The Advantages of Literacy in Engineering Education: a Case Study from Lukens Steel 1910-1940

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This paper presents the emergence of the "stenographer typist" at Lukens Steel in the 1930s as a social force that set high standards for written communication. Additional education was required to gain the literacy and mechanical expertise to be able to create reams of flawlessly typed text. Gradually, these new workers took nearly complete responsibility for producing written documents in the workplace. Concurrently, men could make more than double the salary of women with no additional communications training. This split in required literacy levels has persisted until today and puts men at an increasing disadvantage in an information economy. Using more resources to teach technical communication could help level the playing-field.

Introduction

Between 1900 and 1930 a major shift occurred in American culture: as businesses grew into corporations they required more management and communication, and women entered the workplace in large numbers, filling a new economic niche as stenographer typists. At Lukens Steel, as elsewhere, these women took responsibility for written forms of communication. Beginning with the widespread adoption of the typewriter in the 1880s and carbon paper in 1910, education and opportunity combined to create a hitherto unknown market for female employees. By 1930, gender segregation among stenographer typists was nearly complete: 95.4 percent were female.[1]

Today, engineering employers often complain about the poor communication skills of their new employees, most of whom are male. They don't know that history and chance conspired to create lower literacy levels for men. Once women took over responsibility for written communication, their jobs required more literacy and thus more education, so they stayed in school longer. Men could make approximately double the money that women made, in 1930, without extended education.

More Research Necessary

My research on this topic is at the beginning stages so this paper and presentation are preliminary. In my first book, *The Language of Work, Technical Communication at Lukens Steel, 1810 to 1925*, I ended where this shift, entrusting the written communication of the corporation to women, had just begun. Now I intend to take the analysis further in a second book. This change, which occurred during the early 20th century, is the first issue I have undertaken to study. I traveled to the Hagley archive this summer to collect data, but more data-gathering trips and more time for analysis are necessary before any concrete conclusions can be made.

Lukens: A Case Study

At Lukens Steel in 1910, individual managers were still communicating by written notes, folded in quarters, circulated through the plant. Only the plant managers and sales teams had dedicated stenographer typists. However, with the advent of carbon paper in 1910, making multiple copies possible, stenographer typists spread rapidly throughout the plant. The handwriting of the engineers disappeared from the archives and was replaced by reams of flawlessly typed text, often in triplicate. This transition was mainly complete in the Lukens archives by 1925.

However, in 1925 any data about the employees doing the typing did not yet exist, since the plant still consisted of fiefdoms with individual foremen, each responsible for hiring, firing and paying workers. There was no overall management reporting structure, there was no list of employees, and no one knew how much money was being paid each month.[2] This was a huge point of contention between the plant owners, Charles Lukens Huston, who managed the plant, and Abram Francis Huston, who managed sales. The conflict between the brothers ended when

the Board of Directors hired a comptroller who recommended that the employees be paid in checks, rather than cash. Charles Lukens Huston objected and the result was that both brothers resigned.

By 1930 the company had a list of all of the office employees and their salaries. For the first time, the number of women working in the offices, producing records and communications, became visible. There were 68 female office employees who made an average salary of $63.62. There were 186 male office employees who made an average salary of $201.64.[3] Thus, in 1930, women made up 26.77% of the total office workforce and women's average salary was 31.34% of the salary of men. I have exact job descriptions from 1937, but by then the salaries had been converted to codes, so calculating the differences will require more research to find the key to the codes.

In the archives there is another interesting observation. Even though the handwriting of the male foremen and engineers largely disappears after 1930, the handwriting of the owners, directors and board members is still very visible. This is most evident in the files of the board meetings themselves, where conversations were recorded in handwriting and notes were passed. This is the beginning of the split we see today: lower-level managers and engineers have relinquished responsibility for writing to support staff but owners and upper-level managers communicated in two modes: with stenographer typists for daily communications within the plant and in old-fashioned handwriting, with each other, for important decisions. However, the vast majority of all typing and editing was done by women. This situation, with female stenographer typists producing all written material, persisted throughout the majority of the 20th century, until the PC became widespread in 1995.

Literacy and Technical Communication

At present, women are pulling ahead of men in college education (60% of bachelors and masters degrees are now awarded to women). The higher-paid manufacturing jobs previously available to men are disappearing. The *Economist* noted studies that show our present economy has been "hollowed out," so that middle class jobs are disappearing, leaving only low-level manual labor positions and highly-paid knowledge positions.[4] Literacy levels can be an invisible barrier in the workplace, a new "glass ceiling." In the present recession, *Business Week* notes that 71% of the job losses have been among men. Presently, 9.8% of men are listed as unemployed and 8% of women are listed as unemployed, with women making up 47% of the workforce.[5]

The stenographer typists who worked in industrial plants were the first professional group of technical communicators, although they did not use that name. Technical communication historians often date its birth as occurring from World War II, but stenographer typists were doing a similar thing, under a different name, in the 1930s. Labor historians often portray the job "stenographer typist" as depersonalizing, but these women played an important role in the exchange of industry knowledge and enjoyed the advantages of a relatively safe and secure work environment. Moreover, the skills learned in taking dictation and producing written communication are of wide use in the knowledge economy today, so it was a auspicious place to begin.

Conclusion

Although technical communication is often a required course in engineering colleges, it is frequently not taken seriously. From the engineering professor's viewpoint, teaching technical writing is the responsibility of others, usually the English department (and often engineering programs would like those credit hours back for their own use). From the English department's viewpoint, teaching technical communication is often an unpleasant necessity, done for others with no rewards. This lack of status for teaching technical communication in universities means that the employer's complaints, "they just can't write," will continue. The split between male and female literacy needs to be addressed. Engineering education should stress the skills that historically have been the domain of women – reading, writing, and visual communication. In order to achieve this goal, both engineering programs and English departments need to recognize the importance of teaching technical communication.

Bibliography

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