importance of internal collaboration to ensure that documents will meet external readers' needs and/or approval. One professional noted, "Writing is typically passed around to peers who heavily critique the writing several times before a final product is sent to the client" (ENG 331). A manager described the process of internal collaboration, "It's very team-based so if I am sending out an external communication I would never write it and send it. I would probably reach out to a colleague and say like 'hey' can you spot check this, make sure my tone is appropriate and do a quick review" (ENG 332).

External Collaboration

Professionals recognized a difference between internal documents used by themselves and peers, and ones that are used and read by people outside of their organizations. These differences necessitated different collaborative practices. One manager noted that **documents read by external readers require special attention**, "Internal documents are reviewed by the author but can be edited by anyone to fix mistakes. Internal documents are under less supervision than client

facing documents, since no one externally has access to these documents" (ENG 332).

Good communication skills were considered to be important for collaboration with external teams. The importance of this is noted by an engineer,

> Writing to outsiders of the industry requires individuals practiced more in communication than technical prowess, so a team is built on communicators for outside jobs. Teams of producers are built for communications within the industry, as the technical know-how has increased importance, but effective communication is still key. (ENG 331)

External collaboration often took the form of answering questions or providing more information that is lacking. Professionals recognized the need for clear and effective communication when collaborating with external readers. One professional stated, "When your coworkers' clients are not seeing great communication, you will notice that your communication is lacking. These signs would be lots of follow emails and long email chains and follow up calls will be at a higher rate" (ENG 332).

Technology has changed the way external collaboration occurs, and made it faster and easier to obtain input from people located in different places and organizations. One programmer noted, "Emails have been around for a few years now but in the past few years a lot of collaborating applications like Slack, Teams, zoom, and various project management software have helped efficiently collaborate with not only people in my team and office but also clients and customers around the world" (ENG 331).

Global Communication and Collaboration

Professionals had a lot to say about the importance of global communication in the workplace, and they described ways to facilitate effective communication with people in different cultures. One engineer stated, "Communication with those of other cultures is very common and necessary. This communication normally takes place as online interactions whether it be emails or video calls. It is important to keep in mind cultural differences and norms when communicating" (ENG 331).

One interesting theme that emerged in reviewing the qualitative data was that professionals noted that the types of communication and documents remained relatively the same but that **writers needed to consider cultural norms when writing for global audiences.** One researcher advised, "In your communication with people of other cultures you must be respectful and mindful of the values and varying language styles in different cultures. But I will say I still don't see much of a difference in communication: we still communicate in the same formats and have the same types of communication" (ENG 333). An engineer supported the idea of common genres by stating, "The same types of communication are used,

however it is important to understand cultural norms, communication barriers, and time differences" (ENG 331).

Many professionals noted that **wording** and **tone** needed to be considered when communicating effectively with professionals in other cultures. One engineer stated, "It is very important that you do not use slang and be very conscious of your grammar and word choice since a lot of the time you are talking to people who have English as a second language" (ENG 331). Also, one finance professional noted, "It's very important to write in a way that is digestible to multiple countries to allow for cultural differences and so it is important to articulate in writing in particular as there are different time zones. You have to be careful because one word can mean different things in various cultures" (ENG 332).

As noted with communication in general, professionals see the costs of ineffective communication by having to communicate more to clear up misunderstandings. With global communication this can occur frequently, as one engineer noted, "We sometimes go back and forth with many to try and understand what we mean" (ENG 331).

Professionals discussed some practical ways that they have learned to use when communicating with people from different cultures. One professional noted, "With emails, you can easily copy and paste the text into a translator app. Those aren't always perfect, but it gets the job done" (ENG 332).

Collaborating effectively with people in other cultures required using both verbal and written formats of communication to clear up misunderstandings that may result from language and accent barriers. One manager stated, "So, we try our best to avoid the confusion of cultural understanding and the cultural gap regarding collaboration. Also, it's important to acknowledge not everyone is going to speak the same language as you" (ENG 332).

Global external collaboration often requires using different terms and formats. Effective external collaboration may necessitate more communication, as noted by an engineer, "Terms in general are very different depending on the culture and environment the client is in (e.g. torch instead of flashlight). To combat this, he spent as much time as possible talking to the client and their workers to get as familiar with the culture as possible and to gain trust" (ENG 331). Professionals noted that they often collaborate to determine the most effective method to communicate as they complete their jobs. One professional stated, "There is not one way we communicate. Those that are communicating with one another select the best method to accomplish the work" (ENG 332).

Using Electronic Media Effectively

Finally, we highlight the many recommendations that employees made for how to use electronic and digital media effectively in workplace contexts. Employees gave

advice that ranged from basic etiquette to sensitivity to the contexts and audiences for digital communication.

For example, one respondent suggested that **recent college graduates need to be mindful of the varying communication experiences of colleagues from different generations**:

> College students are entering an existing workplace with a long history of varying communication styles...consideration should be taken into preferences of others regarding best and preferred communication styles. Video chat vs. text. In person vs. phone call. Email vs. chat. Current college students have grown up using the latest technology platforms for communication, and they must recognize not everyone has that experience or preference of communication. (ENG 331)

This response also acknowledged the need for flexibility and the capacity to make decisions about the most appropriate communication tools and types for each situation and audiences. As one participant noted,

> Plant workers respond better to face-to-face interactions. They aren't on their phones or computers all day, so emails and memos aren't the best way to reach them...She said the opposite of engineers or accountants who spend a lot of time on computers. She stated they would rather simply respond to a quick email and continue with their work rather than spend time on a face-to-face conversation. (ENG 331)

Many participants focused on the importance of learning to participate professionally in face to face and remote meetings, especially daily or weekly **"stand-up" meetings** for oral communication and connection with colleagues in their workplaces. As in prior years, there was a sense that some newer employees had lost sense of how to have direct interactions: "Too many young adults are too infatuated with their social media presence that they forget about their actual presence" (ENG 332). Describing the importance of direct interpersonal interaction, one respondent stated, "The verbal communication during standup is very important, some things need to be talked through verbally. It would take a lot longer to solve those problems if it was done over written communication" (ENG 331).

Participants also stressed that **employees need to feel comfortable working in and adapting to virtual team software or project management environments**, whether those are assembled from multiple tools or tailored to the needs of an individual team or organization. Regarding using Zoom and video conferencing technologies, some study participants noted that these remote or virtual presentations require special skills. This respondent went on to recognize the particular skills and knowledge needed to deliver a presentation virtually: "Being comfortable and learning the technology and making sure you have the

right tools to set you up to have the right doc, monitor, microphone, or whatever" (ENG 332). Finally, another respondent noted that remote meetings and presentations have their own special rules: "In recent years, it's also become very important to practice proper video call etiquette. For example, looking at the computer camera instead of your reflection" (ENG 332).

Finally, participants stressed **the importance of maintaining a clear and professional tone with timely response in online media**: "With more writing/chat replacing verbal interaction, clear and concise communication is critical…Tone, sarcasm, and opinion can be taken out of context. It is not easy to express these things in written communication" (ENG 331). Another mentioned that younger students and newer generations have a harder time responding to emails faster and recommended "answering email quicker maybe" (ENG 333). Participants noted that chat and IM have less rigid boundaries for tone and style and recommended caution when using these: "With the current rise of iMessage in the office, proper guidelines for professional text messages either do not exist or are not applicable. This is due to the fact that proper etiquette when sending iMessages is very loose, contextual, and misconstrued" (ENG 332).

Final Advice from Professionals

Professionals noted across fields that **good writing skills are important to develop.** As one engineer stated, "Written communication also helps with presenting and improving your own work and communicating with other bases quickly by sharing work documents. It's also useful for providing updates or final results to supervisors and peers" (ENG 331).

One professional suggested a method to achieve effective communication when drafting documents. The method involved stating topics clearly and concisely. This manager identified topics in subject lines using one of three words: URGENT (in all caps), Inform, or Action:

> So for me one of the examples that I use for drafting emails is that if it's important you start it by in the topic you started by writing "urgent" in all caps, and then if it's something where you want to inform people, you just. . . if it's just the transfer of information, you start with "inform." And then if there is something that you need them to do, what I do is I just write "action."d So I always use those three words. (ENG 332)

Other professionals echoed the importance of highlighting the purpose or desired reader objective for all correspondence through writing a clear "call to action and the expectation of action to include what is needed from who, how, and when it is expected" (ENG 332). Precision of language use was also understood as important. As one participant said, "vocabulary matters, and when to use certain words within the context of the situation. Many officers need to be able to read in

between the lines of their writing to ensure that the document conveys exactly what they are looking for" (ENG 331).

Finally, a few respondents' observations about younger communicators focused not on barriers created by technology or the need for a firm handshake, but instead **recognized limitations in the ability of younger communicators to express doubt and uncertainty**. For example, one respondent said,

> I think for college students, I know they get shy when they don't know something or when they feel like they haven't met the standards that their supervisors were expecting, and the big part of that is learning how to…Everyone needs to learn that it's okay to speak up if you're not quite sure about something. (ENG 332)

While we can only speculate based on our small qualitative sample, placing value on the honest expression of uncertainty may suggest changing values surrounding oral communication in the workplace. This observation may also suggest that younger communicators feel intense pressure to prove themselves in their jobs.

Similar to previous CIW studies, participants continued to note that presentations are an important component of oral communication in the workplace. One respondent noted that, "…presentations are [one of] the most important communication skills to have going into the accounting workplace" (ENG 332). Another respondent described an effective presentation as one that includes, "good organization with logical point-to-point thought flow expressed in direct clean statement[s] and no rambling or reading" (ENG 331). Another participant made the following recommendation for recent graduates in their oral communication and spoken conversations: "finding topics, thinking when others are talking, purposeful chat, and listening patiently. These will prompt effective communication" (ENG 332).

Section 5. Conclusion

We end our report with a sense that communication is perhaps more important than ever in professional contexts, and perhaps also more complex than ever as well. As we leave the height of the pandemic, organizations are grappling with whether to attempt to return to pre-COVID norms or to integrate remote work practices. We also find a great deal of variation in whether organizations are integrating new professional writing genres, or continuing to use traditional and standard formats. Given this complexity, we highlight the importance of learning rhetorical flexibility and task analysis, rather than reliance on particular formats of writing. Here are a few additional findings that we think are worth noting from this year's report:

- Precise, clear, audience-directed writing continues to be important across different professions.
- Writing continues to serve important record keeping and documentary functions in workplaces, even as professional genres become less formal. For example, notes and agendas from remote meetings often serve to help team members recall past actions and goals and stay on track. New employees must be very careful of language use, even in informal genres and in virtual meetings .
- Email is changing and often acts more as a platform for communication rather than a genre. Email is adapted to achieve social and organizational goals, often taking the place of longer, more formal writing types. Email is often used for formal purposes in workplaces and fields that have integrated chat, IM, or texting for ephemeral exchanges. New employees must become sensitive to the norms around email (and other writing technologies) in their organizations. Students need more instructions about the potential of email as a writing technology (including its archival properties; how it can be adapted; effectively copying and emailing groups, etc.), rather than only as a typified format.
- Business applications such as Slack and Teams, as well as chat and texting, are more commonplace especially in larger corporations. New employees will be expected to learn how to navigate and effectively use these systems while maintaining a professional ethos within them.
- Running online meetings and participating in remote conversations are important parts of contemporary work, even for employees working in offices together. While these communication practices were limited to particular industries in the past, they have now become commonplace.
- COVID-19 has exasperated worries about the readiness for new employees to participate in face-to-face professional social interactions and meetings. New employees, even those working remotely, will need to demonstrate that they are able to network and participate in face-to-face meetings.

As we look to the future, we also note that the professionals that were part of this study have not yet begun to grapple with the potential integration of AI-assisted writing platforms into professional communication, which have the ability to generate large amounts of discourse quickly. Given the recent conversation about these tools, we expect AI writing to emerge as an important conversation over the next five years in ways and to impact how we teach professional communication. Here are a few additional questions that we hope prompt future research related to the future of professional communication:

- How will the shift to remote work affect how new employees learn and become embedded in company communication and writing cultures?
- Will remote work trends prompt new forms of writing or speaking that will require new communication skills and practices?
- How can we prepare future employees to practice rhetorical flexibility, as work conditions and technologies are in the midst of constant change?
- What role will professional communicators play in using AI-assisted writing technologies in the workplace? Will these technologies shift how communicators produce documentation and other kinds of writing?

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Appendix A: Interview Questions

Q1. What percentage of your work week do you spend writing?

Q2. What percentage of your work week do you spend speaking to others?

Q3. What types of documents do you write? Could you briefly describe the format, length and potential readers?

Q4. What kind of platforms and/or software do you use for documentation, written communication, and oral communication in your organization?

Q5. Please describe any examples of the benefits of effective or consequences of ineffective writing within your organization.

Q6. We asked in the survey about your use of technologies. In what ways has technology changed the way you communicate at work, especially over the past five years?

Q7. In your job, how important is it to speak and write to people of different cultures? If it is important, what means of communication do you typically use, and what types of communication are produced?

Q8. What communication skills do you think recent college graduates need to be successful?

Q9. As you were asked in the survey, could you explain how writing is assessed at your organization?

Q10. How has the COVID-19 pandemic had an impact on communication at your organization?

Appendix B: Survey Questions

Q1. What is your job title?
Q2. What is your field?
Education
Engineering
Finance, Accounting, Banking
Management
Marketing/Sales
Programming
Research
Other
Q3. What is your company name?
Q4. How large is your company?
Less than 50
50-100
101-500
More than 500
Q5. Which best describes your company?
Private organization
Public organization

Q6. What degrees do you have?
B.A.
B.S.
M.A.
M.S.
M.B.A.
J.D.
Ph.D/Ed.D/M.D.
Q7. List the degree(s), institution(s), and year(s) of graduation.
Q8. Did you take a college course in technical, business, or scientific writing that was designed to prepare you for writing on the job?
Yes
No
Q9. Was the course required?
Yes
No
Q10 Are oral and written communication parts of your performance appraisal?
Yes
No
Q11 How important is the quality of your writing for the performance of your job?

Extremely important
Very important
Moderately important
Slightly important
Not at all important
Q12 How important is your writing to your career advancement?
Extremely important
Very important
Moderately important
Slightly important
Not at all important
Q13 What percentage of your work week do you spend writing (e.g., planning drafting, revising)?
Q14 What percentage of your work week do you spend working with others to plan and write documents?
Q15. What percentage of your work week do you spend working communicating with people from other countries?
Q16. Which forms of written communication do you use for the following purpose?
Social Media w/ supervisors
Social Media w/ coworkers
Social Media w/ clients/customers

Social Media w/ other stakeholders
Chat/IM/Text messages w/ supervisors
Chat/IM/Text messages w/ coworkers
Chat/IM/Text messages w/ clients/customers
Chat/IM/Text messages w/ other stakeholders
Short internal documents/documentation (e.g. memos) w/ supervisors
Short internal documents/documentation (e.g. memos) w/ coworkers
Short internal documents/documentation (e.g. memos) w/ clients/customers
Short internal documents/documentation (e.g. memos) w/ other stakeholders
Short external documents/documentation (e.g. letters) w/ supervisors
Short external documents/documentation (e.g. letters) w/ coworkers
Short external documents/documentation (e.g. letters) w/ clients/customers
Short external documents/documentation (e.g. letters) w/ other stakeholders
Long documents/documentation (e.g., reports, proposals) w/ supervisors
Long documents/documentation (e.g., reports, proposals) w/ coworkers

Long documents/documentation (e.g., reports, proposals) w/ clients/customers
Long documents/documentation (e.g., reports, proposals) w/ other stakeholders
Q17. Which forms of oral communication do you use for the following purpose? Table format (see below questions)
In Person w/ supervisors
In Person w/ coworkers
In Person w/ clients/customers
In Person w/ other stakeholders
Phone w/ supervisor
Phone w/ coworkers
Phone w/ clients/customers
Phone w/ other stakeholders
Remote meetings w/ supervisors
Remote meetings w/ coworkers
Remote meetings w/ clients/customers
Remote meetings w/ other stakeholders
Q18. What percentage of your work week do you spend communicating with the following devices? Your values need not add up to 100%: Table format (see below questions)
Desktop 0-5, 6-10, 11-20, [...] 91-100
Laptop 0-5, 6-10, 11-20, [...] 91-100

Tablet 0-5, 6-10, 11-20, [...] 91-100
Phone 0-5, 6-10, 11-20, [...] 91-100
Other Handheld 0-5, 6-10,11-20, [...] 91-100
Q19. What percentage of your work week do you spend communicating at the following locations? Your values need not add up to 100%: Table format
An office at your workplace 0-5, 6-10,11-20, [...]91-100
Home 0-5, 6-10,11-20, [...]91-100
A public location (e.g., library, coffee shop) 0-5, 6-10,11-20, [...]91-100
During transit (e.g., on the bus, in a car) 0-5, 6-10,11-20, [...]91-100

Appendix C. Professional Fields: Data and Comparisons

In this appendix, we offer data comparing how participants from different fields responded to selected survey questions. We chose selected questions for which we see subtle differences in the responses from participants across fields. We hope that students and colleagues will analyze this data further to draw additional conclusions about how professional writing differs across some of the subfields represented in this study.

Q10: Are oral and written communication parts of your performance appraisal?

		Total	Education	Engineering	Finance, Accounting, Banking	Management	Marketing	Programming	Research	Other
Q10: Are oral and written communication parts of your performance appraisal?	Yes	79.4%	82.1%	81.7%	79.7%	82.4%	82.4%	71.4%	94.1%	72.2%
	No	20.6%	17.9%	18.3%	20.3%	17.6%	17.6%	28.6%	5.9%	27.8%

Q11: How important is the quality of your writing for the performance of your job?

		Total	Education	Engineering	Finance, Accounting, Banking	Management	Marketing/ Sales	Programming	Research	Other
Q11: How important is the quality of your writing for the performance of your job?	Extremely important	35.5%	56.4%	33.1%	27.0%	41.2%	49.0%	17.9%	52.9%	29.3%
	Very important	36.1%	28.2%	37.3%	40.5%	32.4%	39.2%	39.3%	32.4%	34.6%
	Moderately important	20.6%	7.7%	23.9%	24.3%	23.5%	11.8%	25.0%	8.8%	23.3%
	Slightly important	6.0%	5.1%	3.5%	8.1%	2.9%	0.0%	17.9%	2.9%	9.0%

Not at all important	1.9%	2.6%	2.1%	0.0%	0.0%	0.0%	0.0%	2.9%	3.8%

Q11: How important is the quality of your writing for the performance of your job? Breakdown by Professional Field

Q11: How important is the quality of your writing for the performance of your job - **Total**
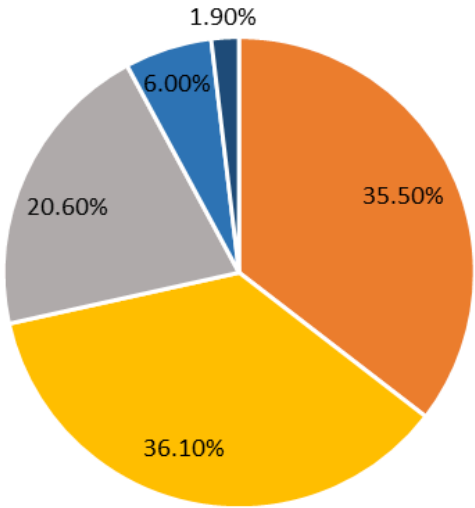
- 1.90%
- 6.00%
- 20.60%
- 35.50%
- 36.10%

Legend: Extremely important · Very important · Moderately important · Slightly important · Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Education**
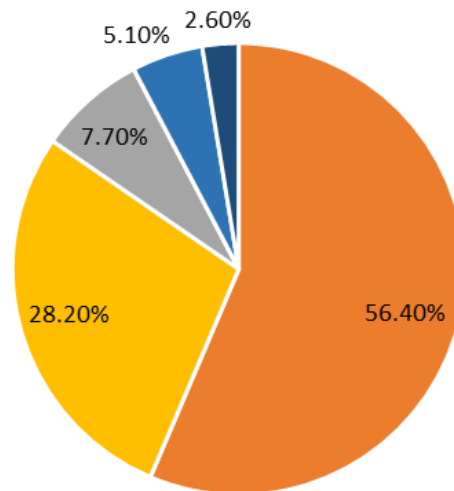
2.60%
5.10%
7.70%
28.20%
56.40%

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Engineering**

3.50%
2.10%
23.90%
33.10%
37.30%

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Finance, Accounting, Banking**

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Management**

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Programming**

0.00%

17.90% 17.90%

25.00%

39.30%

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Research**

2.90% 2.90%

8.80%

52.90%

32.40%

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q11: How important is the quality of your writing for the performance of your job - **Marketing/Sales**
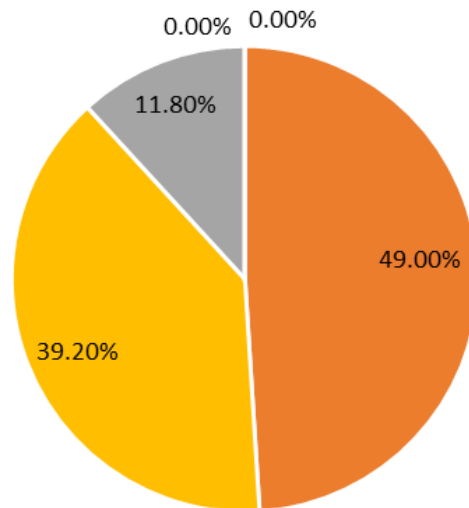
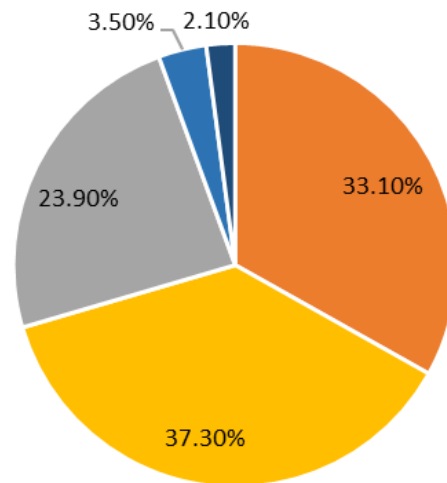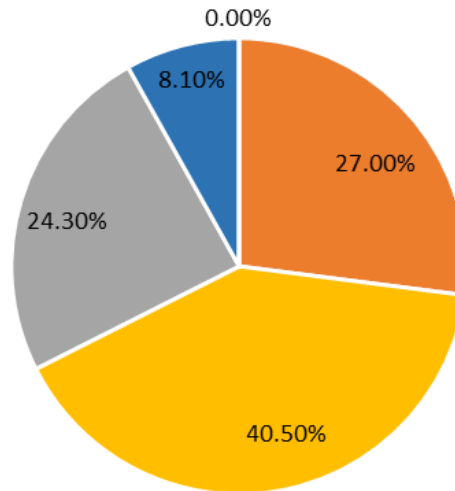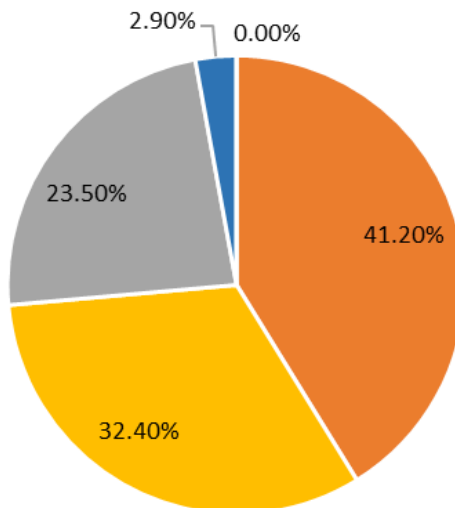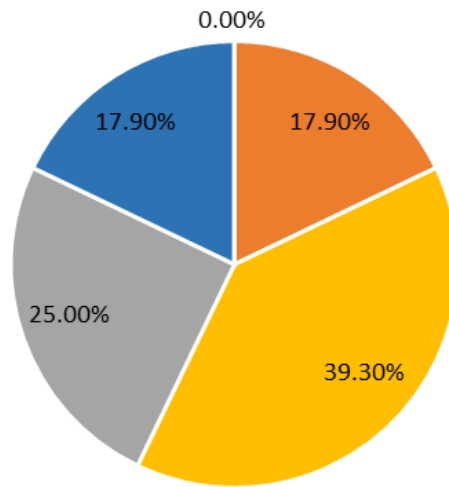0.00%   0.00%
11.80%
49.00%
39.20%

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

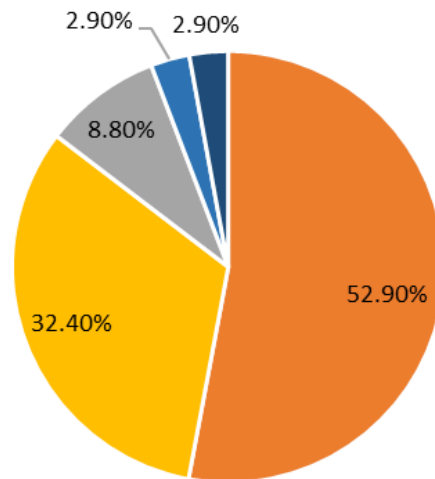## Q11: How important is the quality of your writing for the performance of your job - **Other**
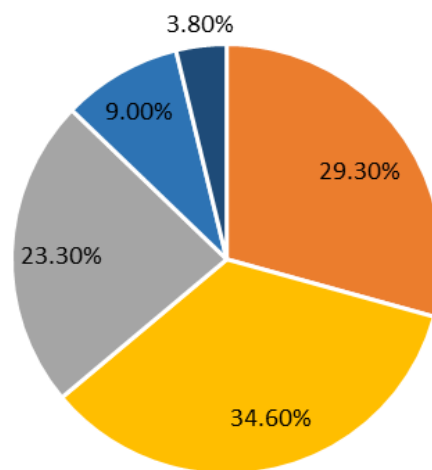
3.80%
9.00%
29.30%
23.30%
34.60%

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not at all important

Q18: What percentage of your work week do you spend communicating with the following devices? Your values need not add up to 100%.

		Total	Education	Engineering	Finance, Accounting, Banking	Management	Marketing/ Sales	Programming	Research	Other
Desktop	0-5%	57.0%	43.6%	63.4%	54.1%	64.7%	68.6%	78.6%	52.9%	45.9%
	6-10%	3.4%	5.1%	0.7%	2.7%	11.8%	5.9%	0.0%	2.9%	3.8%
	11-20%	4.3%	7.7%	3.5%	4.1%	0.0%	2.0%	3.6%	8.8%	5.3%
	21-30%	6.2%	12.8%	5.6%	5.4%	2.9%	2.0%	0.0%	5.9%	9.0%
	31-40%	2.1%	10.3%	2.1%	1.4%	0.0%	0.0%	0.0%	0.0%	2.3%
	41-50%	3.6%	7.7%	0.7%	4.1%	5.9%	3.9%	0.0%	11.8%	3.0%
	51-60%	2.8%	0.0%	2.8%	1.4%	2.9%	2.0%	3.6%	2.9%	4.5%
	61-70%	3.6%	2.6%	4.9%	6.8%	2.9%	0.0%	0.0%	0.0%	3.8%
	71-80%	2.8%	2.6%	2.1%	1.4%	2.9%	0.0%	7.1%	5.9%	3.8%
	81-90%	7.1%	2.6%	9.9%	9.5%	2.9%	3.9%	3.6%	5.9%	7.5%
	91-100%	7.3%	5.1%	4.2%	9.5%	2.9%	11.8%	3.6%	2.9%	11.3%
Laptop	0-5%	15.0%	17.9%	10.6%	20.3%	14.7%	7.8%	7.1%	5.9%	22.6%
	6-10%	6.0%	5.1%	4.9%	9.5%	8.8%	2.0%	3.6%	2.9%	7.5%
	11-20%	7.1%	17.9%	4.9%	9.5%	5.9%	3.9%	7.1%	5.9%	6.8%
	21-30%	6.9%	12.8%	7.0%	4.1%	8.8%	3.9%	7.1%	5.9%	7.5%
	31-40%	5.4%	7.7%	4.2%	5.4%	2.9%	5.9%	3.6%	11.8%	5.3%
	41-50%	6.0%	0.0%	7.7%	4.1%	2.9%	9.8%	0.0%	11.8%	6.0%

	1	2	3	4	5	6	7	8	9
51-60%	4.9%	2.6%	5.6%	9.5%	2.9%	7.8%	0.0%	2.9%	3.0%
61-70%	6.7%	7.7%	5.6%	4.1%	8.8%	11.8%	3.6%	5.9%	7.5%
71-80%	9.5%	12.8%	12.0%	8.1%	2.9%	7.8%	10.7%	11.8%	8.3%
81-90%	13.1%	0.0%	19.7%	2.7%	20.6%	13.7%	25.0%	17.6%	9.8%
91-100%	19.4%	15.4%	17.6%	23.0%	20.6%	25.5%	32.1%	17.6%	15.8%

Tablet		1	2	3	4	5	6	7	8	9
	0-5%	84.1%	71.8%	88.0%	90.5%	67.6%	68.6%	92.9%	91.2%	86.5%
	6-10%	5.8%	7.7%	2.8%	2.7%	8.8%	17.6%	3.6%	5.9%	5.3%
	11-20%	3.2%	7.7%	3.5%	1.4%	2.9%	5.9%	0.0%	2.9%	2.3%
	21-30%	1.7%	2.6%	1.4%	4.1%	2.9%	0.0%	3.6%	0.0%	0.8%
	31-40%	1.5%	2.6%	1.4%	0.0%	5.9%	2.0%	0.0%	0.0%	1.5%
	41-50%	0.9%	2.6%	0.7%	0.0%	2.9%	0.0%	0.0%	0.0%	1.5%
	51-60%	0.6%	0.0%	1.4%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%
	61-70%	0.6%	2.6%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%
	71-80%	0.9%	2.6%	0.7%	1.4%	0.0%	0.0%	0.0%	0.0%	1.5%
	81-90%	0.2%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%
	91-100%	0.6%	0.0%	0.0%	0.0%	2.9%	2.0%	0.0%	0.0%	0.8%

Phone		1	2	3	4	5	6	7	8	9
	0-5%	18.3%	33.3%	21.1%	24.3%	2.9%	3.9%	28.6%	26.5%	12.8%
	6-10%	20.9%	10.3%	26.1%	18.9%	20.6%	17.6%	42.9%	20.6%	16.5%
	11-20%	14.2%	20.5%	16.2%	10.8%	23.5%	7.8%	10.7%	17.6%	12.0%

	Total	Education	Engineering	Finance, Accounting, Banking	Management	Marketing /Sales	Programming	Research	Other
21-30%	13.1%	12.8%	17.6%	16.2%	5.9%	7.8%	10.7%	8.8%	12.0%
31-40%	5.2%	0.0%	4.2%	2.7%	2.9%	13.7%	0.0%	0.0%	9.0%
41-50%	8.4%	7.7%	5.6%	9.5%	11.8%	13.7%	3.6%	11.8%	8.3%
51-60%	3.9%	5.1%	0.7%	4.1%	8.8%	3.9%	3.6%	2.9%	6.0%
61-70%	3.9%	0.0%	2.1%	4.1%	8.8%	5.9%	0.0%	5.9%	5.3%
71-80%	4.1%	7.7%	0.7%	2.7%	5.9%	5.9%	0.0%	0.0%	8.3%
81-90%	3.9%	2.6%	2.8%	1.4%	2.9%	13.7%	0.0%	2.9%	4.5%
91-100%	3.9%	0.0%	2.8%	5.4%	5.9%	5.9%	0.0%	2.9%	5.3%

Q19: What percentage of your work week do you spend communicating at or from the following locations? Your values need not add up to 100%.

		Total	Education	Engineering	Finance, Accounting, Banking	Management	Marketing /Sales	Programming	Research	Other
	0-5%	14.2%	15.4%	18.3%	17.6%	11.8%	2.0%	7.1%	11.8%	15.0%
	6-10%	13.8%	12.8%	12.7%	10.8%	11.8%	7.8%	7.1%	26.5%	18.0%
	11-20%	9.5%	15.4%	8.5%	4.1%	20.6%	9.8%	0.0%	17.6%	9.0%
	21-30%	8.8%	5.1%	8.5%	9.5%	5.9%	9.8%	3.6%	8.8%	11.3%
	31-40%	4.1%	5.1%	3.5%	5.4%	5.9%	7.8%	3.6%	0.0%	3.0%
Home	41-50%	5.6%	10.3%	5.6%	5.4%	2.9%	9.8%	3.6%	0.0%	5.3%
	51-60%	4.3%	5.1%	2.1%	5.4%	5.9%	5.9%	0.0%	11.8%	3.8%
	61-70%	6.4%	15.4%	7.0%	6.8%	0.0%	5.9%	7.1%	5.9%	4.5%
	71-80%	3.4%	5.1%	3.5%	2.7%	5.9%	3.9%	7.1%	0.0%	2.3%

	81-90%	8.4%	5.1%	2.8%	9.5%	14.7%	13.7%	17.9%	8.8%	9.0%
	91-100%	21.5%	5.1%	27.5%	23.0%	14.7%	23.5%	42.9%	8.8%	18.8%

	0-5%	25.2%	12.8%	23.9%	27.0%	23.5%	41.2%	46.4%	5.9%	24.1%
	6-10%	6.7%	10.3%	6.3%	9.5%	8.8%	3.9%	17.9%	5.9%	3.0%
	11-20%	6.9%	5.1%	7.7%	6.8%	5.9%	2.0%	14.3%	8.8%	6.8%
	21-30%	4.7%	10.3%	4.9%	2.7%	5.9%	2.0%	0.0%	5.9%	5.3%
	31-40%	8.0%	15.4%	7.7%	2.7%	5.9%	15.7%	0.0%	5.9%	9.0%
Office	41-50%	5.8%	10.3%	5.6%	5.4%	5.9%	7.8%	7.1%	2.9%	4.5%
	51-60%	5.8%	5.1%	4.9%	5.4%	2.9%	11.8%	3.6%	11.8%	4.5%
	61-70%	5.4%	5.1%	5.6%	6.8%	8.8%	3.9%	0.0%	11.8%	3.8%
	71-80%	9.3%	10.3%	8.5%	10.8%	8.8%	2.0%	0.0%	11.8%	13.5%
	81-90%	11.0%	7.7%	9.9%	8.1%	11.8%	7.8%	7.1%	23.5%	13.5%
	91-100%	11.0%	7.7%	14.8%	14.9%	11.8%	2.0%	3.6%	5.9%	12.0%

	0-5%	72.9%	76.9%	78.9%	83.8%	70.6%	52.9%	85.7%	70.6%	65.4%
	6-10%	12.7%	5.1%	9.9%	10.8%	14.7%	19.6%	10.7%	8.8%	17.3%
A public location	11-20%	4.5%	10.3%	4.2%	4.1%	8.8%	2.0%	3.6%	8.8%	2.3%
	21-30%	2.8%	0.0%	2.1%	0.0%	2.9%	9.8%	0.0%	5.9%	3.0%
	31-40%	2.4%	2.6%	1.4%	1.4%	0.0%	9.8%	0.0%	2.9%	2.3%

41-50%	1.1%	0.0%	0.7%	0.0%	0.0%	2.0%	0.0%	2.9%	2.3%
51-60%	0.9%	0.0%	0.7%	0.0%	2.9%	3.9%	0.0%	0.0%	0.8%
61-70%	0.9%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%
71-80%	0.9%	5.1%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%
81-90%	0.4%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
91-100%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%

	0-5%	70.8%	82.1%	77.5%	82.4%	50.0%	52.9%	92.9%	67.6%	62.4%
	6-10%	15.9%	7.7%	15.5%	9.5%	26.5%	21.6%	3.6%	11.8%	21.1%
	11-20%	5.2%	2.6%	2.8%	6.8%	8.8%	11.8%	0.0%	11.8%	3.8%
	21-30%	2.2%	0.0%	2.1%	0.0%	2.9%	5.9%	0.0%	5.9%	2.3%
	31-40%	1.7%	0.0%	0.0%	1.4%	2.9%	3.9%	3.6%	0.0%	3.0%
During transit	41-50%	1.3%	2.6%	0.7%	0.0%	5.9%	0.0%	0.0%	2.9%	1.5%
	51-60%	1.5%	2.6%	0.7%	0.0%	2.9%	2.0%	0.0%	0.0%	3.0%
	61-70%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	71-80%	0.9%	2.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%
	81-90%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
	91-100%	0.2%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%

Appendix D: Acknowledgements

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