**Analysis of the Various Digital Literacies of a Technical Communicator and Competencies Needed by Technical Communication Employers in Recruitment Postings**

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INTRODUCTION

While literacy is defined as the enough understanding on some specific field of knowledge, Digital Literacies involve a much wider and varied set of concepts and definitions, such as: media, knowledge, tools, XML, technical, social, websites, etc. This has exclusively made it important to learn specifically about Technical Communication (TC), especially via the people working, studying, and researching in the field. On the other hand, like many other industries and fields, TC is emerging time over time. It is also essential to look at how the trend is going on in the field’s professions to know what are most needed by TC recruiters.

Moreover, technology is changing in an extremely fast pace with a lot of new applications, programs, and tools, which can bring differences into a wide range of industries. Technical communication is, remarkably, correlated with that trend. “Rapid change in technical communication has been obvious during the past few decades with the advent of computers, laser printers, the Internet, and other developments.” (O’Hara). This field is especially influenced by technology and its innovations, which makes it clear that the work of a large number of technical writers has been altered as well. Therefore, this, once again, calls for a deep look into the professional technical communication world where technical writers have to learn to adapt to survive.

But it does not stop at that point where current employees have to keep themselves on track with technology. It creates changes in the recruitment process as well. “Increasing public involvement in science and technology suggests a new role for technical communication in which conventional skills of adapting technical content to audience needs may be replaced by skills that facilitate audiences' own information search activities” (D. F. Treadwell). Hence, via recent technical communication job ads, technical writers are able to be aware of the most valued set of skills and competencies that they can equip with to meet recruiters’ expectation.

In this report, I begin by describing the methodology of the two distinct researches and samples, then I will give out a summary of the results from both the interviews of workers in the field and the corpus analysis of the job ads, which is followed by some important discussion, and finish with a brief conclusion by looking and comparing about the results of the different discussion points in my findings.

METHODOLOGY

**Interview/survey**

There are two main parts in collecting information for this analysis. The first branch of information comes from several interviews conducted by me with a questionnaire of 14 questions. Six of them are about demographic and personal information, along with questions on the choice of being technical writers and the time working under that name. Eight next questions mainly focus on digital literacy, jobs, technology influence, skills, and especially the gap between TC learnt at school and being a technical writer in the professional environment. The interview was successfully conducted thanks to the cooperation of three technical writers who vary in experience, points of view, and background.

The questions include:

* Part 1: Something about Yourself

1. What’s your name?
2. How old are you?
3. How long have you been working in the field of TC?
4. What is your job? (The exact name of your position)
5. Where are you working? (Company name/City/Country)
6. How did you get into TC as your career? Is it your original degree or did you change paths? If so, why?

* Part II: Questions upon Digital Literacy

1. What is your definition of digital literacy and how does it relate to your job?
2. What are your most used tools?
3. Do you have to work with tasks not related to your field? Or what kinds of task make you feel awkward at work?
4. What is the most important technical skill you possess?
5. How valuable is being able to teach yourself new technical skills?
6. What is the difference between the professional world and the academic world as being a Technical Writer?
7. If you were to advise TC students, what tips/guidance would you give them about working in TC professional world?
8. What do you think about change of TC correlated with the change of technology? How does technology affect the field of TC in terms of skills, job requirements, etc.?

There were four people participated in the interview. They were contacted via LinkedIn in the groups of Technical Communicators and introduction by friends. Frankly, they have different backgrounds and experiences, along with different thoughts on the questions. The interview are valuable in terms of reflecting thoughts of people working, researching in the field, plus the insights of the jobs of technical writers. It also helps showing how technology has been affected TC and how technical writers view TC in the time to come.

**Corpus Analysis**

The second part of the analysis includes 181 job ads in TC collected in early September 2015. All the job ads were collected from online websites by 10 graduate students at University of North Texas. The job information is guaranteed to be specific, precise, random that allows the findings to be objective and informative.

The job ads, after collected and listed into one text file, are processed by a corpus analysis tool named AntConc version 3.4.0. AntConc is “a corpus analysis toolkit designed by the author for specific use in the classroom that includes a powerful concordancer, word and keyword frequency generators, tools for cluster and lexical bundle analysis, and a word distribution plot. AntConc is a freeware, multi-platform application, making it ideal for individuals, schools or colleges with a limited budget running either Windows or Linux/Unix based systems.” (Anthony, 2005).

This analysis reveals in needs of TC recruiters in their future employees, or, which is more practical, what technical writers should equipped to be qualified for the current TC professional working environment. This analysis is profitable for a wide range of people working in TC, but mostly for students.

RESEARCH

**Interview/Survey**

For the first part of the interview, questions are functioned to create a closer and more personal relationship with the respondents along with understanding about their career path as a technical communicators.

Two people were from 31 to 45 years old, and two other were from 46 to 60 years old. This question can help to understand these people’s view on technology.

Upon professions, two people are working as a technical writer, one of them has been in the field for up to 10 years, and another is under 5 years; one person has been working as a mainframe developer for 4 years, and the final one is a technical editor that has employed in the field for over 10 years. They are all recorded to have great experience in working as a technical communicator.

The people interviewed have varied background in other aspects like software development, journalism, before changing path to TC. However, they all had great potential when they started doing this job.

Over the questions about digital literacies, they showed their different and interesting thoughts on the term, which are shown as followed:

* Digital literacies involves knowledge about digital devices: computers, iPads, smartphones, etc.
* Understanding digital tools to get the desired result is how I define DL. I think it is important to use the best tools available to get the job done. Sometimes that is a pencil and paper.
* Being able to navigate popular operating systems and typical applications therein, and being able to leverage them to push your productivity curve. It saves lots of time by diverting help desk queries to actual productive tasks.
* Knowing how to use online communication to reach and impact the intended audience. I must do that every day in my current position through email, social media, and website communications.

Being asked about most used tools, most of them mentioned e-mail as the fundamental contacting tool. For more specific technical tools, some are: desktop, MadCap Flare, Snagit, SVN, Microsoft Word, and Replicon, MadCap Analyzer, Microsoft Excel, Adobe Suite, Framemaker, Micro Focus Rumba, Notepad++, Advanced Query Tool, Visio, OneNote. Smartphones were also cited. Over than these, within the Mainframe Environment, some other tools were revealed, including Control-M, CA Intertest Batch, Viewprod, and Endevor.

Next, they responded to the question of their most awkward tasks, or in another word – most unfamiliar tasks, at work with the following: leading presentations, communicating with Subject-Matter Experts (SMEs), communicating with developers or engineers, and training, working new employees.

The next two questions giving insights about technical skills respondents have along with how they evaluate the importance of learning new skills. Three over four respondents stated that the most important technical skills they possess are willingness or ability to learn new software along with communication. Other than that, HTML, general and basic computer science knowledge/troubleshooting were pointed out as well. Going on with questions over this topic, when asked these technical communicators about how they evaluated the ability to teach themselves new technical skills, “extremely important”, “priceless”, “invaluable”, and “very valuable” were mentioned. One even added, “As a technical writer, I often receive login info for a software program, and I have to figure out how it works. I have to be willing and interested in teaching myself so that I understand it. Sometimes, there is no one to teach me. My role is to figure it out (teach myself) and create documents explaining how to use the software. Those documents are used by the training team, so they need to be accurate and cover all user functions. I enjoy this work because it's like working a puzzle...and then writing about it.”

Next question set includes two questions asserting on the academic environment and the professional working world in the field of technical communication. It was surely implied that they are different in a plenty ways. One pointed out the office politics and professional etiquette being the struggle for freshly graduated students. Other than that, the audiences also account as a new thing for technical communicators as “The professional world forces us to cater to both types of audiences, technical and non-technical. My academic experiences required explanations that are too technical for the layperson to understand.” One other opinion was recorded as “I think the academic world prepares us to be strong writers with a variety of writing skills. Successful writers need much more than that: -They need to know how to collaborate with employees across multiple teams. They need to understand that all these employees depend on each other to arrive on time, meet deadlines, come to meetings prepared, etc. - They should expect continuous feedback, and they need to know how to give helpful feedback/suggestions to others. (Receiving criticism and giving professional editing comments is a big struggle for new TCs.) - They should expect to lead and contribute to meetings. They must be able to speak concisely about their status. - They would benefit greatly from exercises that incorporated project management and scrum methodologies because this is how TCs will receive a lot of their work.” This also leads to this person’s thoughts on the next question about advice they have for students. Besides, students before entering the labor market also need to know to stay ahead of the curve, always look for the new innovations, and always remember to keep the vocabulary simple enough for a non-technical person to understand.

The last question is about the relationship built between technology and TC and technical communicators’ mission in keeping themselves occupied with the change. It was said that technology was ruling the field of TC, which asks all technical communicators to stay updated to stay relevant. Technical communicators should have experience or have interest in learning new technical skills to reinforce their value and keep themselves favorable in managers’ eyes, which can help them stay away from layoffs. Plus, as technical are becoming more and more consumer friendly, it requires technical communicators to be updated and ahead the trend by being at such level that they can explain technical terms in the simplest way for a layperson.

Several points were discussed in the interview, which can bring out some very good insights of the field, the people working in it, and the valuable experience gaining from it.

**Corpus Analysis**

*Analysis 1 – Identifying Keywords*

The initial analysis was to identify the keywords appearing in the job ads. Those keywords should be related closely to Technical Communication, and the frequency level should also be complementary to how related the word is.

After running the tool, it appears that words like “and”, “to”, “the”, “of”, etc. are the most popular keywords in the job ads. This is totally normal. However, ranking at 9, “experience” is the first important keyword found with 723 times throughout the ads. One thing should also be noted is that all the capital cases are treated as normal cases, which created the more accurate results. The second important keyword is “technical” with the frequency of 634, next is “documentation” with 386 times. Other information about the frequency of keywords can be found in the following table.

**TABLE 1. KEYWORDS IN THE JOB ADS AND THEIR FREQUENCY**

|  |  |  |
| --- | --- | --- |
| **RANK** | **FREQUENCY** | **WORD** |
| 9 | Experience | 723 |
| 11 | Technical | 634 |
| 16 | Documentation | 386 |
| 17 | Skills | 382 |
| 18 | Content | 351 |
| 20 | Writing | 320 |
| 21 | Ability | 318 |
| 28 | Knowledge | 237 |
| 30 | Team | 233 |
| 32 | Information | 227 |
| 33 | Writer | 224 |
| 36 | Management | 218 |
| 39 | Software | 194 |
| 40 | Development | 191 |
| 43 | Business | 182 |

The most popular keywords include many words that relate to TC: technical, documentation, content, writing, knowledge, information, software, etc. Besides, some very important points that recruiters concern are experience, skills, team, management, development and even business.

*Analysis 2 – Concordance Analysis*

This second analysis zooms into the context of each of the most important and popular keywords in order to unveil its meaning and function. For example, “experience” principally shows up in the requirements of the job ads, for example: “client services experience”, “10+ years-experience of”, “equivalent experience preferred”, “experience with MS Word”, etc. The following table will present the meaning and context of each of the noticeable keywords:

**TABLE 2. KEYWORDS AND THEIR MEANING OR CONTEXT**

|  |  |  |
| --- | --- | --- |
| **KEYWORD** | **ACTUAL CONTEXT OR MEANING** | **EXAMPLES** |
| Experience | Requirement of the jobs | * 8 years of related experience * Experience with document management * 2-5 years experience |
| Technical | Name and description of the jobs | * Full-time technical writer * Writing and editing technical documentation * Senior technical writer |
| Documentation | Job’s characteristics, part of the jobs | * Large documentation projects * Procedural documentation * Create and maintain documentation |
| Skills | Requirements of the jobs | * Strong writing skills * Desired skills and responsibilities * Writing and editing skills * Content organization skills |
| Content | Products of the jobs, requirements of the jobs | * Content is accurate * Content and format * Content management system |
| Writing | Part of the jobs, requirements of the jobs | * Creative writing * Writing SDLC documents * Strong writing skills in English * Easy-to-read writing style |
| Ability | Requirements of the jobs | * Ability to work * Ability to multi-task * Ability to learn new tools |
| Knowledge | Part of the jobs, requirements of the jobs | * Knowledge of Excel and Outlook * Knowledge base articles * Subject knowledge * Strong knowledge of grammar |
| Team | Job’s characteristics | * A good team player * Part of a team * With the team to produce * Contribute in a team environment |
| Information | Job’s characteristics | * Based on information collected * Gather and research information * Information mapping methodology |
| Management | Part of the jobs | * Knowledge management and communication * Data management * Content management system * Strong project management skills |
| Software | Technical tools to work with | * Software version updates * Word processing software * Document software capabilities * MS Office software suite |
| Development | Job’s characteristics | * Development of procedural documentation * Software development cycle * Different levels of development |
| Business | Part of the jobs | * Support business needs * Presentations for business proposals * Interpret business process * Information from business development |
| Communication | Requirements of the jobs | * Strong communication skills * Verbal and written communication * Interpersonal and communication skills |

It happened that all the remarkable words are strongly related to the field. Besides, Business is also an interesting part of Technical Communicators’ jobs.

*Analysis 3 – N-grams and Word Clusters*

This final analysis emphasizes on the word clusters that appears most in the job ads, which show the most weighted information by recruiters. The analysis was conducted with the N-gram size fluctuates from 3 words to 4 words. This created more accurate information on the important terms found in the ads. Table 3 will show the most common word clusters and their number of hits.

**TABLE 3. WORDS CLUSTERS AND THEIR FREQUENCY**

|  |  |
| --- | --- |
| **WORD CLUSTERS** | **# OF HITS** |
| Ability to work | 50 |
| Be able to | 39 |
| Subject-matter experts | 37 |
| Internal and external | 34 |
| A fast paced | 31 |
| A variety of | 31 |
| Writing and editing | 30 |
| Attention to detail | 25 |
| Years of experience | 25 |
| Written and verbal | 23 |
| Verbal and written | 19 |
| Bachelor’s degree | 17 |
| To work independently | 17 |
| Verbal communication skills | 17 |
| Technical writing experience | 16 |
| Written communication skills | 16 |
| In a team | 15 |
| To learn new | 14 |
| Products and services | 12 |
| With minimal supervision | 12 |
| Degree in English | 11 |

“Ability to work”, unsurprisingly, becomes the most appeared words in the analysis, simply indicates what recruiters require their employees to be good at. The term “written and verbal” and “verbal and written” can also be collided into one word clusters and the total number of hits can be 42, which turns out a really huge number in comparison with others. Similarly, “verbal communication skills” and “written communication skills” may be a part of “written and verbal communication skills”, so they can be collaborated in to one term describing the skills technical communicators need.

DISCUSSION

This study does not only provide a close intuition into how digital literacies are and how TC works look like, but also an empirical analysis of the recruitment picture in the field. There are some key findings found from the first part of the analysis – interview, and some other remarkable points from the corpus analysis. More than that, both of them can be compared to reflect the differences (if available) and the connection behind.

**Key findings from the interview**

For insiders, Digital literacies are about the usage of digital tools and devices in order to create the highest work efficiency as well as the strongest impact to intended audiences.

Tools for the jobs of TC do, in fact, vary depending on the exact job one performs. However, the most used common tools are MS Office Suite and e-mail. For further specialized aspects, some other tools are very essential like MadCap Flare, Snagit, SVN, Adobe Suite, Framemaker, Micro Focus Rumba, Notepad++, Advanced Query Tool, Visio, and OneNote. One common thing about all the tools listed here is that they are very useful yet they alter instantly with new updates and versions to supply the better service and usage for technical communicators. Besides, new tools are also created regularly to generate higher productivity.

Another finding include the hardships technical communicators face at work, which are communicating with SMEs, working in a team with new employees or other developers, engineers, and conducting presentations. In general, skills emphasizing collaboration and communication skills, or soft skills, are the obstacle preventing technical communicators to be fully successful at work.

Next, the most valued skills that all technical communicators can possess are the ability and enthusiasm to learn new skills. With that being said, if they can even teach themselves the latest skills and tools, they can become a gem in the workplace as this ability is evaluated as “priceless”. This was also mentioned in some previous researches as one did indicate that “The surprise is both the pervasiveness of these skills among the responses and the awareness of many managers that the ability to adapt to new situations and to learn new software quickly is far more important than knowledge of specific software packages.” (Rainey, 2005).

It is also unarguable that the world outside school is very different from the academic world. So in order to be fully prepared mentally and professionally for being a technical communicator, students have to be aware of the dissimilarity of the two worlds. The professional working environment will ask them for more than what they often have at school: office politics, etiquette at work place, ability to word in the simplest way for intended laypersons, and especially other soft skills. Therefore, some advice that all students must take into account are: being interactive, enthusiastic, creating the most effective products by the simplest vocabulary, knowing how to collaborate with other employees, how to give and receive feedback, preparing for and contributing to meetings, etc. In short, they need to know how to be a good team player, a reliable worker with willingness to learn, and an understanding technical communicator to deliver the best message to customers.

From all the points above, it is clear to state that technology will keep ruling the field, and each technical communicator is responsible for develop themselves along with the flow of technology.

**Key findings from the job ads**

First and foremost, by looking into the keywords and concordance analysis, we can see the strongest emphasized pattern on experience. Experience had the highest number of hits among the important words, and by looking into the concordance analysis, we see that experience was functioned as a requirement of the jobs. Even though the requirement of experience can vary from 1 year to up to 10 years, it played a very outstanding role in the recruiting postings. Obviously, this shows how much recruiters pay attention to what candidates already gained from previous jobs.

Secondly, skills and ability are the next thing that all recruiters concern. By looking into the clusters and N-grams result, we can see that skills and ability are required from the technical form to the soft form: writing and editing, written and verbal (or vice versa) communication skills, work independently, work in a team, work in a fast paced environment, to learn new tools and with minimum supervision, etc. So these are the things that candidates must show to recruiters as well as prove that they are fully equipped.

Digging deeper into skills, there is one noticeable term that was analyzed from the N-grams analysis: subject-matter experts. This has once again showed the close-knit relationship between technical writers and SMEs. As SMEs are the person giving opinions directly on the products of a technical writer, they influence the products and their quality. So, it is better for technical writers to know how to collaborate efficiently with the SMEs to gain success in the workplace.

Other than the terms closely tied to the field like technical, documentation, content, writing, knowledge, information, software, etc., candidates also have to prove that they are good at management and business. By looking into the concordance, we can see how management is crucial to technical communicators as they must have management skills in project, content, knowledge, data, etc. This is true as working with a big scale of information, lacking of management skills will put technical communicators in a mess. Moreover, the popularity of business in the analysis also indicate the relationship of the two fields as Technical communicators will have many clients having business background and working in business. This, once again, create more responsibility for technical communicators to learn have strong knowledge about another field or industry. However, it also depends on the companies that candidates are applying for as the companies may or may not work with business clients.

Last but not least, academically, what recruiters need from candidate is usually their bachelor’s degree, and it will be better if the degree is in English. Therefore, if TC graduates want to work in a company-base environment, they will not have the urge to go to grad school and gain higher degree in the field. And as their jobs revolve around content, documentation and writing, a degree in English can be a great contribution to the work. However, the favorable degree of study can also depend on the level of the jobs posted. If a technical communicator seek for higher position in the company than just an entry level job, he or she should learn about its tradition and requirement to find out the need of a higher degree.

**Connection between the two samples**

There are some certain aspects that can be compared and connected between the information found from the interview and the corpus analysis. In this paper, I will mention about three main points. However, the connection here is open to other contributions with other points of view.

The first point is about the experience mentioned in the corpus. It is fair to say that technical communications jobs, like many other jobs in other industries, favor experienced employees over the candidates that are not. However, if looking down to the respondents of the interview, we can see their patterns over there that most of them were not originally majored in the field. They changed their paths as they found out about their abilities to do the jobs. And even though they were not totally experienced, they still got their jobs and work as technical communicators for years. This simply lets us know that even though recruiters look for candidates with knowledge and experience, if you can show that you have the ability and determination, it is not that hard to put your feet into the field. Therefore, technical communicators to-be should not let the experience requirements prevent them to apply for any job but try to show how they can adapt with the working pace, the teams, and the willingness to learn.

One important point found in the corpus is the huge concern on technical communicators’ soft skills. Having extra good technical skills does not ensure technical communicators to work effectively at work. They need to work on communication with teammates, managers, clients, and SMEs. They need to learn to be prepared for meetings, projects, feedbacks and even criticism. They need to enhance communication skills both verbally and in written form. However, found in the interview, worries over the soft skills of technical communicators are still there. From practical working experience, respondents showed how hard it could be to master in soft skills. They felt awkward and unconfident sometimes. I do not state that all technical communicators out their lack soft skills, it’s just that many of them have not had the chance to learn or practice it. But thanks to both analyses, we know how soft skills are evaluated and that we should pay more credits to it.

One other common thing can be stated is the ability to learn new skills and tools. Technology develops unstoppably, which asks technical communicators to go on a pursuit of latest innovation. That is what talked about in the interview. Being able to learn new skills by themselves are priceless and invaluable to all the technical communicators. Self-teaching or self-learning is extremely appreciated in this case. Looking in the corpus, we see the similar pattern as to learn new skills with minimum supervision was strongly emphasized. Many recruiters want to ensure that the new employees they are going to sign the contract with fulfill themselves with this ability and enthusiasm. Both of the analyses give hints to all technical communicators about how this skills is valued, and how it is going to help them in their career.

CONCLUSION

This research is extremely practical and valuable in terms of giving insights of the current working environment and recruitment picture of TC. By conducting this, we know the specific skills and tools that are most valued, and the gap between professional and academic environment so that technical communicators can focus on to meet the expectations and qualifications recruiters have on them.

In short, soft skills, ability to self-learn new tools, knowing customers and audiences, mastering specialized technical tools, and having at least a bachelor’s degree (would be better in English) can guarantee at least a chance of being recruited for technical communicators.

Finally, having the chance to put the two analyses next to each other is a great experience for me. Most of the time the findings connect and enhance each other, sometimes they clash, but in the end, they do have the rationale for us to believe in and base in to develop ourselves.

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