Professional and Technical Communication in a Web 2.0 World

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This article reports on results of a nationwide survey of alumni in professional and technical communication. It presents a series of snapshots from the results, including the types of texts written and valued, where those types are written, with and for whom, and with what technologies. A range of implications are explored.

Keywords: genres, pedagogy, professional writing, programmatic development, surveys

People's writing lives have always been multifaceted, perhaps more now than ever. As Yancey (2009), the Revisualizing Composition Study Group (2010), and the Stanford Study of Writing (2008) have articulated, trends in digital tools and handheld technologies have made our lives all the more converged, synergistic, and complicated. This claim is true also for the alumni of professional and technical communication (PTC) programs. In a response to Wolgemuth's (2010) inclusion of technical writing as one of the top 50 careers for 2010 compiled by *U.S. News & World Report*, a person using the pseudonym ''Technical Content Manager'' wrote in the online comments section:

> The notion of a ''Technical Writer'' seems dated, because maintaining a career in this field now involves blogging, editing, information management, UI/UX design, Usability, QA, training, API documentation, Persona development, etc. And that's just in the software industry. . . . In other words it is not enough in a Web 2.0 world to ONLY write effectively, you must branch out and be a master of many skills and tools.

That same year, Bernhardt (2010) made a similar comment: ''Our graduates are getting jobs, but it is becoming ever more difficult to say just what kind of jobs are out there and what kinds of skills they demand.'' For example, the title *social media manager* did not exist 10 years ago, nor were the requisite skills for such a position on the radars of PTC curriculum.

If changes in technologies and composing practices over the past 10 years have blurred the lines between the personal and professional and broadened the potential for PTC work, then the

field would benefit from investigating the contemporary writing lives of PTC alumni. In this article, we report on the results of a survey designed to identify the kinds of writing PTC alumni value and complete most often across their professional, civic, academic, and personal lives. In addition to exploring what alumni write, we also report on where alumni do these kinds of writing, for whom, with whom, and with what technologies. Before describing the survey used in this study, we place it in context by reviewing how other surveys have been used in PTC scholarship.

SURVEY RESEARCH IN PROFESSIONAL AND TECHNICAL COMMUNICATION

The survey and results described in this article are part of an established tradition of survey research in PTC. Researchers have used surveys to investigate all aspects of student readiness for a career in professional and technical communication. They have accomplished this by surveying students, alumni, teachers, professionals, and managers about perceptions of coursework (Coon & Scanlon, 1997; Cox, 1976); job skills (Bednar & Olney, 1987; Halpern, 1981; Sapp & Zhang, 2009; Whiteside, 2003); and current practice (Brumberger, 2007; Dawley & Anthony, 2003; Dayton & Hopper 2010; Moss, 1995). Survey research has also been used to examine course syllabi (Whiteside, 2003) and job advertisements for desired industry skills (Lanier, 2009). Others, such as Anderson (1985) and Tebeaux (1985), have conducted meta-analyses of surveys.

Surveys have also focused on a well-defined topic, such as a particular genre, or the expectations of a particular audience, such as managers, within professional writing. Dawley and Anthony (2003) surveyed employees at a state agency to measure their attitudes toward e-mail. Brumberger (2007) surveyed professional writers about the nature and importance of visual communication. Dayton and Hopper (2010) surveyed members of the Society for Technical Communication to investigate the extent to which they were using single sourcing and content management systems. Studies such as these give us in-depth descriptions of a well-defined set of genres. Other surveys have focused on identifying the skills that managers or supervisors say they desire of their hires. Surveys by Moss (1995), and Swenson (1980), Whiteside (2003) were designed to capture what people in management positions profess to want from our graduates. Similarly, the survey by Sapp and Zhang (2009) focused on the perspectives of internship supervisors. Such surveys provide necessary descriptions of employers' expectations.

Although existing surveys tell us a great deal about specific genres, particular groups of people, and the expectations of teachers and supervisors, we are unaware of any surveys that attempt to gather a more comprehensive picture of what alumni write and value across their personal and professional lives. Specifically, we are unaware of existing surveys that connect kinds of writing to locations, purposes, and the technologies used to produce them. For example, previous studies either do not include technologies at all; include them in largely generic ways; or, like, Dayton and Hopper (2010), include technologies used, but do not connect specific genres of writing to the technologies and software used to complete them. In response, we felt the need to design and implement a survey that would yield a detailed, interconnected picture of the writing lives of PTC alumni.

METHODS AND SURVEY DESCRIPTION

The survey described here was designed to address questions about the writing lives of professional and technical communicators, including: What kinds of writing were alumni engaging

in, both personally and professionally? Of those kinds of writing, which were they writing most often, and which did they value most? What technologies were alumni using to do their work? With whom were they collaborating? And where was the writing happening? (Appendix A, Figure A, shows the basic layout of the survey.) To ease the burden of answering so many questions, the survey was designed to be completed in four major sections:

1. Background information. The survey first asked respondents to identify gender, age, and other initial demographic information, including year of birth, primary language spoken, other languages spoken, and race/ethnicity (see Appendix A). Respondents were also asked about employment status, workplace affiliation, and institutions from which they earned their degrees. If a respondent indicated that she was employed, the screen would expand vertically, with prompts for job title, type of organization, type of industry, and primary tasks performed. The list for types of industry was based on the North American Industry Classification System maintained by the U.S. Census Bureau (2012).

2. Types of writing. The survey then asked respondents to identify from a list of 50 different types of writing the kinds they have done, both personally and professionally, since college (see Appendix A). Respondents were asked to choose at least five types. The list of types was created by searching for those included in relevant textbooks. We searched Amazon.com using three key terms: technical writing, business communication, and Web design. We then sorted each list by bestseller. From there, we selected the 4–5 top-selling, large-scale textbooks (i.e., more than 600 pages) for each search term. The exception was the Web design books because they're shorter. We searched for Web design books because they might include genres that professional writing majors will write but that technical and business writing books overlook. That initial list was later modified in response to user tests of the survey itself and suggestions by colleagues.

3. Writing done most often. From all the types of writing that each respondent selected, the survey asked that person to identify the five types that they wrote most often (see Appendix A, Figure B). The survey was designed to show respondents the list of types they had already chosen and then allow them to drag and drop five of those into a list of five. They could use drag-and-drop to reorder that list as well.

4. Writing they found most valuable. From the types of writing that each respondent identified, the survey also asked them to rank the five they valued the most (see Appendix A). To avoid putting too heavy a burden on respondents at this point, what *valued* meant to each respondent was up to them. We did this because respondents would eventually be asked why they wrote each type. This arrangement allowed us to correlate what types of writing respondents valued with why they were valued.

For each of the types written most and valued most, respondents were then asked five additional questions:

1. Why do you usually do this type of writing?
2. Where do you usually do this type of writing?
3. With whom do you usually do this type of writing?
4. What technologies do you usually use to do this type of writing?

5. For whom do you usually do this type of writing?

On the basis of the results of user tests, we estimated the survey would take 20 min to complete, which we hoped would allow us to gather as much data as possible without overly taxing the patience of participants. In this respect, the survey was designed to avoid eliciting a sense of in-survey fatigue, where a respondent loses the motivation to complete a survey. (For more on survey fatigue, see Adams & Unbach, 2012; Lipka, 2011; Rogelberg & Stanton, 2007; Sinickas, 2007.) Another way we tried to minimize the possibility of in-survey fatigue was to avoid duplication. If a type appeared on the ''most often'' and ''most valued'' lists, respondents had to answer the why, where, and with whom questions about that type only once.

Once we produced a draft of the survey, faculty from other institutions with professional and technical communication programs were invited to review and comment. To build a list of programs, we searched for institutions in the United States that offer one or more of the following Classification of Instructional Programs codes:

09.0908 – Technical and Scientific Communication
23.1301 – Writing, General
23.1303 – Professional, Technical, Business, and Scientific Writing
23.1304 – Rhetoric and Composition
23.1399 – Rhetoric and Composition/Writing Studies, Other

We were especially interested in institutions that offer programs with the codes 23.1303 and 09.0908 because they seemed most directly related to the population we wanted to reach. The participation of faculty at multiple institutions was important to ensure that as many alumni were reached as possible and that alumni from those institutions were personally invited to complete the survey from their alma mater. As Anseel, Lievens, Schollaert, and Choragwicka (2010) suggested, alumni are more likely to act on an invitation from their alma mater. Initial invitations and follow-up e-mails were sent to faculty in February and March 2011. Ultimately, faculty from 22 institutions agreed to participate.

We chose to design a Web-based survey so that we could more quickly and easily distribute it to our project partners and so that they could distribute the survey to their nation-wide networks of alumni. We aimed to obtain a higher response rate by allowing respondents to complete the survey at a time and place convenient for them, using whatever Web-enabled device they wished. A Web-based survey distributed by e-mail and social networks allowed for anonymous completion that required just a URL for respondents to click to begin completion (rather than a packet of paper for them to fill out by hand and mail back off-line, or a PDF to complete and return, or an e-mail-embedded form), which we hoped would ensure as great a response rate as possible. (For more on maximizing the effectiveness of online surveys in general, and this one in particular, see Lauer, McLeod, & Blythe, 2013.)

Although the Web afforded many advantages to contacting alumni and encouraging their participation and completion of the survey, some limitations were unavoidable. First, because respondents opted to participate rather than being randomly selected, it is tricky to say whether the sample would be representative of all technical and professional communication graduates from all programs. (We discuss related issues in the Results and Discussion section.) We sought to mitigate this effect by contacting alumni from a wide range of programs across the country that might better represent a diverse demographic. Furthermore, because participation was

anonymous, it opened up the potential for repeat participation, though we do not believe that such occurred.

Despite the risk of allowing repeat participation, we anticipated a more significant benefit from enabling anonymity. Reflecting on why people can be so picky about grammatical issues, Williams (1981) argued that ''we are likely to give answers that misrepresent our talking and writing'' (p. 154). That is, we give answers that we believe represent us well, that show us as a certain kind of person. We may identify something as important because we think it is what we should say. Such questions may encourage responses that do more to reflect positively on respondents' roles as supervisors than on what communication they actually want to see, for instance when Moss (1995) asked chief executive officers and directors of personnel what kinds of communication are ''important.'' We cite Williams (1981) and Moss (1995) because they refer to situations where the respondents are known to the researcher. Because our survey was anonymous, we believe that we raised the odds that respondents identified what they truly valued (however they wanted to define *valued*) versus what they thought they should value to save face before a researcher.

RESULTS AND DISCUSSION

In the following subsections, we present and discuss the survey data that relates most directly to the primary questions posed in the Methods section of this report. Starting with the ''Types and Purpose'' subsection, we profile the 10 types that appeared in both the top 15 of the ''most often'' and ''most valued'' categories.

DEMOGRAPHIC DATA

Approximately 2000 alumni from 22 institutions were invited to take the online survey. Of those, 375 participants began the survey, and 257 completed it, resulting in a 68.5% completion rate. Because some participating institutions sent invitations to alumni through Facebook groups and Twitter feeds, it is difficult to know how many people actually saw the invitation, which means an exact response rate cannot be known. Although a response rate is difficult to estimate, the completion rate for this survey is promising. As Couper and Miller (2008) reported, ''Completion rates for surveys of members of opt-in panels [for Web surveys] have declined to the low single digits'' (p. 833). Given such a low prevailing rate, we believe that our 68% completion rate indicates that survey fatigue was not a significant factor.

A good way of determining bias in response is to compare the demographics of the respondents to the total population being surveyed. As Frippiat and Marquis (2010) wrote:

> It may thus be useful to have data that indicate whether non-response is randomly distributed or whether it is linked either to one of the variables being investigated in the survey or to other socio-demographic variables. ...If non-response is indeed random, then the Web survey meets the criteria applied to all the other modes. (p. 291)

As with estimating a response rate, determining bias is a tricky proposition. To do that, we compared the demographics of our respondents with the demographics of other survey populations.

Of respondents who reported gender ($N = 255$), 189 (73.8%) indicated they were female and 66 (25.8%) indicated they were male. None of the respondents indicated that they were transgender. This ratio is higher than the results of a U.S. Census survey, but perhaps not inordinately so. Siebens and Ryan (2010) reported that 25–39-year-old female respondents held 60.3% of all communication degrees and 68.5% of all literature and languages degrees (p. 5). Female respondents 40–64 years of age held 54.8% of all communication degrees and 66.3% of all literature and languages degrees (p. 5). Although the 73.8%-to-25.8% female-to-male ratio in our survey is higher than the ratios we have noted, we do not believe that the numbers are drastically discrepant.

The racial profile of our survey set is even more in line with U.S. Census Bureau data. Of respondents who reported race/ethnicity in our study, 227 (87.6%) selected White, 11 (4.2%) Asian, 10 (3.8%) Black, 7 (2.7%) Hispanic, and 4 (1.5%) American Indian.[1] In comparison with our results, the Siebens and Ryan data indicated that 3.9% of the degrees in the arts and humanities were awarded to Black students, 2.9% to Asian, and 3.0% to Hispanic, non-White students. In terms of racial identity, the demographics of our survey respondents mirror those of the United States in the arts and humanities. The gender and racial data from our survey indicate that there was little to no bias in our sample because, as Frippiat and Marquis (2010) argued, a sample that compares to known demographic data is more likely to be representative.

One demographic that did not align as closely with known demographic data was age. Reported ages of our respondents ranged from 22 to 66 years, with a median age of 33.5, and a mode of 28. Just under half (48%) of the respondents indicated that they were younger than 30 years of age; 73% said they were younger than 40. A date of graduation was reported by 242 participants. The number of years since graduation ranged from less than 1 year to 14 years, with an average 7 years. The median time since graduation was 6 years. That is, half of the respondents who indicated a graduation date chose a date earlier than 2006, and the other half indicated a date later than 2006. Although our pool of survey respondents was younger than national data, this may be because some academic programs naturally have more reliable contact data on more recent graduates and because some programs are simply newer. Many of the participating programs have been graduating majors for less than a decade. It may also be that older alumni are more likely to be in upper-management positions. As Anseel and colleagues (2010) found, the rate of response depends on a person's status in an organization, with people in upper-management less likely to complete surveys than entry-level employees and people in middle management. In summary, we believe the survey results give us a more reliable picture of what younger alumni are doing, and a less reliable picture of what older alumni in advanced positions are doing.

Respondents represented alumni from 15 identifiable schools: Arizona State ($n = 18$), Auburn ($n = 6$), Clarkson ($n = 12$), Clemson ($n = 13$), East Carolina ($n = 7$), Elon ($n = 19$), Iowa State ($n = 1$), Miami of Ohio ($n = 4$), Michigan State ($n = 31$), Michigan Tech ($n = 1$), North Carolina State ($n = 5$), Purdue ($n = 8$), Saginaw Valley State ($n = 17$), University of Minnesota ($n = 11$), and Virginia Tech ($n = 18$). An additional 90 respondents claimed other, unidentified academic affiliations. The number of academic affiliations exceeds the total of 257 because respondents could indicate up to two separate affiliations: undergraduate and graduate.

EMPLOYMENT AND PROFESSIONAL PROFILE

As the Table 1 indicates, a majority of the respondents (76%) claimed to be employed full time. The percentages in Table 1 exceed 100% because respondents could choose more than

TABLE 1
Employment Status, Total and by Reported Gender

Employment Status	Total, n (%) (N = 257)	Male, n (%) (n = 66)	Female, n (%) (n = 191)
Employed full time	195 (76)	51 (77)	144 (75)
Employed part time	29 (11)	4 (6)	25 (13)
Self-employed/freelance	33 (13)	7 (10)	26 (14)
Freelance	137 (53)	34 (52)	103 (54)
Unemployed, seeking work	9 (4)	3 (4.5)	6 (3)
Unemployed, not seeking	3 (1)	0 (0)	3 (1.5)
Attending school	21 (8)	6 (9)	15 (7.8)

one status. For example, a person could be employed full time and also be freelancing. Employment status is generally similar across work and gender categories. One place where a notable difference appears is part-time employment. Only 6% of men reported part-time employment; 13% of women reported the same. This difference mirrors overall employment trends reported by the U.S. Bureau of Labor Statistics. For 2010, the U.S. Bureau of Labor Statistics (2011) reports that 26.6% of working women were ''usually employed part time,'' whereas 10.5% of men reported the same status.

Respondents indicated that they were employed in a range of industries, with the largest numbers coming from education, technical and scientific communication, and publishing and broadcasting (see Table 2). In most industries, the distribution between male and female corresponded with the overall percentage of male and female respondents (25% and 75%, respectively). Given the overall percentages, the ratio of men and women was skewed in the following industries: heavy industry (e.g., construction and mining, with males overrepresented 61% to 39%); software, hardware, and networks (33% male, 67% female); and service (with women overrepresented 83% to 17%). The numbers were also skewed for social and other media (50 of 50), but the total number of people employed in that area ($n = 6$) was small.

TABLE 2
Industries in Which Professional and Technical Communication Alumni are Employed or Studying

Type of Industry	Total (N = 251)	Male, n (%)	Female, n (%)
Education, training, library, museum	53	15 (28)	38 (72)
Technical and scientific communication	52	11 (21)	41 (79)
Publishing, broadcasting	33	10 (30)	23 (70)
Service (health care, retail, food)	23	4 (17)	19 (83)
Heavy industry	23	9 (39)	14 (61)
Software, hardware, it, networks	21	7 (33)	14 (67)
Management, business, financial, legal services	18	5 (28)	13 (72)
Community and social services	14	4 (29)	10 (71)
Marketing, advertising	8	2 (25)	6 (75)
Social media, web design, other media	6	3 (50)	3 (50)

Note. Of the 12 respondents, 6 who claimed to be unemployed or seeking work did not indicate an industry. Thus, for this table, $N = 251$.

Respondents indicated that they held an average of 2.3 jobs since graduation. That number did not change dramatically over time. For example:

For graduates of 2007 ($n = 23$), average number of jobs $= 1.82$
For graduates of 2005 ($n = 20$), average number of jobs $= 2$
For graduates of 2001 ($n = 8$), average number of jobs $= 3$
For graduates of 1995 ($n = 3$), average number of jobs $= 2.67$

It is interesting, however, that 32% of respondents who say they graduated in 2009 ($n = 31$) indicated that they had held more than one job. For respondents who say they graduated in 2008 ($n = 22$) the percentage increased to 45%. These numbers indicate that professional and technical communicators begin their careers by gaining experience at several jobs or may be a reflection of the struggle to find full-time or stable employment in the current economic market.

Job titles shared by respondents indicate a range of positions in areas such as editing and publishing (editorial assistant, senior editor, print production coordinator, document control specialist), information technology (software engineer, user experience researcher, senior experience designer), public relations (marketing specialist, public information director), grant writing, and project management. Job titles that seem to have arisen more directly from a Web 2.0 economy include social media marketing manager, SharePoint engineer, social media consultant, content strategist, knowledge base coordinator, and Web content editor. These are titles we plan to track in future iterations of this survey.

THE MOST COMMON AND MOST VALUED TYPES OF WRITING

The graphs below indicate the top 15 types of writing that respondents wrote most often and the top 15 types that they valued most. The numbers after each type indicate weighted scores. Each respondent could choose a type as one they wrote most often (which would receive a 5), second most often (which would receive a 4), and so on. The weighted scores take into account not only how often a type was chosen as one of the top five but whether it was chosen as first, second, third, and so on.

As can be seen in Figure 1, some types appear in both lists though others appear in one or the other. Not surprisingly, for instance, resumes are among the most valued types for individuals, but they are not among those written most often. In some cases—such as e-mail, instructions/ procedures/manuals, and presentations—types are written often and valued just as much. E-mail was first in both categories. Instructions/procedures/manuals was second in both. Business plans were 17th in both. In other cases, notable differences appeared. For example, definitions was the fifth most frequent type written, but its ranking when it comes to value drops all the way to 33rd. In contrast, cover letters, résumés, and fiction appear in the most valued list, but not in the most often list. These three types are more about personal advancement or fulfillment. It is not surprising to see them high on the most valued list.

Differences in certain kinds of digital media are worth noting. Texting is the sixth most common but drops to 18th when it comes to value; similarly, instant messages are 11th most common but drop to 22nd in value; and meeting minutes are the 22nd most frequently written but rank 30th in value. We speculate that these differences are caused in part by a writer's sense of audience and purpose. Texting, IM, and meeting minutes are writing practices that happen
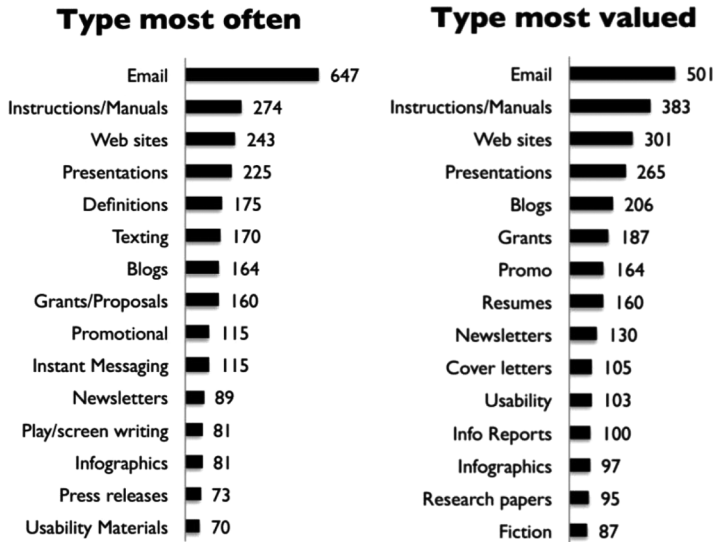
Type most often

Type	Value
Email	647
Instructions/Manuals	274
Web sites	243
Presentations	225
Definitions	175
Texting	170
Blogs	164
Grants/Proposals	160
Promotional	115
Instant Messaging	115
Newsletters	89
Play/screen writing	81
Infographics	81
Press releases	73
Usability Materials	70

Type most valued

Type	Value
Email	501
Instructions/Manuals	383
Web sites	301
Presentations	265
Blogs	206
Grants	187
Promo	164
Resumes	160
Newsletters	130
Cover letters	105
Usability	103
Info Reports	100
Infographics	97
Research papers	95
Fiction	87

FIGURE 1 Top 15 document types written most often and top 15 valued most.

within a company or organization but are not seen by clients or customers or produced as outputs or deliverables. In addition, these genres serve very particular, momentary purposes, in very particular contexts. Just as Post-It notes or scrap messages are typically written for oneself as a memory aid, text messages are often a time-sensitive interchange with another. Meeting minutes are often written, stored, and then forgotten, although minutes also can have important work to do in shaping an event.

TYPES AND PURPOSE

Respondents were asked to identify the purposes for which they composed the types they wrote most often and valued most. Respondents were able to select from the following purposes or could add other purposes: for work, for personal fulfillment, to participate in public life, for entertainment (e.g., gaming), and to fulfill a school assignment.

Table 3 shows the distribution of purposes chosen for each of the top 10 types to appear in the most often and most valued categories. Figure 2 shows the overall distribution of purposes across all 10 types.

The data presented in Table 3 and Figure 2 suggest that writing is not just something our alumni do at work. Our alumni engage in writing activities for both personal and professional reasons. Moreover, digital media (e-mail, blogs, and Web sites) are a significant part of writing for non–work-related purposes. Blogs are written more often for personal than for work-related reasons. Also, 35% of Web site production is done for personal or public reasons.

Types of texts that may have more to do with outreach and promotions (i.e., blogs, brand materials, press releases, promotional materials, proposals) show a difference by gender. Five of the 68 (7%) male respondents said they wrote these types. Four of the five said they wrote

TABLE 3
Purposes for Which Top Types of Text Were Written (%)

Type	Work	Personal	Public Life	School	Entertainment
E-mail	45	27	19	4	5
Instructions/procedures/manuals	85	4	4	6	1
Websites	53	21	14	7	5
Presentations	71	5	11	12	1
Blogs	27	40	16	6	12
Grants/proposals	64	7	15	13	0
Promotional materials	74	8	13	4	1
Newsletters	75	5	16	3	1
Infographics	73	10	11	5	2
Usability materials	78	5	8	8	1

blogs. Of 198 (17%) female respondents, 32 said they wrote these types. In a potentially related result, two of the most valued types were instructions and usability materials. Nineteen percent (19%) of male respondents said they wrote these most frequently, whereas 7% of female respondents said they wrote these most frequently. (Usability materials jumps from the 15th most frequently written type to the 11th most valued and instructions are ranked second in both lists.) Do we still see a pattern in which males are more involved in technology and females are more involved in marketing? As Melgin (2013) wrote, ''In 2011, the share of women in the Public Relations Society of America (PRSA) was 71%'' (n.p.). In contrast, equal percentages of men and women claimed to work in marketing and advertising.
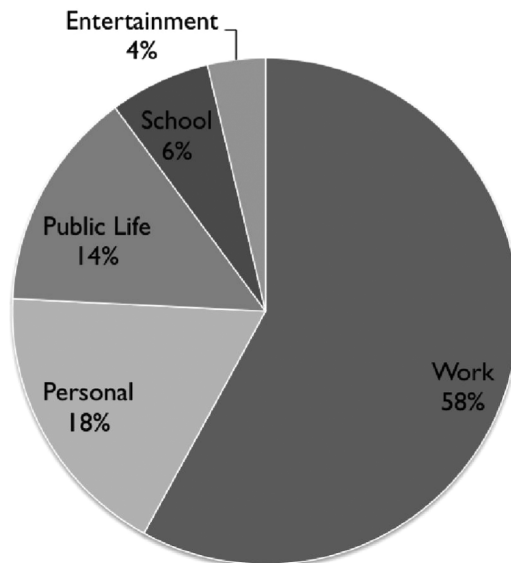

FIGURE 2 Stated purposes for writing across all types of text.

TYPES OF WRITING AND SOFTWARE/TECHNOLOGY

Respondents were asked to identify which technologies they used to complete the types they wrote most often and valued most. They were able to select multiple technologies from the following and were able to add other technologies: word processor (e.g., Microsoft Word), spreadsheet software (e.g., Excel), presentation software (e.g., PowerPoint), wiki, database software (e.g., Access, MySQL), cell phone, e-mail, image editor (e.g., Photoshop), desktop publishing software (e.g., InDesign), code editor (e.g., Coda, Dreamweaver), search engine, notebook or paper, content management software (e.g., Drupal, WordPess), blog, Twitter, pencil, and Facebook. Table 4 shows the distribution of software and technologies for each type. Figure 3 shows the overall distribution of software/technologies across all 10 types.

Overall, the number of different technologies used for composing is striking, indicating that no single technology can be called a ''standard'' tool. A couple of specific data points stand out. For example, 28 respondents who selected Web sites as a most common or most valued type also indicated that they use pencil and paper as part of the composing process. And 27 respondents who selected presentations also said they use wikis and social media as part of the composing process. Both points reveal the extent to which technologies play different roles throughout the process of a document's completion, from invention to delivery (including the multitude of channels that delivery now encompasses: the Web, social networking, presentations, etc.). These results suggest that using pencil and paper, e-mail, word processing, desktop publishing, presentation software, and social networking technology all have a place throughout the invention, collaboration, design, production, and delivery stages of a document.

The results also suggest that no single technology dominates any one type of writing. Even a ubiquitous technology, such as word processing, is only the most commonly used technology for three out of the 10 genres. In addition, almost all technologies are used to some extent in all the types. This lends support to Spinuzzi's (2003) claim that workers cobble together multiple genres to do their work, and to Amidon and Blythe's (2008) claim that managers in communications departments ''switch[ed] between high-tech and low-tech tools as the situation demanded'' (p. 29).

Another result revealed by the data deals with age and texting, which is used less often as one ages. Whereas a practice such as texting is engaged in less often across the age groups, the writing of Web sites remains roughly the same across age groups. So we cannot say simply that younger writers use digital media more.

Last, the high percentage of desktop publishing/image editing programs used supports Brumberger's (2008, 2007), Lauer's (2011), and others' assertions that documents are increasingly being designed using verbal and visual language. The sophistication of visual language being attended to is revealed by the frequent use of image editing and document design software, despite significant advances in word processing software that could presumably be used to attend to document design issues as well.

TYPES OF WRITING AND AUDIENCE/SPONSORS

Respondents were also asked for whom they usually write the types in their list. Respondents could choose from the following items or add other audiences: your boss, your work colleagues,

TABLE 4
Technologies Used to Compose Common Types of Texts

	E-mail	Websites	Instructions/ Manuals	Presentations	Promotional Materials	Blogs	Grants/ Proposals	Newsletters	Usability Materials	Infographics
Word processor	64	85	171	81	91	50	87	70	61	31
Image editor/ desktop publisher	7	111	113	62	158	34	29	74	22	72
Email software	315	24	54	34	18	27	34	26	22	5
Social network/ wiki/blog	72	88	21	27	7	115	1	13	5	3
Presentation software	10	21	46	175	22	1	21	9	14	25
Spreadsheet/ database	14	29	38	44	5	3	28	13	30	11
Web design/ editor	4	109	23	11	4	11	1	7	1	3
Search engine	12	40	9	20	15	22	23	11	5	3
Pencil or paper	6	28	27	24	17	9	21	8	11	8
Cellphone	84	4	2	9	7	5	5	1	2	3

Note. Values shown are total number of times each technology was selected as a technology used to complete each genre (e.g., 24 instances where respondents indicated that they used e-mail software as part of their efforts to compose websites).
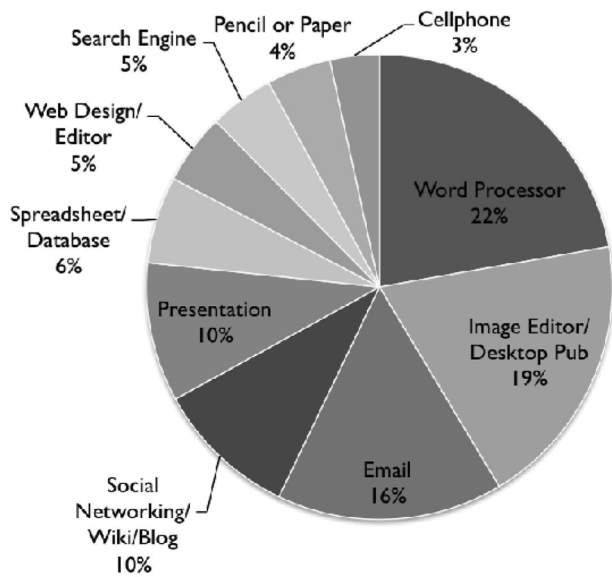
FIGURE 3 Types of technologies used across all types of text.

your clients/customers, the general public, your classmates, your family members, your friends, your instructor, and yourself. Table 5 shows the distribution of audiences chosen for each type of writing. Figure 4 shows the overall distribution of audiences across all 10 types.

As with purpose, the data on audience suggest that PTC alumni use digital media to do a significant amount of personal writing. A significant amount of blog and Web site writing is done for personal and public reasons.

TABLE 5
Audiences for Whom Writers Composed the Top Types of Texts (%)

| Type	Yourself	Boss/Work Colleagues	Clients/ Customers	Friends/Family	Instructor/ Classmates	General Public
E-mail	12	35	14	31	5	3
Instructions/manuals	6	51	30	3	3	6
Websites	13	32	21	13	5	16
Presentations	7	51	22	3	7	9
Blogs	24	18	9	22	6	21
Grants/proposals	6	48	29	1	11	6
Promotional materials	5	40	31	5	4	14
Newsletters	4	48	26	7	2	14
Infographics	12	48	28	2	4	6
Usability materials	9	55	22	4	5	5
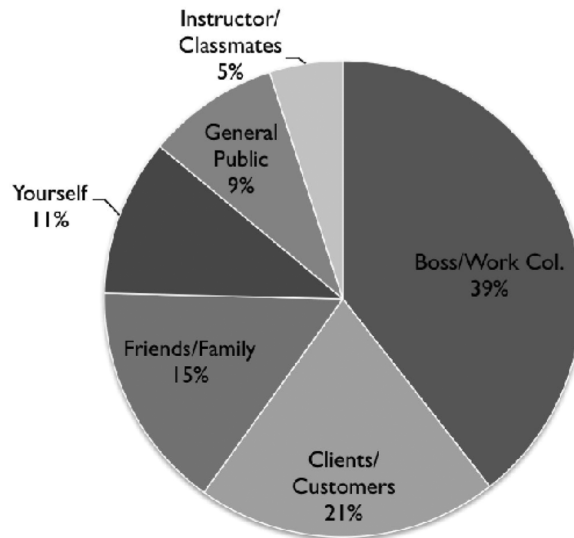
FIGURE 4 Audiences across all types of text.

TYPES OF WRITING AND COLLABORATION

Respondents were asked to identify with whom they collaborated to complete the types they wrote most often and valued most. Respondents were able to select multiple applicable parties from the following items or they could add other parties: work colleagues, multimedia or digital consultant, classmates, friends, alone, roommates, writing center consultant, instructor, or family members. Table 6 shows the distribution of collaboration for each type. Figure 5 shows the overall distribution of collaboration across all 10 types.

TABLE 6
With Whom Writers Collaborated on Composing Top Types of Texts (%)

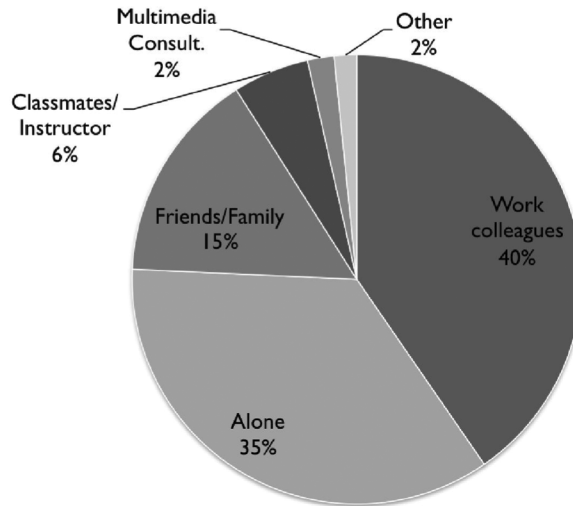| Type	Work Colleagues	Alone	Friends/ Family	Classmates/ Instructor	Multimedia Consultant	Other
E-mail	30	25	38	7	1	0
Instructions/manuals	50	38	3	6	1	2
Websites	39	44	10	1	4	1
Presentations	46	35	5	9	2	3
Blogs	21	68	7	3	0	1
Grants/proposals	53	32	4	9	1	2
Promotional materials	48	34	5	6	6	1
Newsletters	48	37	8	2	1	5
Infographics	45	44	5	1	5	1
Usability materials	56	31	3	6	2	1

FIGURE 5 Collaboration across all types of text.

One concept the data reveals is that PTC alumni are taking responsibility for an increasing amount of visual communication. For example, the overall rate of writers who reported working with a multimedia consultant was just 2%, with the highest rate of consultation being 6% for promotional materials. This suggests that PTC alumni are largely required to complete visual work without the help of a design specialist and thus they need specific training with the concepts and technologies in this area. Similarly, notice that ''play/screenwriting'' appears in the list of texts written most often (see Figure 1), and that 36% of the time that play/screenwriting was chosen as most common or most valued type, the respondent indicated it was written for work. Also 50% of the responses who chose play/screenwriting indicated that the genres were written either for clients or ''the general public.'' These numbers differ from fiction writing, where only 7% of the responses indicated that the genre was written ''for work.'' A significant portion of the respondents who selected ''play/screen writing'' are likely, therefore, to be referring to such genres as instructional and promotional videos. Our results may support Schrankler's (2010) claim that the lines between technical documentation and technical training, and between print and video, are blurring (p. 12).

TYPES OF WRITING AND LOCATION

Respondents were asked to identify where they wrote the types they wrote most often and valued most. Respondents were able to select multiple locations such as computer lab; library; home; work/office; public cafe, coffee shop, or restaurant; and classroom. They could also add other locations. Table 7 shows the distribution of location for each type. Figure 6 shows the overall distribution of location across all 10 types.

The results suggest that between 10% and 20% of all work-related writing is being done outside of a work-office. The results also suggest that some non–work-related writing, especially blog writing, is being done while people are in a work office. We can deduce this by comparing

TABLE 7
Where Respondents Say They Write the Top Types of Texts (%)

Type	Work Office	Home	Café/Restaurant	Classroom	Computer Lab	Library	Other
E-mail	43	41	8	3	2	3	1
Instructions/manuals	66	24	2	4	2	1	0
Websites	46	38	6	5	4	1	0
Presentations	54	29	3	8	3	2	2
Blogs	53	28	13	3	2	2	0
Grants/proposals	49	31	9	5	3	3	0
Promotional materials	57	28	3	3	3	4	1
Newsletters	66	26	4	2	2	1	0
Infographics	62	33	0	3	1	1	0
Usability materials	67	19	1	5	5	3	0

results of the ''purpose'' question with the results of the ''location'' question. A type of text such as instructions/procedures/manuals is cited as being completed for work purposes in 85% of the responses; however, it is cited as being completed in a work office in only 66% of the responses, with home accounting for 24% of the responses. Similar discrepancies exist for the other seven genres that have the highest percentages of work-related purpose, but lower percentages of work-office completion (those genres average a 13.3% discrepancy between percentage that are completed for work (71.6%) and the percentage that are completed in a work office (58.3%).

For the two types whose work-related purpose percentages fall below 50%, however, including e-mail at 45% and blogs at 27%, those genres are cited as being completed in a work office 43% for e-mail and 53% for blogs. Blogs reverse the discrepancy in where types of writing are completed in that blogs are written at a work office almost twice as often as they are written for a work purpose.
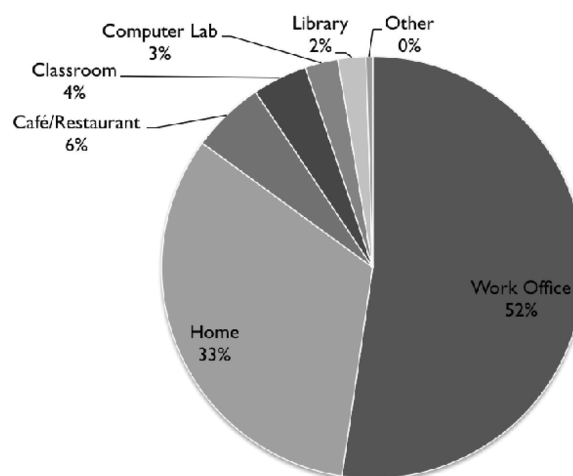

FIGURE 6 Locations for writing across all types of text.

IMPLICATIONS FOR PTC PEDAGOGY

There are at least two ways to study the survey results with respect to pedagogy. The first is to compare these results to surveys of pedagogy and curriculum. For example, it is revealing to compare these results with the programmatic survey done by Allen and Benninghoff (2004). In our survey, for example, play and script writing were common types of text. We assume this is in part because of the growth of video, which often requires a script. But script writing does not appear as an explicit response to Allen and Benninghoff's (2004) survey (see their first and second tables on pp. 162–163).

One place where our study and Allen and Benninghoff's (2004) overlap considerably relates to collaboration. Our study results suggest that alumni are doing a great deal of collaboration with work colleagues (as high as 56% for complex, multistaged genres like usability materials). Collaboration was also one of the top three points of emphasis in Allen and Benninghoff's study. Although collaboration is a significant part of a writer's work, we note that a great deal of writing happens individually (68% for blogs and 44% for multimodal genres like Web sites and infographics).

A second way to study the results is by comparing the purposes for which alumni wrote particular types of texts. If some types of texts are being written more for school than work, it suggests that we must address potential disconnects between what we require of our students in the classroom and what will be expected of them in the workplace. For example, some types of texts, such as presentations, grants, and blogs, were completed more often for school than for work (21% school vs. 16% work for presentations; 10% school vs. 5% work for grants/propo-proposals; 8% school vs. 4% work for blogs). Other types, like instructions, promotional materials, and newsletters, were completed at a higher percentage for work over school (15% work vs. 10% school for instructions; 8% work vs. 4% school for promotional materials; 6% work vs. 2% school for newsletters). These differences may be negligible, but we note that types underrepresented in school also appear to be largely visual (instructions, promotional materials, newsletters), which supports Brumberger's (2008) and Lauer's (2011) claims that we need to be doing more to integrate visual design instruction into our curricula.

Last, we want to note three pedagogical implications that we see in the data. First, students should be exposed to situations in which they must choose the best channels for communication in a given situation, including more informal channels such as chat and texting. Notice in Table 4 that 11% of respondents who cited instructions and manuals as one of their most common or valued types reported using e-mail software during their composing efforts. Although types such as SMS texts and meeting minutes were not valued as highly by survey respondents, writers chose several informal channels as some of the types completed most often. The ubiquity of these momentary types of writing suggests that they should not be invisible in the curriculum. They should be discussed as common methods of communication that have important rhetorical implications.

Second, as part of the effort to engender in students the ability to choose the best channels of communication at all stages of the composing process, they should be exposed to a wide range of technologies that will facilitate that process. Alumni are reporting using multiple technologies for almost all types of writing, from word processing to image editing to social networking (see Table 4). Because no types of writing follow a singular composing and delivery track, instructors need to expose students to the increasing range of composing software required to effectively

build content (supporting verbal, visual, aural, video modes) and media channels used to disseminate content (including print, video, Web, social networking). Rather than view software instruction as detracting from the time spent learning more sophisticated concepts of communication, we should view software as part of the language that enables our students to join the professional conversation. Learning Photoshop, for example, has always been cited by one author's students as one of the most valuable things they learn in visual design class. Although initially reacting to this feedback with annoyance, the author has come to realize that what students are actually saying is that by knowing how to use an image editing program, they feel more equipped to participate fully in that discourse community and fulfill, to a greater extent, the goals they have for communicating a diverse range of content.

Third, students in professional and technical communication programs must be versatile with multiple media. Schrankler (2010) said that technical writers must be ''well-rounded interdisciplinary employees'' (p. 13). They must be ready to work on paper or screens using alphanumeric text, still images, audio, and video. Standard projects in paper-based technical documentation could be followed by assignments in which students remix the work into a video tutorial. Scripts and storyboards should perhaps be part of a program curriculum as well as emphasis on visual language and design principles.

CONCLUSIONS

We believe that our survey results offer a more detailed portrait than was previously available of the personal and professional writing lives of PTC alumni. The results indicate that PTC alumni write a wide range of types, alone and in collaboration, for a wide range of purposes and audiences, using an equally wide range of technologies. The availability of digital and mobile technologies has blurred the lines between the personal and professional purposes, and has implications for how we characterize even seemingly inconsequential writing acts such as texting. The results indicate, further, that many alumni write for more than just work. They compose fiction, poetry, blogs, and essays for personal fulfillment and for civic purposes. These results challenge PTC faculty to take an equally interconnected approach to writing in PTC classrooms.

NOTE

1. These numbers exceed our N of 257 because respondents could check more than one race.

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APPENDIX A
THE SURVEY INSTRUMENT

The text of the survey is presented in this Appendix. The basic layout appears in Figure A. Throughout this Appendix, words in Roman text come from the survey. Italicized words did not appear in the survey. Italicized content was added to this appendix to explain how the survey would respond to input and what respondents could do in response to any particular item.

Demographic Info

First, we need to know a little bit about you for statistical purposes. This information will be kept anonymous and confidential.

1. Gender—*Respondents could select all that applied, which was* male, female, transgender
2. Birth year—*Respondents could select a year from a drop-down menu*
3. Race/ethnicity—*Respondents could select all that applied from a drop-down menu, which included* White; Black, African American; American Indian or Alaskan Native; Asian Indian; Chinese; Filipino; Japanese; Korean; Vietnamese; other Asian (Hmong, Laotian, Thai, Pakistani, etc.); Native Hawaiian; Guamanian or Chamorro; Samoan; Other Pacific Islander (Fijian, Tongan, etc.); Mexican, Mexican-American, or Chicano; Puerto Rican; Cuban
4. Other Hispanic, Latino, or Spanish origin (Argentinean, Colombian, Dominican, Spaniard, etc.); other; and prefer not to answer
5. Primary language—*Respondents could select a language from a drop-down menu*
6. Other language(s)—*Respondents could select a language from a drop-down menu*

FIGURE A The basic layout of the survey, with tabs at the top indicating progress, and a two-column layout below.

7. Do you speak another language fluently? *If a respondent responded in the affirmative, a menu appeared with w list of languages, including ''other.''*
8. Undergraduate program (most recent undergrad degree)—*Respondents could select a school or ''other'' from a drop-down menu*
9. Graduate program (most recent graduate degree)—*Respondents could select a school or ''other'' from a drop-down menu*

Section 1. Work & School

In this section of the survey, we ask about the work you've done since you graduated college.

1. How many full-time positions have you held since completing your BS/BA?—*Respondents could select a number from a drop-down menu.*
2. In what year did you earn your BS/MA?—*Respondents could select a year from a drop-down menu.*
3. Have you done any of the following since completing your BS/BA?—*Respondents could select one or more of these three options:* postgraduation internship, part-time job, freelance work

4. Please check the box or boxes that best describe your current employment status. *Respondents could select one or more of options:* employed full-time, employed part-time, self-employed or freelance, unemployed; currently seeking work, unemployed; not seeking work, attending school

Section 2. Writing Inventory

Question 1. Which types of writing have you done, personally or professionally, during and since college? Check all that apply, but please choose at least five. *Respondents were presented with a list of 42 options, including types such as abstracts, email, poetry, press releases, and lab reports. Respondents were also given the option to add other types. All the types selected by the respondent would appear in a list along with Question 2.*

Question 2. Writing you do most often. Of all the types of writing you've done, which kinds do you do most often? *Respondents could drag and drop the 5 types of writing they did most often. They could also reorder the list.*

Question 3. Writing you value. Of all the types of writing you've done, which kinds are most valuable to you? As with question 2, r*espondents could drag and drop the 5 types of writing they valued most. They could also reorder the list.*

FIGURE B Screen Asking Respondents to Rank the 5 Genres They Write Most Often.

For questions 2–3, respondents could drag, drop, and reorder types of writing that they had identified in the first question. See Figure B.

Section 3. Writing You Do Most Often

The 5 genres that the respondent selected would appear in a box to the right. Respondents would get this prompt: These are the lists you created in Section 2 of the types of writing you do and value most. We'd like to know more about each type. If a type appears on both lists, you only need to answer once.

    a. Why do you usually do this type of writing (meeting minutes)?
    b. Where do you usually do this type of writing (meeting minutes)?
    c. With whom do you usually do this type of writing (meeting minutes)?
    d. What technologies do you usually use to do this type of writing (meeting minutes)?
    e. For whom do you usually do this type of writing (meeting minutes)?

For each of the five questions, respondents were given a list of options to choose and the option to offer a short response not covered by each list. Respondents were asked the five questions for each type they chose. If respondents chose a type of writing as one they wrote most often and valued most, they only had to answer the five questions about that type once. The box to the left helped respondents know how far along they were.