

# Gender Study of Technical Writer Postings

## Introduction

This study compares the interaction and content of posts by female and male technical writers on the TECHWR-L technical writers' e-mail list. Four research questions are addressed, each one touching on some aspect of gender in online communication. The study is based on a downloaded database of 800 posts from a time period stretching about two and a half years. The posters are categorized by gender, and their posts are categorized by a number of criteria: original posts vs. responses, topics of interest, and types of language used. The resulting data is examined in the context of existing literature and analyzed for statistical significance. The intention is to draw conclusions that shed light on TECHWR-L, the technical writing community overall, and general issues of gender in online communication.

## Background on TECHWR-L

TECHWR-L was started by Eric Ray in early 1993. Six years later, the list had reached 4,000 members, and three years after that, it reached 5,000 (Ray, 2003). Today, membership in the TECHWR-L e-mail list fluctuates between 2,200 and 2,500, with another 3,350 TECHWR-L members participating directly in online forums (Giordano, 2016).

Technical writing is by nature a broad field, covering everything from software to aeronautics to pharmaceuticals. TECHWR-L successfully holds together a large and disparate community of technical writers. Its members write about common interests, such as the minutiae of Microsoft Word, the frustrations of office politics, and the trends and tools of their profession. The content of their posts is informal, brief, and often unfiltered by social niceties. As one technical writer posted on TECHWR-L years ago: "We're terse by definition. Get over it" (Roper, 2003).

TECHWR-L has moderators, but their function is not to control or direct the discussion. Rather, they serve to ensure that the content of TECHWR-L posts remains within the general topic of technical writing, and that the tone of the conversations remains civil and respectful. They also invite TECHWR-L members to contribute articles for Tech Writer Today Magazine, which is published on the TECHWR-L website.

The discussions on TECHWR-L focus largely on technical issues of software tools and documentation methodologies. One might assume that when discussions are highly technical (and therefore somewhat impersonal), they might reduce gender differences in communication. By reviewing the existing literature in this area, this study shall help to determine whether this difference in content has a significant influence on gender differences.

## Literature Review

The following is not an exhaustive review of all relevant literature, but only an introduction to some of the sources that are used to guide this research. These sources are mostly but not exclusively focused on the influence of gender on online writing, rather than on spoken

communication. As a written activity, posting gives the writer more opportunity to consider their choice of words and avoid socialized behavior. In addition, technical writing is a professional area with its own jargon and methods, and it might be assumed that participants would focus on professional questions that are less affected by socialization.

A number of studies find differences between women's and men's online communication modes. For example, Abbas and Al-Bahrani (2015) find women to be more expressive and responsive than men in online interactions. Hartsell (2005) finds women to post online more often than men, use more supportive language, use more examples to illustrate their points, and more frequently address other posters by name. Lu and Hsiao (2009) find women to post primarily for reasons of self-expression, whereas men post more for reasons of personal gain. As noted above, all of these factors might be somewhat muted in the context of a professionally oriented e-mail list.

Some gender-based communication differences can be discerned only in spoken communication. For example, Tannen (1999) shows how male dyads use spoken conversation to establish and reinforce a fairly simple hierarchy of power, while women set up more complicated rituals of mutual reinforcement even while acknowledging that one of them is the most senior. In another study, Zimmerman and West (1975) find that men tend to interrupt more than women do, whereas women tend to offer longer silences in order to allow a speaker who has paused to resume speaking. While silences are impossible to track in online communication, men's tendency to interrupt might be expressed in a high response rate on an e-mail list.

Hosman and Siltanen (2006), while not directly addressing gender issues, examine the written usage of tentative language. Examples of tentative language include hedges ("I guess") and tag questions ("isn't it?"). The authors find that tentative language is considered to be less powerful than language that uses intensifiers ("really"). Palomares (2009) brings the topic of tentative language more clearly into gender studies. Overall, he finds that women tend to use more tentative language in e-mails when writing to men about ostensibly masculine topics. Conversely, men tend to use more tentative language when writing to women about ostensibly feminine topics.

(As a side note, Palomares' title, "Women are sort of more tentative than men, aren't they?" might be misunderstood as mocking women for using tentative language. In fact, it is an ironic comment on the research in this field, which Palomares finds to be rife with inconsistent methods and results. The implication is that the study of tentative language has itself been tentative and inconclusive.)

Waldvogel (2007) studies a related usage issue, i.e., the use of "Thanks" in e-mails. Waldvogel finds that in e-mail correspondence at an educational organization, women were nearly twice as likely as men to conclude their messages with a farewell formula (e.g., "Thanks") accompanied by their name, as opposed to concluding with just their name. However, in e-mail correspondence at a manufacturing plant, Waldvogel finds no such difference. Waldvogel suggests that the more equal use of "Thanks" at the manufacturing plant is indicative of a traditional, male-dominated environment. In the context of the current study, TECHWR-L's professional and social environment resembles the liberal educational organization more than it

does the traditional manufacturing plant. If Waldvogel's findings hold true in this instance, then one might expect to see greater use of "Thanks" by women.

## **Research Questions**

The following four questions are considered in examining the database of posts to the TECHWR-L e-mail list. The first two questions are quantitative comparisons of female and male posters, while the next two questions are qualitative comparisons of post contents:

- 1: How do the genders differ in the balance between starting and responding to threads?
- 2: How do the genders differ in responding to posts from the same gender or the other gender?
- 3: How do the genders differ in starting new threads in specific topic areas?
- 4: How do the genders differ in their use of language?

An additional research question was considered but ultimately not pursued in this study: How do the genders differ in citing specific industries in their posts? The database has extremely few references to the poster's specific workplace, so a comparison of the genders' workplace reference is not practical.

## **Study Population**

Technical writers usually have at least a bachelor's degree, which is often supplemented by specialized technical knowledge such as software, medicine, etc. (Bureau of Labor Statistics, 2014). Technical writers are predominantly female, with women making up 58.2% of all technical writers in the United States (Bureau of Labor Statistics, 2015). It is also a field in which women have excelled professionally, earning on average 2.5 percent more than their male counterparts (Perelman, 2007).

The financial advantage for women in technical writing is in sharp contrast to the disadvantage for women in information technology overall, where they earn 9.7 percent less than their male counterparts (Perelman, 2007). In other words, this study examines a professional population in which women "do better" than men. It will be interesting to see whether this atmosphere influences the extent of gender differences in communication.

## **Methods**

### **Source of Data**

This study is based on a download of 800 posts, dating from October 24, 2013 to March 29, 2016. Because of the quirks of the download process, not every post to TECHWR-L during that time span is included in the database, but almost none are excluded intentionally. The only exception is the author of this research study, who was excluded from the downloaded data. There was no intention to exclude Mitchell Maltenfort, a member of TECHWR-L who assisted with the statistical analysis, but he is not among the 134 unique posters in the database.

## **Identifying and Hiding Gender**

**NOTE:** This section addresses only how individual posters are identified by gender. The questionable aspects of gender identification in this study are separately addressed in [Identification of Genders](#).

The posters' genders are identified primarily by name, as indicated in the From field of each e-mail message. Where a poster's From value is ambiguous (e.g., "dgoldstein"), the e-mail message was examined for a clear signature (e.g., "Thanks, Dan"). In the case of a few non-English names, the poster's gender was identified through LinkedIn profiles. In the end, there are 18 posts for which the poster's gender could not be identified, and these posts are excluded from the study. The 782 remaining posts are written by 134 unique posters, including 52 females and 82 males.

For the third research question, which is based on a subjective reading of original posts, the posts were examined with the From field hidden. This was done to reduce the influence of the posters' genders on the coder's categorization of posts by topic.

### **Top Three Posters**

Out of 134 unique posters, the three most prolific posters (all of them males) account for 341 posts, or 43.6% of the total database. They comprise only 2.2% of the posters. Eight out of the top 11 posters (two of whom tied for tenth place) are males:

<b>Rank</b>	<b>Number of posts</b>	<b>Gender</b>
1	231	Male
2	64	Male
3	46	Male
4	39	Male
5	33	Female
6	27	Female
7	24	Male
8	16	Male
9	13	Male
10	10	Female
11	10	Male

The top three posters are examined along with the other 131 posters, but they are presented separately in some of the result tables. In these cases, the "Top Three Posters" are identified alongside "All Males," "Males Without Top Three," and "Females." In addition, some of the statistical analyses exclude the top three posters, in order not to skew the results. Wherever the top three posters are presented separately or excluded from a statistical analysis, this is stated explicitly.

## **Original Posts and Responses**

As noted in [Research Questions](#), the first two research questions are quantitative in nature, while the next two questions are qualitative comparisons of post contents. The two quantitative questions examine all of the posts, including the original posts that begin each thread and the responses that follow. The two qualitative questions focus only on the original posts and not on the responses. This is because it is extremely difficult to isolate and examine the content of a response, since excerpts from the original post are often buried in the response. For example, some responses include the entire original post at the beginning or the end of the response; other responses include segments of the original post throughout the response as a sort of question-and-answer session. In some cases, excerpts from original posts are identified using quotation marks, corner brackets, italics, and so on. Since it is not practical to view and examine responses as standalone messages, they are not examined qualitatively for content.

## **Results**

### **Original Posts and Responses**

In order to consider gender differences in originating and responding to threads, the study first examines posting frequency overall. Table 1 indicates the mean number of posts per poster, using all four gender categories identified in [Top Three Posters](#):

Table 1  
*Mean Number of Posts per Poster*

	<b>Posters</b>	<b>Total posts</b>	<b>Mean number of posts per poster</b>	<b>Range</b>	<b>SD</b>
<b>Females</b>	52	158	3.0	1-33	5.8
<b>Males w/o top 3</b>	79	283	3.6	1-39	5.6
<b>All males</b>	82	624	7.6	1-231	26.8
<b>Top 3 posters</b>	3	341	113.7	1-231	102.0

Looking at the mean number of posts per poster, the difference between Females and Males Without Top Three is not statistically significant ( $p$ -value = 0.234). Therefore, we consider Females and Males Without Top Three to participate approximately equally in posting to the list. For this measure, it is clearly preferable to compare Females with Males Without Top Three, since the top three posters (all male) skew the data so dramatically.

The focus of the first research question is the balance between starting and responding to threads, and here there is a clear difference. Table 2 indicates the numbers and percentages of posts that are original, as opposed to being responses to others' posts:

Table 2

*Original Posts and Responses*

	<b>Original posts</b>	<b>Responses</b>	<b>% of posts that are original</b>
<b>Females</b>	81	77	51.2
<b>Males w/o top 3</b>	74	209	26.1
<b>All males</b>	102	522	16.3
<b>Top 3 posters</b>	28	313	8.9

The difference between Females and Males Without Top Three (51.2% vs. 26.1%) is statistically significant (p-value = 2.064e-07). About half of the posts by females are original posts, but only about one-fourth of the posts by the included males are original posts. Figure 1 displays this difference graphically:

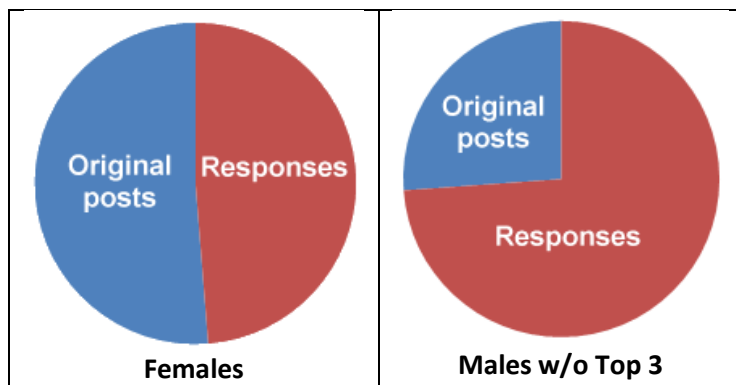


Figure 1. Original Posts and Responses by Gender.

As with all of the results, the significance of this difference is discussed [below](#).

**Responding to Genders**

For this research question, all males are examined as a group, without segregating the top three posters. This is because this research question considers the interplay of posts and responses. Examining just the two genders yields four relationships: Females responding to females, females responding to males, males responding to females, and males responding to females. If we were to consider all four gender categories identified in [Top Three Posters](#), the complexity of the relationships would prevent us from drawing meaningful conclusions.

This research question does not apply to all of the responses in the database. [Table 2](#) shows a total of 599 responses in the database (77 from females and 522 from males). As mentioned in [Identifying and Hiding Gender](#), there are 18 posts for which no gender could be identified. Some of those 18 posts are original posts, and none of those can be examined to determine whether the responder is responding to a female or male original poster. Therefore, the results tables for this research question list only 587 responses (75 from females and 512 from males).

As seen in Table 3, the study initially examined the average number of responses received by each gender for its original posts:

Table 3  
*Responding to Genders by Total Number and Mean*

	<b>Original posts</b>	<b>Responses received from males</b>	<b>Responses received from females</b>
<b>Female posters</b>	81	147	24
<b>Male posters</b>	102	365	51
	<b>Responses/post</b>	<b>Responses/post from males</b>	<b>Responses/post from females</b>
<b>Female posters</b>	2.1	1.8	0.3
<b>Male posters</b>	4.1	3.6	0.5

Mitchell Maltenfort, a member of TECHWR-L who assisted with the statistical analysis, noted that by dividing the sum of responses by the sum of originals, Table 3 weights the result toward the heavier users. In other words, Table 3 gives far less weight to a user with 4 responses and 2 originals than to a user with 50 responses and 25 originals. In order to better analyze statistical significance, Maltenfort suggested taking the average of responses per post per person. This second method requires adding 0.5 to all values for original posts and responses, in order to include data from members with no originals posts. The result of this improved method is seen in Table 4:

Table 4  
*Responding to Genders by Poster's Mean and Range*

	<b>Responses/post</b>
<b>Female posters</b>	1.7 (range 0.1-17.67)
<b>Male posters</b>	4.3 (range 0.0-79)

Calculated in this manner, the difference between Females and Males (1.7 vs. 4.3) is statistically significant (p-value = 0.0025). Female posters receive far fewer responses to their original posts than do male posters. Figure 2 displays this difference graphically:

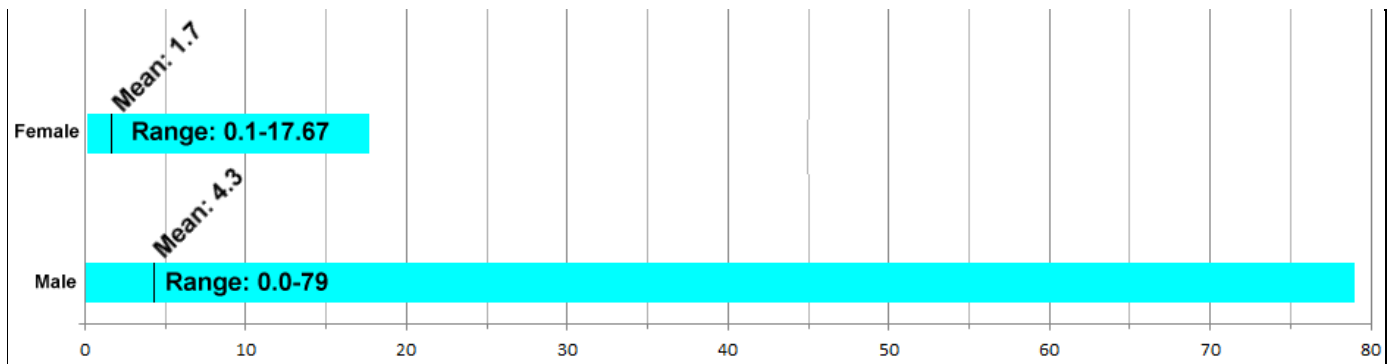


Figure 2. Responses per Post by Gender.

## **Topics**

The study author selected nine possible topics to categorize the original posts. Responses are excluded from this research question not only for the reason cited in [Original Posts and Responses](#), but for two additional reasons: (a) It is assumed that the responses that follow an original post will more or less stay on topic; and (b) To the extent that responses drift into other topics, it is not practical to follow and use them to discern new topics of interest.

The nine possible topics were selected on the basis of the study author's familiarity with TECHWR-L. The topics were selected prior to using them to categorize the original posts for topic. This was done in order to avoid having the list of available topics influenced by the perceived genders of the posters. It should be noted that the poster's gender was intended to be hidden while posts were being categorized by topic, but this could not be reliably guaranteed. For more about this limitation, see [Gender Detectability During Topic Assignment](#).

Table 5 lists the topics used to categorize the original posts, along with a brief description and an example of a post from the database for each topic. The topics are ordered here according to their expected popularity, prior to their use to categorize the original posts:



Table 5

*Nine Topics Used to Categorize the Original Posts*

<b>Topic</b>	<b>Description</b>	<b>Example from the database</b>
<b>Tools</b>	Selecting and using specific software programs and websites	“At a CMD prompt, I know how to redirect a DIR /S to a TXT file. Can I maybe pipe the command through a FILTER on its way to the TXT file?”
<b>Methods</b>	Documentation methodology, not just the specific software tools used	“Do you send out your technical documents for Beta testing to actual customers or field technicians in a structured field test?”
<b>Career</b>	Beginning and advancing a career as a technical writer	“You might want to consider finding an open source project (try GitHub or <a href="https://www.openhub.net/">https://www.openhub.net/</a> to find projects that could use some TW assistance) and contribute documentation if you need to build up your contacts and portfolio.”
<b>Job</b>	Salaries, job searches, insurance coverage, work environment, harassment	“I am used to the Silicon Valley culture, but I have an interview Monday for a Senior Technical Writer position at a hardware high-tech company in [city]. Is the following appropriate interview attire? Dockers, open-collar dress shirt without a tie, and a sports coat.”
<b>General</b>	Discussion of technical writing beyond any of the other topics listed	“Originally created in 1991, the SLAC site is the earliest known website in the United States. There are four pages in two directories; two of those pages are help pages.”
<b>English</b>	Grammar, word choice, jargon, and terminology	“Our product can require an authorizer to approve (and possibly review) the actions of a user. Currently, this is dubbed four-eyes authorization. The problem is that the ‘4-eyes’ term is derogatory and should be changed.”
<b>Health</b>	Ergonomics, nutrition, eye care	“ <a href="https://heroictechwriting.wordpress.com/2015/02/12/health-tips-for-the-tech-writer/">https://heroictechwriting.wordpress.com/2015/02/12/health-tips-for-the-tech-writer/</a> ”
<b>Humor</b>		“I’m trying to locate a Dilbert comic strip where Tina the Tech Writer slams down a ringing cell phone during a meeting she was running, then hands the now-destroyed phone to its owner with the words, ‘It’s for you.’”
<b>Learning</b>	Books, courses, certifications	“Is it worthwhile for a practitioner to be STC certified? This certification appears to be a valuable resume-builder, but I am unsure about its value to practitioners.”

Table 6 shows the topics for which each gender initiates threads in original posts. For four of the topics, there are so few original posts that they are grouped together as “Other”:

Table 6

*Topics Initiated by Each Gender in Original Posts*

	<b>Female</b>		<b>Male w/o Top 3</b>	
<b>Tools</b>	38	(47%)	30	(41%)
<b>Methods</b>	21	(26%)	13	(18%)
<b>General</b>	2	(2%)	8	(11%)
<b>English</b>	9	(11%)	6	(8%)
<b>Job</b>	3	(4%)	7	(9%)
<b>Other*</b>	8	(10%)	10	(14%)

\*Learning, Career, Humor, and Health

The difference between Females and Males Without Top Three in the topics of the threads that they initiate is not statistically significant. There are some interesting but minor differences between the genders, as displayed in Figure 2:

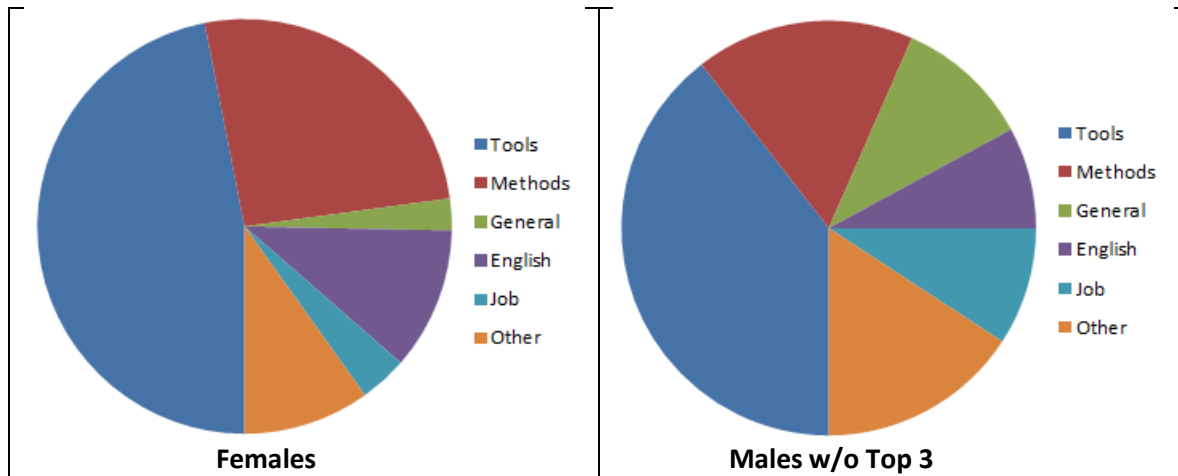


Figure 2. Topics Initiated by Each Gender.

Table 7 shows the topics for which each gender responds to original posts. For three of the topics, there are so few responses that they are grouped together as “Other”:

Table 7

*Topics Responded to by Each Gender*

	<b>Female</b>		<b>Male w/o Top 3</b>	
<b>Methods</b>	20	(25%)	55	(26%)
<b>Tools</b>	18	(22%)	56	(27%)
<b>Career</b>	17	(21%)	38	(18%)
<b>English</b>	7	(9%)	16	(8%)
<b>Job</b>	7	(9%)	15	(7%)
<b>Learning</b>	4	(5%)	18	(9%)
<b>Other*</b>	3	(4%)	11	(5%)

\*General, Humor, and Health

Here there is even less difference between the genders than there is in the topics of their original posts. The difference between Females and Males Without Top Three in the posts for which they respond is not statistically significant.

**Tentative Language and “Thanks”**

The fourth research question addresses how the genders differ in language use. Even though this is a qualitative question, the posts can be evaluated according to objective criteria, such as their use of specific words and phrases. Therefore, unlike the third question, this question does not require hiding the poster’s gender.

Palomares (2009) and others have written on the topic of tentative language as it relates to gender. For the purposes of this research question, the following lists of hedges and tag questions were gathered from Palomares and augmented by the study author:

<b>Hedges</b>	<b>Tag questions</b>
I guess	don’t they
I might	don’t you think
I suppose	isn’t it
kind of	may be wrong
kinda	
maybe I	
not sure	
pretty much	
probably	
sort of	

All of the original posts were searched using these lists. The search was not case-sensitive. A post is considered to contain tentative language if it contains one or more of these words and phrases. Table 8 shows the results by gender for the 28 posts that contain tentative language:

Table 8

*Original Posts with Tentative Language, by Gender*

	<b>Original posts with tentative language</b>	
<b>Females</b>	11	(13.6%)
<b>Males w/o top 3</b>	12	(16.2%)
<b>All males</b>	17	(16.7%)
<b>Top 3 posters</b>	5	(17.9%)

The difference between Females and Males Without Top Three in their use of tentative language is not statistically significant.

When we consider the complexity of the various phrases being searched for, coupled with the small number of results, we might seek a simpler method for finding differences between the genders in message content. Mitchell Maltenfort, who provided statistical analysis of the study results, suggested that the original posts also be analyzed for their use of the word “Thanks.” As noted in [Literature Review](#), Waldvogel’s study of the use of “Thanks” in e-mails (2007) found significant differences between the genders in one work setting but not another.

All of the original posts were searched for the word “Thanks” (not case-sensitive). Table 9 shows the results by gender for the 78 posts that include the word “Thanks”:

Table 9

*Original Posts with “Thanks,” by Gender*

	<b>Original posts with “Thanks”</b>	
<b>Females</b>	40	(49.3%)
<b>Males w/o top 3</b>	30	(40.5%)
<b>All males</b>	38	(37.3%)
<b>Top 3 posters</b>	8	(28.6%)

Here, too, the difference between Females and Males Without Top Three is not statistically significant. In analyzing the results, Maltenfort noted: “It’s not statistically significant, but close enough that we may have too small a sample size to detect an effect statistically.” Considering the ambiguity of Waldvogel’s study and the sample size issues in this TECHWR-L study, this question is worthy of more extensive research.

**Post Length**

A final attempt was made to find significant differences in the genders’ original posts, namely by examining the length of the original posts. The accuracy of this metric is more questionable than most, for reasons described [below](#). Table 10 shows the mean number of words by gender:

Table 10

*Mean number of words in original posts*

	<b>Mean number of words in original posts</b>
<b>Females</b>	142.7
<b>Males w/o top 3</b>	125.9
<b>All males</b>	117.6
<b>Top 3 posters</b>	95.5

The difference between Females and Males Without Top Three is not statistically significant.

### **Discussion**

The first statistically significant finding in the TECHWR-L gender study is in the ratio between original posts and responses: About half of the posts by females are original posts, but only about one-fourth of the posts by males (excluding the top three posters) are original posts. This is especially interesting in light of evidence from spoken conversation that men tend to interrupt more than women do (Zimmerman and West, 1975). At first glance, this tendency to interrupt might not seem to lead to an increase in online responses, since it is not possible to interrupt another's online post before the poster has completed their thoughts. However, we should consider the possibility that an **urge to respond** leads men to interrupt in spoken conversation. It is only in computer-mediated communication (CMC), such as an online e-mail list, that this urge to respond can be indulged without silencing the previous speaker. Therefore, the urge to respond online might be less frequently perceived as an expression of power than the urge to respond in person.

The results for the second research question indicate another statistically significant difference between the genders on TECHWR-L: Female posters receive far fewer responses to their original posts than do male posters. This is not because female posters choose topics that are less likely to draw a response: We have seen that there is [no statistically significant difference](#) between the genders in the topics that they initiate in original posts. By the same token, we have also seen that female and male posters respond in similar numbers to most topics. Therefore, this study offers no clear reason for the smaller numbers of responses received by female posters. Perhaps both genders respond more to males because the males' original posts are considered more worthy of a response; conversely, perhaps both genders respond less to females because the females' original posts are considered more authoritative and therefore require no response. A more detailed study of the content of responses on TECHWR-L might yield clues as to the root of the difference.

As noted in the previous paragraph, there is no statistically significant difference between females and males (excluding the top three posters) in the topics of the posts that they initiate on TECHWR-L. However, there are some interesting but minor differences between the genders in these topics. Both genders initiate most of their threads around specific tools and methods of the documentation trade, but males focus more than females on general documentation issues, job issues, and career issues. It should be noted that any examination of the genders' topic choices is limited by the fact that TECHWR-L is oriented toward a specific profession, and in fact there

was not a single original post that did not relate in some manner to technical writing. Subsequent studies that test for a significant difference between the genders in this regard might be based on a more general-interest forum, such as an e-mail list for residents of the same neighborhood.

With regard to the fourth research question, there is no statistically significant difference between the genders in their use of language on TECHWR-L. This applies to all three methods used: tentative language, the use of “Thanks,” and the length of posts. With regard to tentative language, it is worth remembering Palomares’ finding that either gender might use more tentative language in e-mails than the other, depending on the topic and the audience’s gender (Palomares, 2009). The topics on TECHWR-L are neither feminine nor masculine in nature, and the audience is always of mixed gender. Therefore, Palomares’ findings correctly predict the findings of this study, i.e., there is no statistically significant difference between the genders in their use of tentative language on TECHWR-L. Similarly, this study shows no statistically significant difference between the genders in the length of original posts. Finally, with regard to the use of “Thanks,” this study’s sample size might be too small to detect a statistically significant difference, where a broader study might detect such a difference. If a broader study does detect such a difference, this could align with Waldvogel’s findings for the use of “Thanks” in one work setting (an educational organization) but not another (a manufacturing plant) (Waldvogel, 2007).

## **Conclusions**

This study begins with four research questions, two quantitative and two qualitative. Both quantitative questions yield statistically significant results: There are differences between the genders in the balance between starting and responding to threads, and there are differences between the genders in the numbers of responses that they receive to their original posts. However, the two qualitative questions do not yield any statistically significant results: At most, there is some indication that a larger sample size might lead to a definitive difference between the genders in the use of “Thanks” in TECHWR-L posts. This is an interesting finding, but the use of “Thanks” seems somewhat less important than the objective reality of female posters receiving fewer than half as many responses to their original posts as do male posters.

Even though TECHWR-L is a relatively small community based on a narrow range of shared interests, the gender differences that we have seen have wider implications. Female technical writers are dominant not only numerically but also financially, unlike other women in information technology. Are the differences that we have found the result of female success in the field, or are they deep-seated societal or professional differences that have persisted despite that success? Given today’s emphasis on increasing female participation in STEM industries, it would be worthwhile to repeat this study on other technically-oriented, professional online forums.

## **Limitations**

Following are some issues that might affect the accuracy and integrity of the data, its analysis, and its interpretation:

## **Use of a Single Coder**

Four separate areas of research were categorized, or coded, by subjective criteria: (a) the identification of posters' genders; (b) the identification of original posts vs. responses; (c) the assignment of original posts to specific topic areas; and (d) the compilation of hedges and tag questions used to search for tentative language. In all four cases, the study author was the sole coder. It is impossible to calculate inter-coder reliability when only one coder is operating, so this practice introduces an element of uncertainty into the results.

## **Identification of Genders**

The study author identified 134 unique posters by gender, excluding 18 posts whose posters' genders could not be identified. There are at least three ways in which gender identification might be flawed: (a) Nicknames can be misleading, e.g., "Chris" can be short for either "Christopher" or "Christine"; (b) The names are self-reported and unverified, so a poster can choose a false name that masks their true gender; and (c) One person can join an e-mail list with multiple names, posing as members of either or both genders.

## **Identification of Original Posts vs. Responses**

An original post might be misidentified as a response if an original poster uses "RE:" in the subject line. This can happen when a poster mimics the style of an interoffice memorandum. Conversely, a response might be misidentified as an original post if a responder changes the subject line while responding to an ongoing thread. This type of change is sometimes flagged by the responder with the word "was" between the old and new subjects.

## **Assignment of Posts to Topics**

The study author not only determined the nine topics in advance but also assigned the posts to topics. Thus, the disadvantage of using a single coder is essentially doubled here. If a different person had assigned the posts to topics, they might have identified a missing topic that should be added to the list of topics, rather than trying to fit every post into one of the existing topics.

## **Gender Detectability During Topic Assignment**

As noted in [Topics](#), the poster's gender was intended to be hidden while posts were being categorized by topic, but this could not be reliably guaranteed. In many cases, the author's gender can be discerned even when the "From" field is hidden. For example, e-mail messages sometimes contain the poster's name in a signature line (e.g., "Thanks, Dan").

## **Examples of Tentative Language**

A total of 19 hedges and tag questions were used to search for tentative language, thereby excluding tens if not hundreds of variations. For example, posts are identified as using tentative language if they include the phrase, "isn't it," but not the phrase, "aren't they."

## **Post Length**

This metric is of questionable value because of the variable length of posters' automatic e-mail signatures. Some signatures include job titles and even brief legal disclaimers.

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