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THE IMPACT OF DESKTOP COLOR IMAGING ON PREPRESS PERSONNEL SKILLS

Iva Elaine Fowke

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THE IMPACT OF DESKTOP COLOR IMAGING ON PREPRESS PERSONNEL SKILLS

submitted by

Iva Elaine Fowke

A Thesis Submitted to the Graduate Faculty of

Georgia Southern University in Partial

Fulfillment of the Requirements for the Degree

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1992

THE IMPACT OF DESKTOP COLOR IMAGING

ON PREPRESS PERSONNEL SKILLS

by

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CHAPTER ONE

INTRODUCTION

Background of the Study

Throughout history, technology has impacted work. The pace of new developments has led to smaller, faster and cheaper products which have lowered, rather than raised, skill requirements of jobs. High 'tech' items have become a concern of many world leaders while being viewed as a salvation of others. Education is the most important concern because of it's ability to sustain a technologically based economy (Burke, 1). As noted in The Future Impact of Technology on Work and Education (1987), in his State of the Union Address on January 25, 1982, President Ronald Reagan stated:

> ... as surely as Americans' pioneer spirit made us the industrial giant of the twentieth century, the same pioneer spirit today is opening up another vast frontier of opportunity - the frontier of high technology. In conquering this frontier, we cannot write off our traditional industries, but must develop the skills and industries that will make us a pioneer of tomorrow.

Another report from The Future Impact of Technology on Work and Education (1987) entitled, "Action for Excellence," issued by the National Task Force on Education for Economic Growth in May 1983, stated:

> Technological change and global competition make it imperative to equip students in public schools with skills that go beyond the 'basics'. For productive participation in a society that depends even more heavily on technology, students need more than minimum competence in reading, writing, mathematics, science, reasoning, the use of computers, and other areas.

The concern continues today and effects more and more industries as the technological innovations continue to improve.

The pace at which new technologies are being developed and applied in the workplace has caused even more concern over technological unemployment, otherwise known as displacement. As noted in The Analysis of Practical Skills (1978), the American Federation of Labor (AFL) President William Green (1929) stated:

> The machine came to replace the skilled craftsman and workers were laid off regardless of the effect on their standard of living...; the extraordinary development of machinery in the last ten years has made... technological unemployment... an outstanding problem.

Labor unions have attempted to provide the displaced workers with reemployment to compensate them. However, with innovations continuing to enter industries, technology will always have an unsettling effect in labor-management relations (Cornfield 1987).

One industry, the printing and publishing industry, has historically remained untouched by technological change since the transition from letterpress printing to offset printing. Offset printing technology was to improve the production of letterpress printing. It was to offer the opportunity for "greater output, shorter working hours, the creation of a host of skilled jobs in maintenance, design and engineering, safer working conditions, and the production of new and better goods of standardized quality with more efficient use of raw materials (Somers, Cushman and Weinberg 1963). However, managers and workers feared the effects it would have upon wages, skills and employment. Adjustment to the offset printing process was necessary to meet the demands for higher production and profits (Somers, Cushman and Weinberg 1963).

With the introduction of the Macintosh computer in 1984, the technological revolution known as desktop color imaging (DCI) began to create changes in the future of the printing and publishing industry. Once again, managers and workers feared the effects it would have upon wages, skills and employment. Printers would have to realize the efficiency and effectiveness of desktop color imaging in today's market, especially in the area of prepress. Prepress, concerned with the initial phases of material that will end up in

print, would undergo major changes because the computer also has the capability to prepare images to be printed (Alreck and Settle 1985).

Before the advent of DCI, the area of process color was prohibitively expensive for small to average size printers. DCI has enabled printers to enter such markets which were previously unavailable to them. In Insiders' Views on the Future of Graphic Arts, Mr. Regis J. Delmontagne (1988) believed that with the continuing demand for color advertising, prepress activities will have an increased demand for new color prepress systems. He also believes that the computer has changed the way the printing industry regards the prepress component, and it inevitably will play an increasingly important role in the final product produced by the industry.

With the onset of desktop color imaging, the technological skills of employees involved with prepress will be affected as well. Also from Insiders' Views on the Future of Graphic Arts, Nancy K. Newbury (1988) supported the necessity for training and retraining of employees for a company to remain competitive. She felt that the introduction of this technology into the printshop will have a major impact on the employees and employment needs over the next ten years. There is an ongoing demand to understand what prepress skills will be affected by the application of this new technology. As noted in The Insiders' Views on the Future of Graphic Arts by William D. Soloman (1988):

> It seems that if immediate action is not taken to educate and recruit qualified personnel into the graphic arts field and enhance the image of the printing industry, the future competency of the work force and industry will be questioned.

Not only has the impact of DCI become a major issue in the actual preparation & publication of printed materials, but has raised an important concern relative to the job skills necessary for prepress employees.

Purpose of the Study

The purpose of the study is to determine what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The study will provide information concerning the need for upgrading management and worker skills and education, retaining technically competent employees and repositioning technologically displaced workers.

Defining the Problem

The problem of the study is to determine the essential prepress personnel skills for desktop color imaging.

Research Questions

The following were questions to be answered by the study.

1. What does the industry currently recognize as essential traditional prepress management skills?

2. What does the industry currently recognize as essential traditional prepress worker skills?

3. What does the industry forsee as the traditional skills for prepress managers which are obsolete or are rapidly becoming obsolete?

4. What does the industry forsee as the traditional skills for prepress workers which are obsolete or are rapidly becoming obsolete?

5. What level of education or training does the industry currently require for prepress management?

6. What level of education or training does the industry currently require for prepress workers?

7. With the advent of modern desktop color imaging skills, what basic fundamental DCI skills are essential for prepress managers?

8. With the advent of modern desktop color imaging skills, what basic fundamental DCI skills are essential for all prepress workers?

9. What training is being utilized by the industry for upgrading personnel skills to provide for continued employment in the area of prepress?

10. What training is being utilized by the industry to reposition prepress employees that have been displaced by implementation or upgrading prepress areas with modern DCI technology?

Basic Assumptions

The following are assumptions fundamental to this investigation.

1. The information obtained by the returned questionaires will be valid to the study.

2. The respondents will be from three basic groups: businesses/printing firms that do not have a prepress department, businesses/printing firms that are considering to purchase microcomputers for their prepress departments, and businesses/printing firms that already have microcomputers in their prepress departments.

3. The respondents are representative of the industry and possess the knowledge and experience to accurately provide information concerning the level of prepress skills and knowledge desirable/necessary for the industry.

4. Respondents that have integrated microcomputers into their prepress departments are qualified to recognize present prepress personnel skills and indicate its relative importance to production.

5. The respondents understand the relationship between desktop color imaging and process color reproduction on the computer.

6. The respondents will be able to recognize the relationship of the skill components to prepress skills for managers as well as workers.

7. The respondents will understand the future potential of desktop color imaging within the printing and publishing industry.

8. The sample population will be representative of the membership of the Printing Industry Association of Georgia (PIAG).

9. The prepress manager would be the best person to determine what is the best educational background for prepress managers and workers.

Limitations and Controls

The following are limitations and controls placed on this study.

1. The study is limited to the assessment of prepress skills needs for managers and workers in commercial printing industries.

2. The results of the study will be limited to printing firms with the hardware and software capabilities necessary for low quality process color on the desktop.

3. The study will not be limited to any one computer environment (i.e. Macintosh, IBM, NEXT).

4. The population is restricted to 300 randomly selected members of the Printing Industries Association of Georgia (PIAG).

5. Only PIAG members within the state of Georgia were selected for the population.

Definition of Terms

The following are definitions of terms for the purposes of this study.

Color Separation - The process of dividing an original color image into its component

colors for printing. Each color separation consists of one piece of negative or positive film.

Commercial Quality Color - Color which is reproduced by commercial printers that meets the recognized quality standards of the printing industry.

Desktop Color Systems - A microcomputing system consisting of the hardware and software that is used to create paper/film images for printing.

Desktop Color Imaging - The reproduction of four color and/ or spot color film separations through the use of a desktop color system.

Displaced Worker - A skilled worker whose position and job functions have been replaced by new, automated, or otherwise high technology equipment.

Four Color Scanner - A device which reads, or scans the original color images and converts it into a series of dots that can be read by the computer.

Printing Industry Association of Georgia (PIAG) - Organization of printing associates in Georgia.

High-end - A term used to represent the highest quality reproduction process used to produce color separations.

High-end Color Trade Shops - A place of business which works with only high-end clients to reproduce documents.

Prepress - Any operation in the preparation of images or documents prior to the actual printing process.

Process Color - Printing the three primary colors (cyan, magenta and yellow) and black in combinations to produce all colors; full color.

Separation Software - The computer software programs which separate each process color (cyan, magenta, yellow, and black) for four color printing operations.

Summary

How the printing and publishing industry will handle the implementation and outcome of desktop color imaging will depend on its desire and ability to motivate managers and workers into higher production and higher profits. As noted by Daniel B. Cornfield (1987):

> "Throughout the course of U.S. industrialization, workers and managers have attempted to control the implementation and outcomes of technological change. In an effort to realize enterprise efficiency and profitability, management has endeavored to retain flexibility and control over the adoption of new production technologies; fearing displacement and loss of income, workers have sought control of technological innovation in order to maintain their job security."

The desktop color imaging revolution is no exception. Clearly the impact of DCI has become a major issue with respect to job skill improvement of prepress employees. It is apparent that an ongoing need to understand that prepress skills will be affected by the application of DCI. This leads to the purpose of this study which is to investigate what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The study will provide information concerning the need for upgrading management and worker skills and education, retaining technically competent employees and repositioning technologically displaced workers.

CHAPTER II

REVIEW OF LITERATURE

Introduction

For nearly three centuries after Gutenberg printed his famous 42-line Bible (1454 A.D.), most printing was done in a single color--black. By the nineteenth century, color plates and inserts in books were becoming more common, although it was only flat color which is a specific color that is mixed for a specific job. By the beginning of this century, printers and photographers clearly understood the color separation process, and they were printing color photographs in a wide number of publications (Adams, Faux and Rieber 1988). Color publications were becoming more popular and with the demand increasing, the demand for higher quality images increased.

It was not until the invention of the Macintosh in 1984 that the computer would impact the printing and publishing industry (Adams, Faux and Rieber 1988). Traditional methods of preparing printed color materials would soon be facing the revolution of desktop color imaging. Dr. R. K. Molla (1988) expresses:

> There has been and will continue to be a significant growth of color printing in this country. The rapid transition from conventional to electronic color separation has played a major role in this growth..... It not only created a greater demand for more color printing by making it less expensive and technically more perfect, but it also created a market for more and better technology.

This change is a very important link to understand the changes which would take place when the computer began to reproduce color graphic information.

Within the last decade major advancements have been made in prepress technology. Prepress technology has become the most rapidly changing field in the entire realm of printing (Molla 1988). The basic concepts of color separation, use of scanners, and potential of color correction and color editing are important areas of prepress procedures that will become affected in the near future.

Color Theory

Color is defined as the sensation resulting from stimulation of the retina of the eye by light waves of certain lengths (Webster 1966). Color can be viewed in nature, on the computer monitor, or on a printed paper. Each object absorbs or reflects different wavelengths of light and in different quantities. The brightness of the color depends on the quantity of wavelengths reflected. The wavelengths reflected define color or hue while the quantity of wavelengths reflected defines its intensity (Blair 1983).

A printed document displays color in three different ways: fake color, flat color, and process color. Fake color is a one color printed image on a colored sheet of paper. Flat color is a specific color that is mixed for a specific job. Process color is the use of four specific colors: cyan, magenta, yellow and black to reproduce continuous-tone color images (Adams, Faux and Rieber 1988).

We perceive color from the effect of combinations of different wavelengths from the visible spectrum of all colors. The visible spectrum is made up of red, blue and green. They are called additive primary colors because they combined to form every color of light in the visible spectrum which is white. When two of the additive primary colors are combined the result is called a subtractive primary color. The subtractive primary colors are cyan, magenta, yellow and black. When all of the subtractive primary colors are combined they produce black (Molla 1988).

Printers use cyan, magenta, yellow and black inks, known as process inks, to create the reflected colors of the spectrum. Various combinations of the process inks create the illusion of any color of the visible spectrum (Blair 1983). To reproduce color photographs, the process inks are combined to form the illusion of the original photo.

Application of Color Theory to Prepress

Graphic reproduction is the process of reproducing original photographs into a set of dots which will closely match the tones of the original (Molla 1988). Traditionally a halftone screen would be used to capture the dots. For a color photograph, each of the process colors are broken up into dots through the use of a color scanner. A scanner is a device that electronically measures color densities of a color original, stores the measurements as digital information in a computer's memory, manipulates the digital data to get the best printing results, and uses the new information to create cyan, magenta, yellow and black (CMYK) separations. The colors are separated into four negatives to prepare the CMYK printing plates. The primary additive colors are used as filters to prepare the CMYK separations. Light is reflected off of the original photograph or transmitted through the original transparency through the red, green and blue filters to expose the negatives of the CMYK printers (Blair 1983). After the negatives are exposed to printing plates and the combinations of the CMYK inks printed create the illusion of the original full color photograph.

The scanner gave the operator the ability to change many factors of the original photograph. Some of the most apparent changes which would take place on the scanner were: color correction, color editing, undercolor removal, gray component replacement, and many other factors (Blair 1983). When working with process inks, the primary factor to consider is compensation for color deficiencies within the inks. This is otherwise known as color correction. The colors of the inks are not pure and the printed sheet will

appear differently depending upon the viewing conditions (Molla 1988). If the original photograph needs to be modified to create an image that has never existed, the ability to change the photograph is called color editing (Blair 1983). To increase the image quality and or reduce the expense involved in using the process inks, a process called undercolor removal (UCR) can be applied to the scanner (Adams, Faux and Rieber 1988). It diminishes the amount of cyan, magenta, and yellow in printed in the darker neutral gray areas, and increases the amount of black ink in the reduced areas. An extension of UCR is gray component replacement (GCR). Where UCR removes CMY in the darker neutral gray areas, GCR replaces CMY wherever they overprint to produce a neutral gray (Blair 1983). This results in CMY only being printed in where necessary to produce the color portion of the image. Adjustments must be made in the scanner for these factor in order to replicate the image of the original. Scanners modify the image electronically and can make major and/or minor changes to an image. This technology has created more flexibility for designers and customers.

Prepress Skills

Color prepress technology helped to create individually skilled tradespeople because of the tremendous amount of training and skill involved in color photographic reproduction. Other skilled workers were needed, as well, because the majority of printed materials contained more than just color photographs. Many people contributed their knowledge and skills to the preparation of the publication prior to press whether it was a magazine, book, brochure, or many other publications. This group of highly trained and skilled individuals was considered to be the prepress department.

Understanding what general skills are required for prepress jobs currently will establish a correlation to the skills of the future. The National Association of Printers and Lithographers (NAPL) produced a publication (1986) to provide the industry with

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information on job descriptions in the Printing Industry. The literature divided the prepress area of printing into three major divisions. The divisions were a design, typesetting and preparatory department. Each of the areas plays a role in color reproduction due to the nature of most printed material. The information contained in this section has been summarized from the NAPL's publication.

A design department provides creative services such as advertising and promotional materials for the customer and/ or company. General skill requirements of the employee is to have an in-depth knowledge of typography and type faces, excellent color sense, complete understanding of color separation and correction procedures. The educational level of an employee depends upon the position requirements of a particular firm. Possible positions in the design department are Art Director, Graphic Designer, and Mechanical Artist.

A typesetting department provides the final typeset information of all customer-provided copy from the typesetting system. General skill requirements of the employee is to have thorough knowledge of type styles, proofreading symbols, and typographic rules and procedures. The employee is usually a skilled operator on one or more of the typesetting systems used in the company. The educational level of an employee depends upon the position requirements of a particular firm. Possible positions in the typesetting department are Supervisor, Markup Person, Typesetting Input Operator, Typesetting Output Processing Operator, Proofreader, Proof Copier.

A preparatory department converts artwork (mechanicals, art elements and photographs) into individual or composite film elements. The elements are for assembly and exposure of the image onto printing plates, by operating a black-and-white and/or color separation "process" camera to achieve changes according to customer instructions. General skill requirements of the employee is to have an understanding of color theory, an excellent eye for color, understanding of photographic chemistry and printing processes.

Prior experience as a color scanner operator is helpful. The educational level of an employee depends upon the position requirements of a particular firm. Possible positions in the preparatory department are Supervisor, Scanner Operator, Camera Operator, Dot Etcher, Stripper/ Image Assembler, Platemaker, Prep Department General Helper, and Electronic Color Editing Terminal Operator.

Digital Color

Within the last two years, desktop computer software has become sophisticated to allow color prepress to be performed on the desktop computer. As noted by John Melithoniotes of Crosfield Design Systems (1992):

> About 80 percent of the process color pages being printed in the United States today could be retouched, color-corrected, trapped, and separated on desktop computers.

As a result, many of the job skills of prepress employees have changed or been combined. Many of the technical aspects of color prepress which were formerly performed by skilled tradespeople are now being reorganized into the skills of a designer and production artist. As in so many other instances, computers have replaced or supplemented individual skills (Molla 1988). Designers and other document creators did not have to think about undercolor removal and gray component replacement with traditional methods. Then the desktop color computer entered the picture and changed the way in which page design and production were done (Melithoniotes 1992).

Digital Color Theory

The range of colors that is visible on a computer monitor is limited. A monitor shows color by emitting red, green, and blue (RGB) light. In full-color monitors there are 256 levels of each color which creates 16.7 million colors (Hannaford 1990). A primary problem exists with RGB monitors. When needing to manipulate the color image on an RGB monitor, the change is made in RGB not CMYK which affects the final output. To

counteract this problem, recent technology has created CMYK monitors to display the subtractive colors. An advantage of using a CMYK monitor is that the actual printed colors can be manipulated in order to provide a more accurately printed piece (Hannaford 1990).

Desktop color prepress is in its infancy; however, it is rapidly progressing (Molla 1988). Implementation of prepress techniques has been slow due to the nature of software-based processes which "cannot replicate the intuitiveness of human intervention in making subtle aesthetic and conditional adjustments." (Parker 1990) The colors on a computer monitor are crisp and pure which does not take into consideration the impurities of process inks. Also, monitors display many more colors than can be simulated with process color printing. In addition, there are many process colors that cannot be produced on a screen. In order to account for errors in screen colors, computer monitors are calibrated and stabilized to match standard colors. Monitors are also made differently which can affect the final printed piece. Calibration of a monitor is crucial due to the nature of control over the final printed color. The computer program must be set to simulate colors in order to achieve the best possible result. However, there is no set standard (Hannaford 1990).

Application of Digital Color Theory to Prepress

With the advent of computer technology, many previous prepress functions can be handled more effectively by a desktop color computer (Molla 1988). An entire page consisting of various elements can be modified in a variety of ways in less time. The designer can create an electronic composition of a design on the computer and create alternatives to the design as well as perform changes (Hannaford 1990).

Desktop color photographic reproduction is somewhat different from traditional color photographic reproduction. When reproducing a halftone dot traditionally, it carries an elliptical shape. With a desktop computer, the dots carry a square shape which is better known as a pixel (Hannaford 1990). In order to acquire the desired elliptical dot,

imagesetters are used to translate the pixels into dots. To place the image on the computer monitor, a desktop scanner electronically reads photographs or transparencies and converts them into bitmapped images or pixels for the computer to read (Hannaford 1990). When working with a color photograph, the scanner reads the image into CMYK pixels to form the illusion of a full color photograph. Color photographs consume a considerable amount of storage space which can become a problem with speed and resolution quality of the output (Melithoniotes 1992).

A primary advantage to working with color on the desktop is the various options that are available to correcting and manipulating images (Hannaford 1990). A multitude of special effects are given to the desktop designer. As with conventional processes concerned with gray component replacement, undercolor removal, color correction and color editing, it is important to understand the basic concepts of these factors as they apply to traditional technology. R. K. Molla (1988) expresses:

> Another exciting development is the color computer's capability to remove gray component from the three colors and replace it with a full range black (GCR). The concept is old, but has been revitalized with the incorporation of new microprocessors in the color computer. All scanners available at this time are offering this feature, but the industry has yet to extract the full potential of this development.

Even though most desktop users do not have a thorough knowledge of these factors, it is important to understand the basic concepts of UCR, GCR, color correction and color editing.

Impact of Computer on Prepress Skills

Throughout history the microcomputer has caused major changes in the way work is completed. Most of the impact caused by the influx of the microcomputer has occurred in the skills that are necessary to perform a job task. But the nature of job skills makes this task very difficult: skills vary widely by level and type, they change over time, and they can vary widely between firms. Skill requirements are likely to change the more rapidly

these changes occur. A serious problem of assessing skill requirements of new technologies is created due to the rapid development and application of the technology throughout the current labor market (Burke 1987).

The micro computer is a tool that has been added to the traditional skills that are needed to perform prepress skills. With this addition, however, there is a shortage of skilled individuals who are capable of traditional as well as computer related skills (Melithoniotes 1992). Design, typesetting and page layout can all be created in the same place by one person or group. Getting qualified personnel to fill positions in the printing industry is getting more and more difficult. F. G. Phillips (1986) characterizes that printing companies of today are not able to find a vice president of sales by putting an advertisement in the local newspaper or other such publications. Hunting for the right person to fill the job can be both expensive and time consuming and can frequently lead to open warfare between competitors.

The current methods of training and education are failing to supply the adequately skilled workers which are needed in the printing and publishing industry. A major reason for this is explained by Spence (1981), " ... new technology often results in new equipment; at the same time new skills are required for its operation." According to Randolph Camp (1991), Chairman for the Printing Industry Association of Georgia (PIAG) the Printing 2000 report indicated that as a result of new technology, the printers will have to pay far more attention to human resource issues. He also indicated that training and education are the obvious tools needed to approach the future and the industry's changing labor force.

Educational facilities need to be developed to teach industry workers how to react and manage technological change. According to R. K. Molla (1988), training has suddenly

become the most critical requirement in the printing industry. He also states:

> The role of educational institutions in training the future generation of the work force for the printing industry is expanding. Since the use of color in printing is growing at an unprecedented rate, it is important that the latest techniques and equipment developed for color reproduction advances made in this area are integrated in the curricula of graphic arts educational programs.

Frank J. Romano (1977) expressed that the people control the DCI systems' capabilities and direct it's effectiveness. "A system is only as good as the people running it." He believes DCI skills are unique and not as frequent as previous skills. The skill of the worker became unique which affected the need for better people. As Charles A. Alessandrini (1988) expressed that in order for the industry to survive, it needs to understand that improved technology will require high quality workers with decision making skills who can react to the changing technology. The demand for skilled personnel has led to the realization of developing the skills necessary to perform the new prepress job functions.

Changes and Directions in Prepress Technology

Currently, large printers are financially capable of investing in the latest desktop color imaging systems which enable them to perfect the abilities of the color systems. A majority of the customers which are involved with color advertising are starting to produce pages on the desktop, and they are pushing the printers into desktop-based color. They currently use high-end Hell and Scitex prepress systems and realize that desktop color production will be a significant part of their business in two or three years. Having hesitations, the great majority of high-end color-trade shops are gearing up to generate professional-quality color from Macintosh-produced files (Hannaford 1990).

"As technologies develop, more activities once confined to commercial printing will take place on computer screens."(Parker 1990) To be able to place the control of a publication in the hands of the person who created the idea will be the ultimate goal of the

desktop. Because of the complexity of color images, the speed of the programs is slow. Once this is overcome, a major benefit will be faster creation of ideas to the page.

Every major technological advancement brings change. The onset of digital color imaging has already changed the printing industry dramatically (Parker 1990). The theory of reproducing a full color publication has not changed, it is the skills and job descriptions of the individuals in prepress that have changed dramatically (Melithoniotes 1992). As technology continues to advance, more activities will be combined to help create ideas faster to the printed page. The need to understand the developing opportunities demonstrates that expertise in desktop color imaging applications will be critical. Realization of the impact of desktop color imaging will not only improve the chances of survival but provide avenues of growth for printers of all sizes. This realization can best be transmitted through educated professionals armed with both print and computer literacy (Fowke 1991).

Summary

As a result of the impact of technological change on the printing and publishing industry, the skills and knowledge needed to perform prepress job functions have changed and will continue to change with the advent of more advanced technology. Employees will have to adapt to be able to manage the technology. The industry will need skilled employees to manipulate the advancing computer technology. Training and retraining of employees will be very essential to keep up with production demands. The role of the educational institution is essential in delivering this needed manpower. By identifying the skills and knowledge which will be necessary as a result of the influx of desktop color imaging, industry and education can collaborate so that curriculum will provide the industry with the skilled personnel that is needed.

CHAPTER III

THE INVESTIGATION

Introduction

This chapter describes the methods and the procedures used in conducting this study. Information concerning methodology and procedures came from a diversity of sources. This chapter consists of six sections which are as follows: identification of the population, selection of the sample, development of the survey questionaire, evaluation of the validity and reliability, collection of the data, and analysis of the data.

Identification of the Population

This study was to survey businesses/printing firms to determine what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The printing and publishing industry, in it's entity, contains many types of businesses that are involved with printing from various aspects. Within those businesses are companies that have a prepress department to prepare images to be printed. The actual operations within the department also vary and lead to the variety of prepress job skills and job descriptions.

After consulting Dr. Jim Holmes, Assistant Professor of Printing Management at Georgia Southern University, and Mr. Scott Williams, Printing Management Program Coordinator at Georgia Southern University, it was determined that printing associations within the state of Georgia would be contacted to provide mailing lists. Three associations

were selected because their members consisted of companies which actually possessed the information sought by the survey. They also had the qualifications to make their responses meaningful.

Contact was made with Mr. Jim Sprouse, Vice President of Education for the Printing Industries Association of Georgia (PIAG), to request mailing labels of PIAG's members. Mr. Jim Sprouse mailed 502 labels to the researcher's attention in the Industrial Technology Department at Georgia Southern University. The initial listing of the companies contained members from the state of Georgia as well as other states. It contained the name of a representative within the company, the company name, and address. Other associations were contacted such as the Southeastern Prepress Association and Print Production of Atlanta. The Southeastern Prepress Association provided a member list. The Southeastern Prepress Association's membership was compared to that of PIAG to deviate from duplicate mailings to individuals. It was discovered that the majority of the members were also members of the PIAG. As a result, the PIAG mailing labels were used to select the sample for the study.

Selection of the Sample

A sample size of 300 PIAG members was selected. The size was selected based on the researcher's budget and degree of confidence in the sample size to produce a reliable return (Alreck and Settle 1985). Only a small fraction of the entire population ordinarily provides sufficient representation of the group as a whole and enough accuracy to base decisions on the results with confidence (Alreck and Settle 1985). The 502 mailing labels were examined to select the 300 labels which would be used for the study.

The sample selection must be done correctly to rid the results of bias or error (Alreck and Settle 1985). To insure non-bias and no errors, the labels were discarded if (a) the company was located outside of the state of Georgia, (b) it was an educational

institution or (c) the company had duplicate labels. As a result of discarding some of the labels, the sample was drawn from 472 labels.

The 300 labels were selected at random. The use of a random sample was best because it is least likely to result in bias as compared to other methods (Alreck and Settle 1985). The type of random sample selection which was utilized for this study was the physical selection method. This method was utilized because the labels could be separated in a uniform and equal manner to reduce accessibility bias. Accessibility bias refers to some respondents being more accessible that others due to size, shape, and many other features (Alreck and Settle 1985). The labels were mixed in a container and the sample was drawn from it with "blind" selection to refrain from accessibility bias (Alreck and Settle 1985). Three hundred labels were selected and mailed to the attention of the Prepress Managers of the 300 companies.

Development of the Survey Questionaire

The use of a questionaire was considered to be the most appropriate method of gathering data because the information that is desired is unavailable from other sources. The survey is needed to focus directly on understanding and predicting the prepress skills as a result of desktop color imaging.

The questionaire was designed by the researcher based upon a review of Alreck and Settle's The Survey Research Handbook (1985) and Norusis' The SPSS Guide to Data Analysis for SPSSx (1987). The questions on the survey were designed with focus, brevity and simplicity which is noted by Alreck and Settle (1985) as the basic attributes of survey questions. Focus relates to a questions ability to focus directly on the issue or topic specified in the question. Brevity refers to short or brief questions. Simplicity refers to the questions being simple and clear.

The type of format which was selected was structured. Structured formats ask a question and list the alternative answers which clearly indicates the alternatives to substantiate a response. The format improved the speed and ease involved in taking the survey as well as improving the researchers speed and ease of result tabulation. By using a structured format for the questions, categories of responses need to be determined in order to include every possible response. The researcher added the category of "other" to all questions with categories to insure that every possible response would be included.

Answers to survey questions are typically a choice of "position" within a category. A response scale is a representation of a category which the respondents will arrange. The scaled responses were coded with numbers to make tabulation of the result easier. The multiple response questions were provided for the respondents on questions that had multiple responses. The single response questions were also included for simple "yes" or "no" responses.

A Likert scale was applied to the questions asking for a degree of agreement or disagreement to answers which would provide the results in the form of coded data that was comparable and readily manipulated. A Likert scale states the issue or opinion and obtains the respondents' degree of agreement or disagreement (Alreck and Settle 1985). The Likert scale was used to rank each prepress skill according to its necessity within the prepress department. Due to the varied responsibilities of managers and craft/ workers, the scale was utilized to recognize necessary skills in both areas. The skills were ranked accordingly:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

From the Likert scale, the researcher was able to rank each skill according to its current necessity within a prepress department.

The instrument consisted of three major areas. One area was for companies that did not have a prepress department. Another area was for companies that were considering to purchase microcomputers for their prepress department. And finally, an area for companies that were utilizing computers in their prepress departments. The final group was surveyed on their knowledge of the necessity of prepress skills and knowledge for managers as well as craft/workers. Some of the survey items applied to some respondents but not to others. The questions were designed for unconditional branching which is a "go to" statement for those for whom the items did not apply on the condition that a reply is made.

The prepress skills were divided into the following general areas of a prepress department: computer skills, design skills, management skills, mechanical or preparatory skills, typesetting skills, and other skills. Within these areas were related skills that were specific in nature. These areas were established from The NAPL Guide to Graphic Arts Job Descriptions (1986) as a current standard in the industry.

Educational level was identified as well as prepress skills to identify what educational level was necessary for the different areas of the prepress department. The educational levels were identified as the following:

Vocational or Technical Training	1
Bachelor's degree	2
Master's degree	3
Doctorate degree	4

The Likert scale was utilized to identify the necessity of each level identified above. The areas which were ranked were as follows: Computer Technology, Fine or Commercial Art, Industrial Management, Printing Technology, Graphic Arts, and other.

Computer technology was identified as a potential area of educational need within the changing environment of the prepress department. Fine or commercial art was identified because of the role that this knowledge plays in the prepress department. Industrial Management was identified because of the need to have individuals with industrial management knowledge within the prepress department. Printing technology was recognized because of the need to identify individuals with printing knowledge. Graphic arts was identified because of graphic arts knowledge needed in a prepress department. Due to the varied types of companies that were surveyed, it was necessary to provide this area for the prepress manager to express his ideas of other educational areas that will be necessary in the changing environment of the prepress department.

The overall design of the questionaire was selected due to the number of questions that were asked and the design of the questions. An 11" by 17" sheet size was chosen to have a four panel survey folded to produce an 8 1/2" by 11" overall appearance. The front panel included the title of the study, the researchers name and degree information with the university's name, and the date. The second and third panel were designed with the questions in numerical order. Response boxes and blanks were used for ease of response and data tabulation. The fourth panel included a thank you statement and reassurance of confidentiality.

Evaluation of the Validity and Reliability

The validity and reliability of survey data depend in part on the sampling method used (Alreck and Settle 1985). Reliability is the freedom from random error and validity is the ability of a survey to be valid to the degree that it measures what and only what it is supposed to measure. To increase the reliability of responses, a follow-up mailing for non-respondents was sent to the same individuals of the original sample. The cover letter (enclosed in the appendix) was provided for those non-respondents who may have lost or

misplaced their questionaire. The second mailing list was provided by the PIAG. In order to insure mailing the survey to the same respondents, a copy was made of the mailing labels from the first list. Once the survey was mailed, the names were checked off of the copy. This information would be used for the second mailing label selection. Also, seven additional individuals, not having a relationship to the sample population, were mailed a survey to guarantee the reliability of the mailing process of the study. The seven individuals did not respond to the survey. They simply notified the researcher of receipt of the questionaire.

A panel of expert judges was selected to review the survey questionaire to determine face validity. Upon their review of the drafted survey, their comments and proposed revisions (included in the appendix) were noted and a final copy was sent to them for approval. Each panel member reviewed the information independently.

The expert panel consisted of two members that had the following qualifications: work experience in the printing and publishing industry for more than twenty years and knowledge in the area of desktop color imaging. Persons who possessed a combination of the qualifications were sought through printing and publishing associations. Mr. Dave Ebel of 3E Lithographing Co. and Mr. Bob Jose of Agfa Corporation were highly recommended and selected for the panel. The members of the panel were to determine if:

1. The questions asked would provide the results needed to identify prepress skills as a result of desktop color imaging.
2. The items included in categories were accurately represented.

The panel members were mailed a copy of the research questions, the purpose of the study, a copy of the first and second cover letter, and a copy of the survey. Mr. Dave Ebel contacted the researcher by phone to give comments about the survey, and Mr. Bob Jose sent his reply by facsimile (see appendix).

The panel assisted the researcher in determining that the Prepress Manager would be the designated individual to which the questionaire would be sent. With their knowledge of the management heirarchy in the industry, each decided that the Prepress Manager would be the best qualified individual which would be able to determine the skills and educational level of prepress managers and workers.

Collection of the Data

A cover letter signifying the importance of the study was designed and included with the questionaire (see appendix). Included in the letter was a date for the surveys to be returned. The letter was sent to the attention of the Prepress Manager. It was dated two weeks after the initial mailing. The final questionaire was generated and reproduced. The researcher printed the survey in the printing facility located at Georgia Southern University. The graduate school approved a research grant to pay for any and all expenses involved in the survey. These questionaire were enveloped, sealed and labeled with the mailing labels provided by the PIAG. They were taken to the Georgia Southern Mailing Center for mailing. There were business reply envelope enclosed. The respondents did not need to affix a stamp.

Two weeks after the first mailing, a follow-up letter and questionaire was mailed to the entire sample population used for the first mailing. The second mailing was provided for those nonrespondents who may have lost or misplaced their questionaire.

Analysis of the Data

The returned questionaires were examined for completeness as they were received and dated according to the day they were received. The actual values (responses chosen) were assigned a numeric value. Codes were assigned to the possible answers. The complicated questions were split up into parts. The data was arranged to be entered into a

computer directly from the form. Each returned questionaire started a new line in the computer file for the data. It was necessary to use more than one line for this study due to the large number of codes assigned to the data. The program was arranged to read the data in columns which provided the program with the needed information to answer the research question of this study.

The statistical package known as SPSSx was used to analyze the data. The package consists of commands which are made up of keywords that SPSSx automatically recognizes such as variable names and labels that the researcher provides. SPSSx determines the frequency of each survey question's response. The frequency provides information about how many people selected each of the responses to a question. The mode, or most frequently occurring value, was utilized for this program due to the nature of the research questions. The crosstabulations provided the number of cases that had particular combinations of responses to two or more questions within the questionaire. The number of cases in each cell of a crosstabulation were expressed as the percentage of all cases in that column. Each question contains the number and percentage of the people who gave each response, as well as the number of people for whom responses are not available. The percentage response was converted into a valid percent to be used on a scale of 100%. The valid response was a measurement of only those who responded to that particular question. The percentage is based on the missing values or data for the question being reported. This is in regard to individuals which failed to respond to some individual items. Bar charts will be provided in Chapter IV to display a frequency distribution of responses to the research questions.

Summary

This chapter described the methods and the procedures used in conducting this study. Information concerning methodology and procedures came from a diversity of

sources. Identification of the population was determined from contacting industry association. Selection of the sample was obtained from a Printing Industry Association of Georgia mailing list. The sample was selected through the use of a random sample. Development of the survey questionaire was derived from a review of selected literature. Evaluation of the validity and reliability depended upon the sampling method chosen and the response of the panel of experts. Collection of the data was obtained through the use of form letters and a survey. Finally the analysis of the data was determined with the use of the statistical package known as SPSSx. The results of the study will be reported in chapter four which will provide tables and charts for an explanation of the findings.

CHAPTER IV

RESULTS AND FINDINGS

Introduction

The purpose of this chapter is to present the results and findings of the questionaire. This study determined the essential prepress personnel skills for desktop color imaging. The data collected were subjected to statistical procedures provided by the data analysis program SPSSx. The findings are provided in this chapter.

Survey Response

The survey mailing was organized to increase the return rate of responses. Of the original 300 questionaires which were mailed in the first mailing, 64 responses represented a 21% return rate. From the follow-up mailing, 39 responses represented a 13% return rate from the second 300 questionaires.

TABLE 1

RESPONSE RATE

Mailings	# Mailed	# Response	% Response
First Mailing	300	64	21%
Second Mailing	300	39	13%
Total	300	103	34%

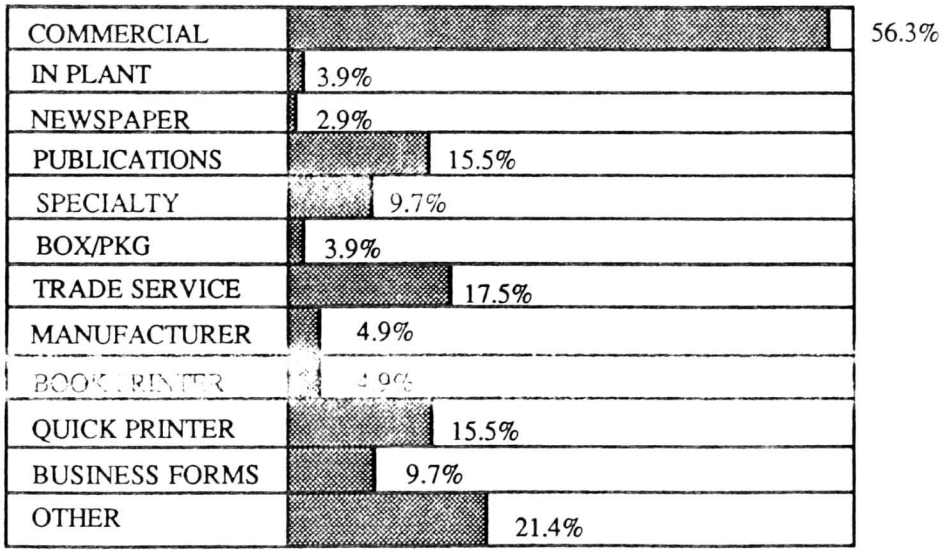
This effort yielded a total number of 103 responses to represent a 34% return rate from the 300 questionaires. Table 1 shows the number of respondents and nonrespondents and the response rate.

The second mailing had a follow-up letter with a clause stating not to return if you had already answered the questionaire. However, a few of the respondents mailed back letters to say they had already replied. The responses of this nature were not added to the total response. Copies of the survey questionaire, enclosed letter, follow-up letter, return envelope are included in the Appendix.

Other questions were in reference to demographic information such as type of company, gross sales per year, number of employees, and number of prepress employees. This information would provide an understanding of the type of sample population which responded to the survey.

TABLE 2

TYPE OF BUSINESS



The sample population was asked to select the type of graphic arts operations their company performs. The majority of respondents, 56.3% were classified as Commercial Printers. The next highest in frequency was categorized under "other" with 21.4% responding. The respondents replied with varied types of businesses such as "technical school", "desktop publisher", etc... The category of trade service responded at 17.5% while Quick printers and Publications printers had a 15.5% response. Other types of operations had a response rate below 10%. Table 2 provides the percentage of responses to each type of operation.

Figure 3 provides distribution of gross sales per year of the respondents and the frequency percentage. 34.7% responded to have gross sales of $1,000,000 to $5,000,000 while 33.7% responded closely with $500,000 or less gross sales. The percentage response of other gross sales was below 10% as shown below.

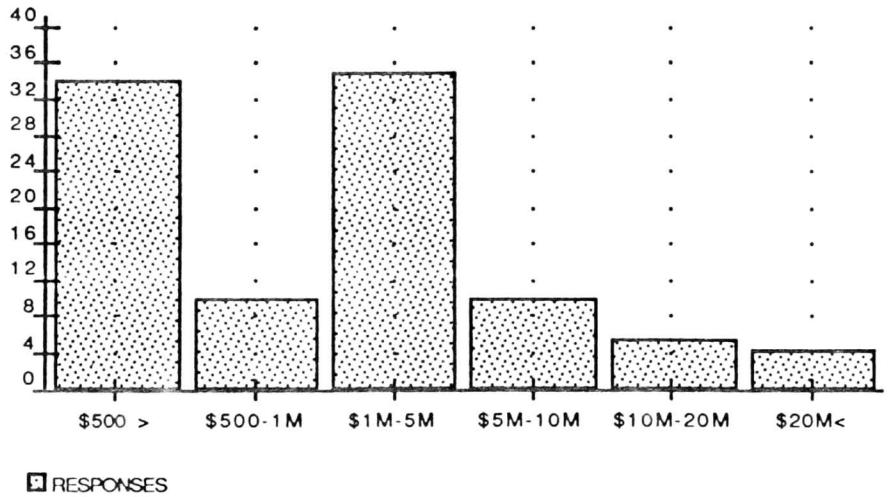


Figure 3 - Gross Sales Per Year

Figure 4 shows the distribution of the total number of employees in the company by the frequency percentage. The highest percentage response of 28.1% was in the category of 4 to 10 employees while the next highest response was in the 50 and over category with 20.8%. The category of 0 to 3 employees responded at a 14.5% rate while other categories responded below 10%.

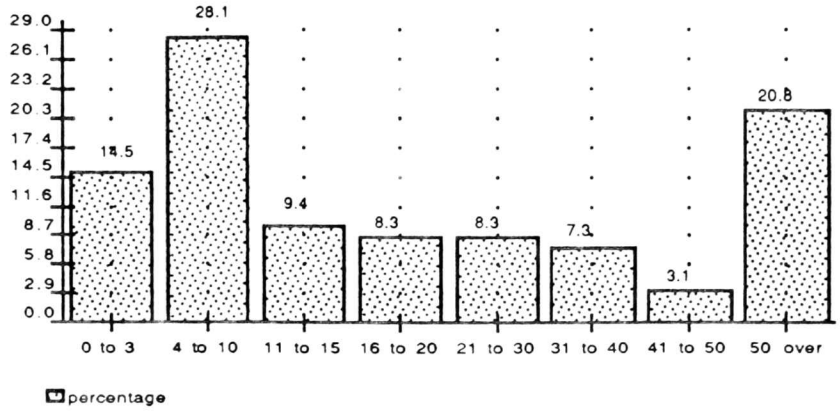


Figure 4 - Total Number of employees

Figure 5 shows the distribution of the number of prepress employees in the company by the frequency percentage. The 0 to 3 category had a response rate of 60% while the next highest category of 4 to 10 prepress employees was at 25.3%. Other areas responded below 10% which is shown on the next page.

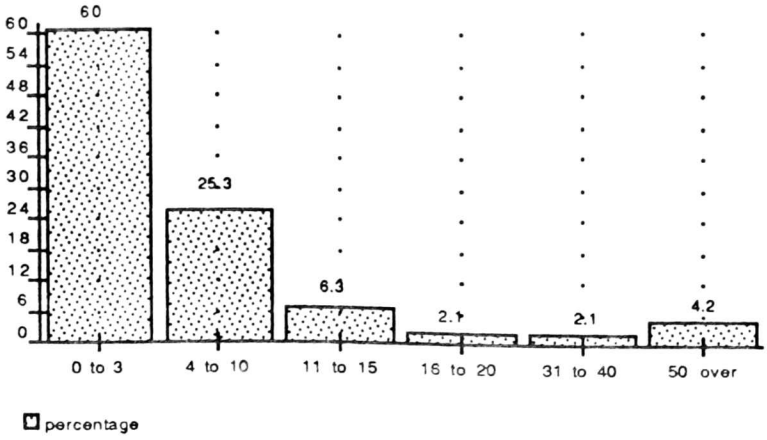


Figure 5 Number of prepress employees

The research questions were used as a guide in designing the survey questionaire. The nature of the questionaire categorized the respondents into three major areas. The respondents were from three basic groups: businesses/printing firms that do not have a prepress department, businesses/printing firms that are considering to purchase microcomputers for their prepress departments, and businesses/printing firms that already have microcomputers in their prepress departments. Those businesses/printing firms that already have microcomputers were asked to answer the questions on skills and education because of their knowledge and experience in desktop color imaging (DCI). From the 103 which responded to the questionaire: 74 respondents or 73.3% had a prepress department, 27 respondents or 26.7% did not have a prepress department. Of the 74 respondents or 73.3% which had a prepress department, 51 respondents or 72.9% had computers in their prepress department, and 19 respondents or 27.1% did not have computers in their prepress departments.

The information pertaining to figures 6 through 21 was gathered from respondents who had computers in their prepress department. An average of 56 respondents answered the questions related to these figures. The other 47 non-respondents read the instructions of the survey to "go to" the area which pertained to their particular business. From the

original 51 respondents which were directed to this area, five additional respondents also answered the questions.

Figure 6 answers research question #1 which provides information concerning what the industry currently recognizes as essential traditional prepress management skills.

The results were derived from a likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

The frequency of the response was transposed into a valid percent. The skills charted below were ranked by the respondents as being very necessary and necessary. Other skills that ranked somewhat necessary or not necessary will be used in future charts. The prepress management skills that were rated as being the most necessary were work planning and scheduling with 81.8% response and written and verbal communications with 81% response. Other skills were ranked accordingly: Manufacturing order entry and scheduling at 57.9% response, supervisory skills in working with designers and pasteup artists at 49.1%, excellent color sense at 48.2%, understand color separation and correction procedures at 47.3%, specialized training in electronics, electronic maintenance and photographic science at 38.2%.

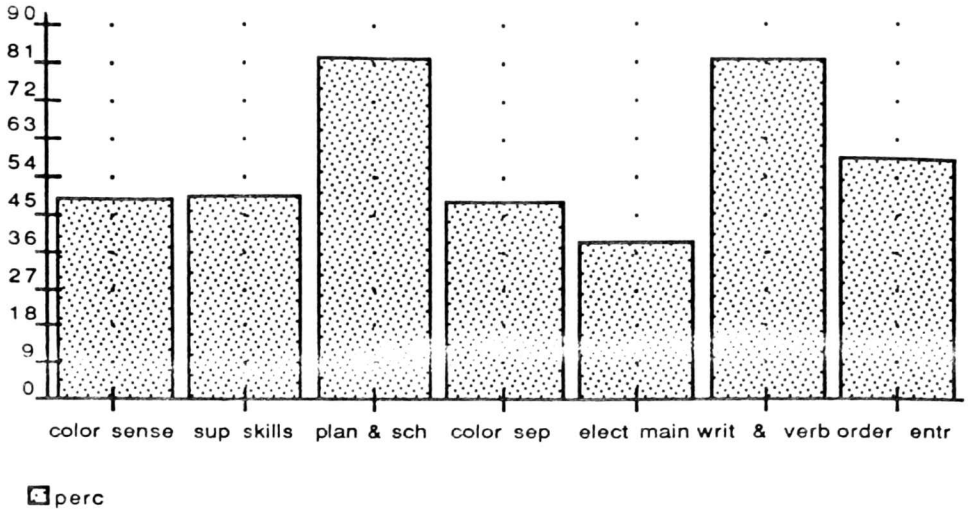


Figure 6 - Essential traditional prepress management skills

Figure 7 answers research question #2 which provides information concerning what the industry currently recognizes as essential traditional prepress worker skills. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

The frequency of the response was transposed into a valid percent. The skills charted below were ranked by the respondents as being very necessary and necessary. Other skills that ranked somewhat necessary or not necessary will be used in future charts. The skills that were rated as the most important worker skills were experience in design or mechanical art at 55.6% and an in-depth knowledge of typography and type faces at 55.6% also. The other skills were ranked as follows: excellent color sense at 50%, complete understanding of color separation and correction procedures at 49%, skill in work planning and scheduling at 46.7%, skilled operator on one or more of the typesetting systems 46.3%,

written and verbal communications at 46.2%, and accomplished typing skills, both speed and accuracy 44.4%.

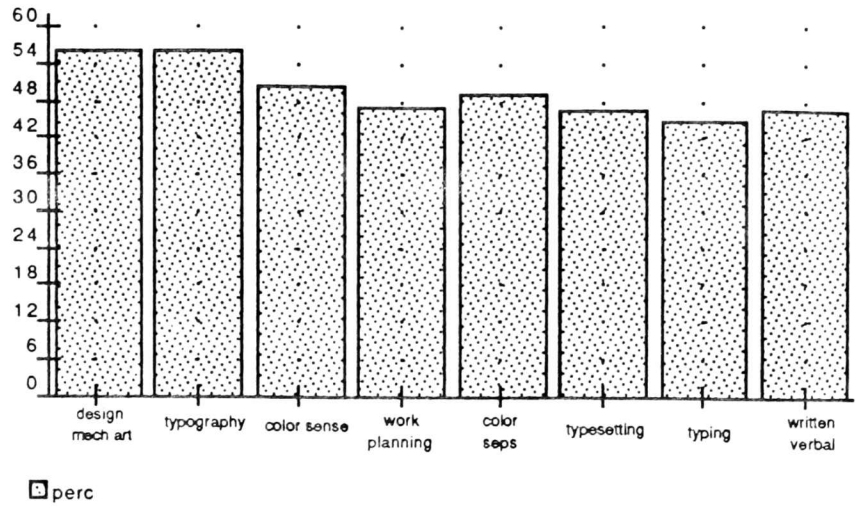


Figure 7 - Essential traditional prepress worker skills

Figure 8 answers research question #3 which provides information concerning what the industry forsees as the traditional skills for prepress managers which are obsolete or are rapidly becoming obsolete. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

The frequency of the response was transposed into a valid percent. The skills charted below were ranked by the respondents as being not necessary and somewhat necessary. Other skills that ranked very necessary or necessary will be used in other charts. The prepress manager skills that were recognized as the most obselete were ranked as follows:

accomplished typing skills, both speed and accuracy at 38.6%, experience in design and mechanical art 37.9%, skilled operator on one or more of the typesetting systems 36.8%, and in-depth knowledge of typography and type faces at 32.8%.

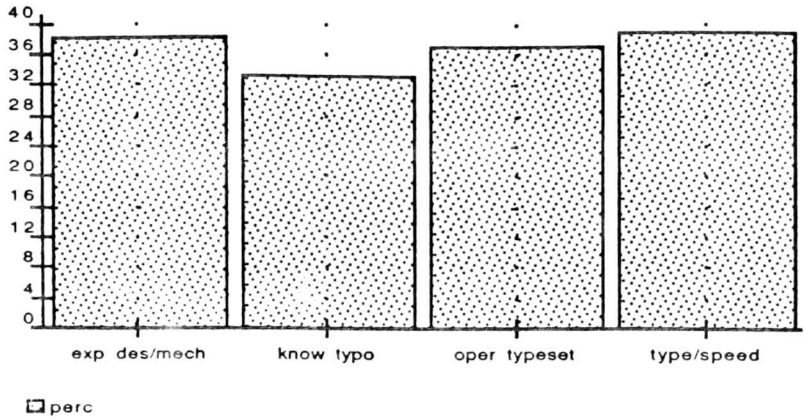


Figure 8 - Obsolete or are rapidly becoming obsolete traditional prepress manager skills

Figure 9 answers research question #4 which provides information concerning what the industry forsees as the traditional skills for prepress workers which are obsolete or are rapidly becoming obsolete. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

The frequency of the response was transposed into a valid percent. The skills charted below were ranked by the respondents as being not necessary and somewhat necessary. Other skills that ranked very necessary or necessary will be used in other charts. Of the obselete prepress worker skills that were ranked, only two skills were of significant value to recognized. The skills were rated as follows: manufacturing order entry and scheduling

at 51.9% and aptitude or specialized training in electronics, electronic maintenance and photographic science at 39.2%.

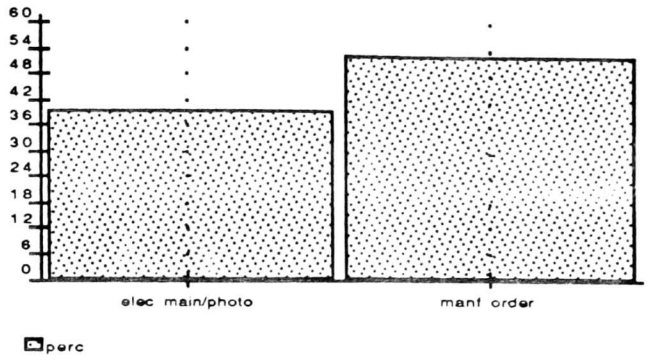


Figure 9 - Obsolete or are rapidly becoming obsolete traditional prepress worker skills

Figures 10 through 14 answer research question #5 which provides information concerning what level of education or training the industry currently requires for prepress management. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Vocational	1
Bachelor degree	2
Master's Degree	3
Doctorate	4

The frequency of the response was transposed into a valid percent. The areas of educational background charted below were ranked by the respondents according to the level of education necessary. In the area of computer technology, the respondents ranked the highest educational level to be vocational or technical training at 69%. The area of fine or commercial art was ranked highest in the area of vocational or technical training at 51.9%. The industrial management area was ranked highest in the bachelor's degree area

at 55.6%. Printing technology was ranked highest in vocational or technical training at 49.1%. And finally, the graphic arts area was ranked highest in the bachelor's degree area at 47.1%.

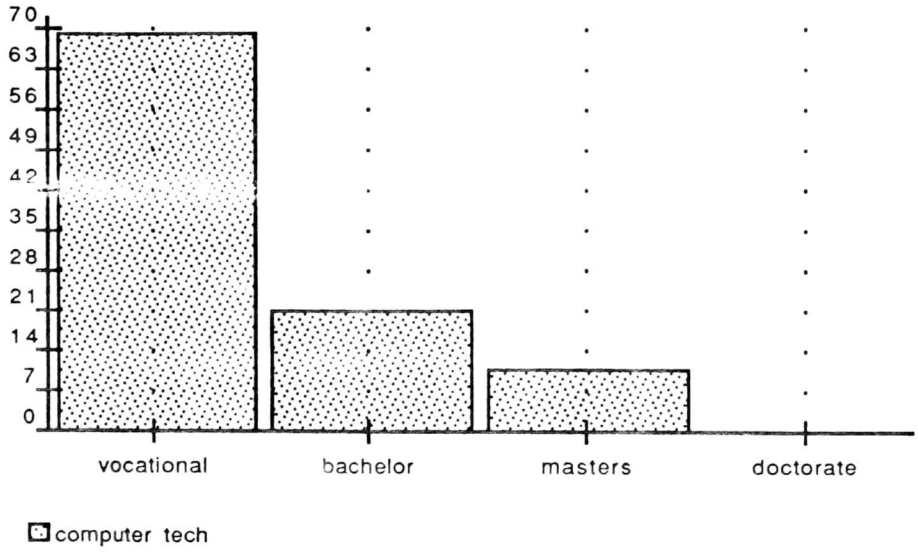


Figure 10 - Level of education or training in computer technology necessary for managers

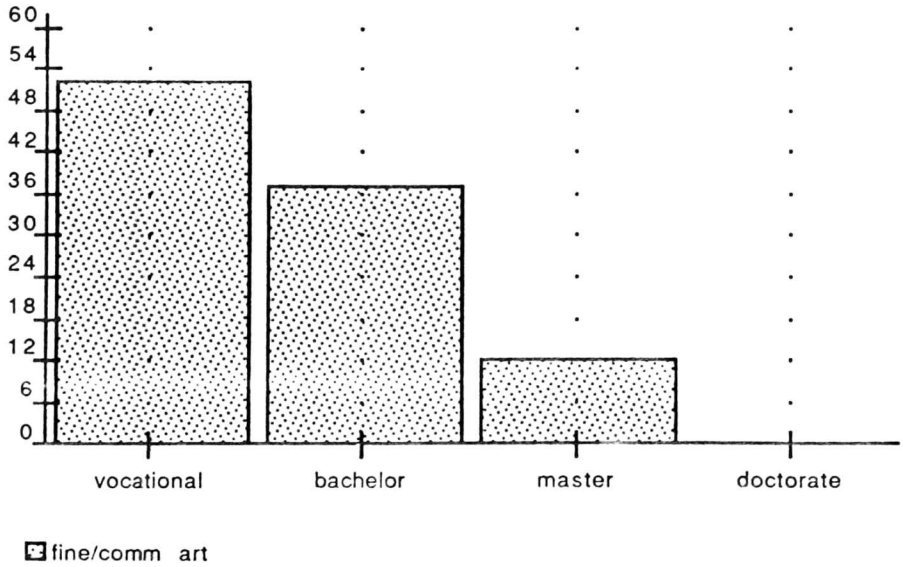


Figure 11- Level of education or training in fine arts or communication arts necessary for managers

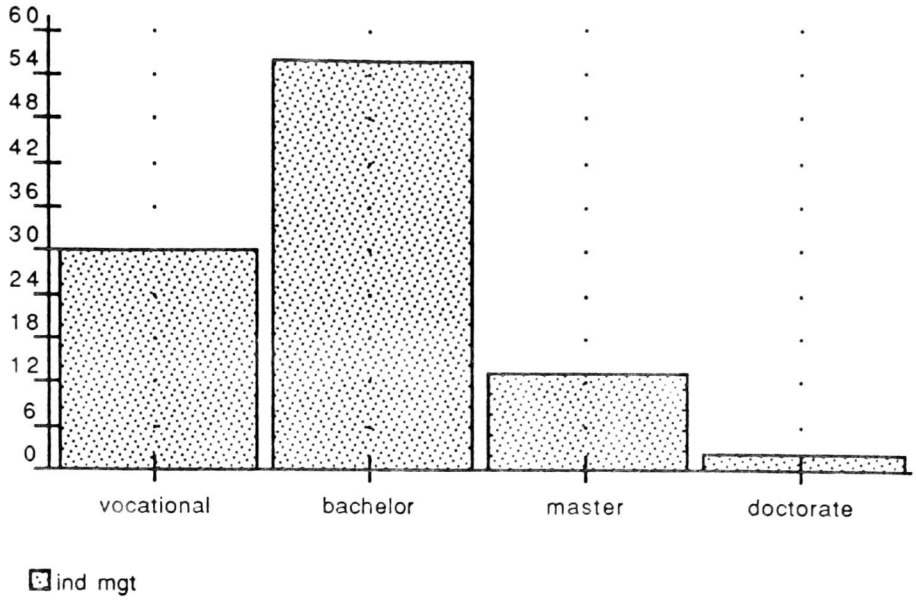


Figure 12 - Level of education or training in industrial management necessary for managers

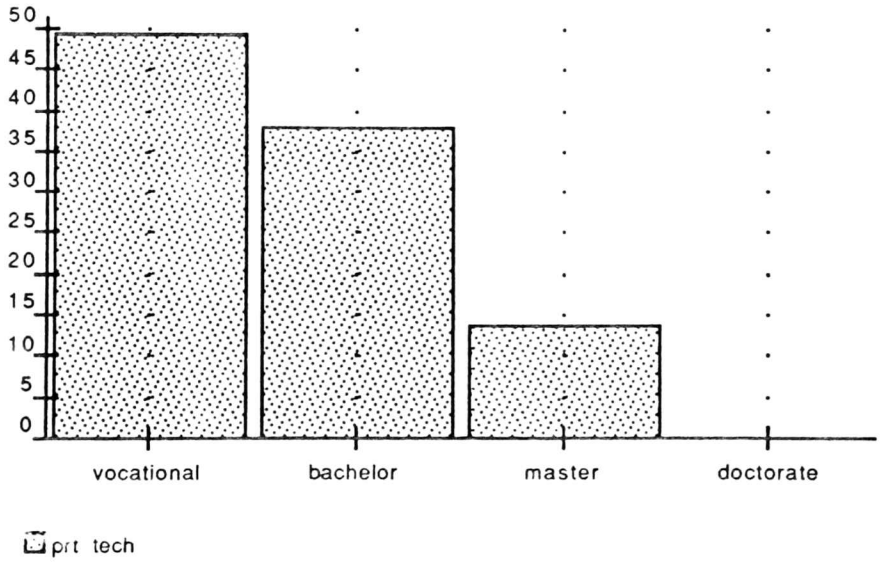


Figure 13 - Level of education or training in printing technology necessary for managers

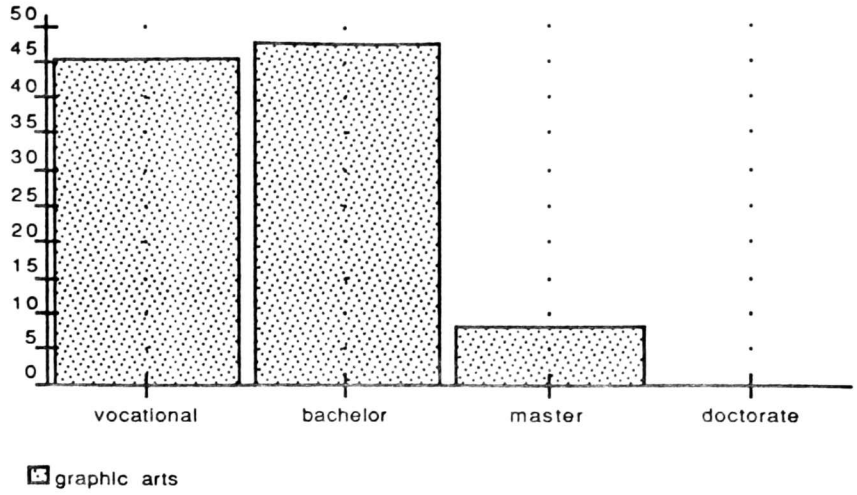


Figure 14 - Level of education or training in graphic arts necessary for managers

Figures 15 through 19 answer research question #6 which provides information concerning what level of education or training the industry currently requires for prepress workers. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Vocational	1
Bachelor degree	2
Master's Degree	3
Doctorate	4

The frequency of the response was transposed into a valid percent. The areas of educational background charted below were ranked by the respondents according to the level of education necessary. In the area of computer technology, the respondents ranked the highest educational level to be vocational or technical training at 85.2%. The area of fine or commercial art was ranked highest in the area of vocational or technical training at 67.9%. The industrial management area was ranked highest in the vocational or technical training area at 88%. Printing technology was ranked highest in vocational or technical

training at 77.4%. And finally, the graphic arts area was ranked highest in the vocational or technical training area at 78.2%.

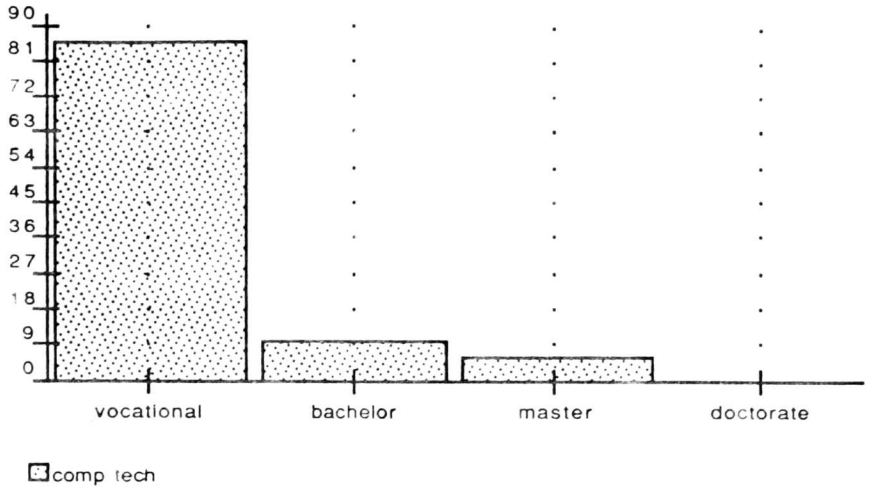


Figure 15 - Level of education or training in computer technology necessary for workers

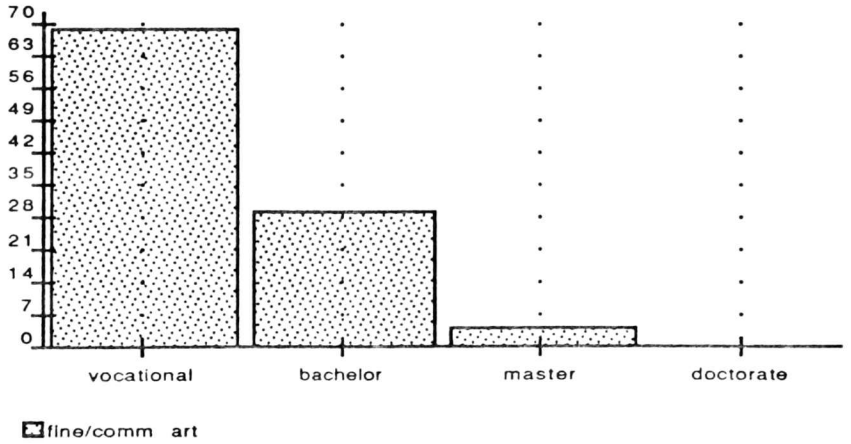


Figure 16 - Level of education or training in fine arts or communication arts necessary for workers

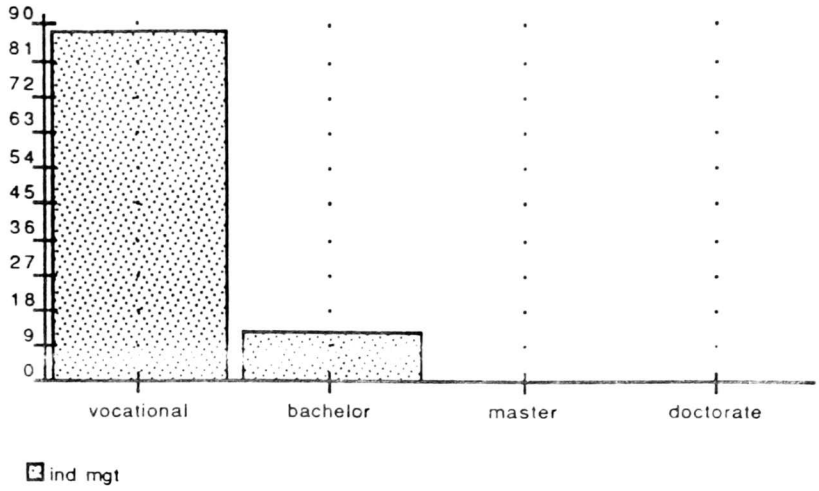


Figure 17 - Level of education or training in industrial management necessary for workers

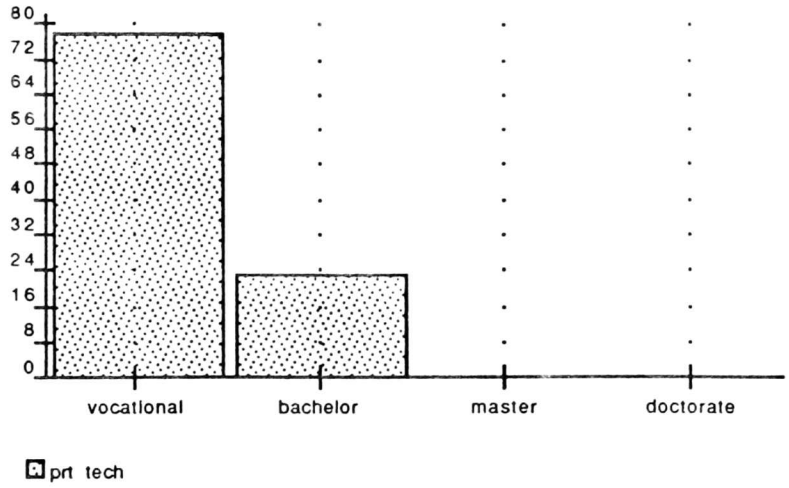


Figure 18 - Level of education or training in printing technology necessary for workers

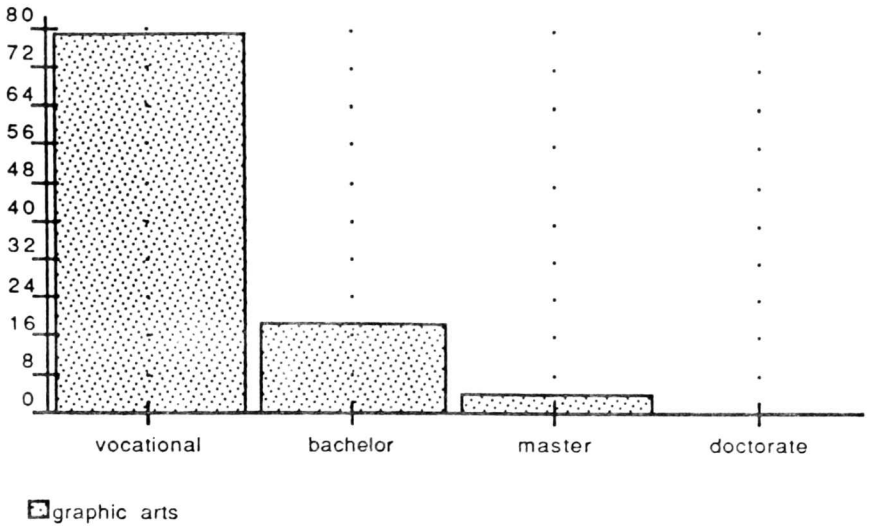


Figure 19 - Level of education or training in graphic arts necessary for workers

Figure 20 answered research question #7 which provides information concerning what the industry currently recognize as basic fundamental DCI skills that are essential for prepress managers. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

The frequency of the response was transposed into a valid percent. The skills charted below were ranked by the respondents as being very necessary and necessary. Other skills that ranked somewhat necessary or not necessary will not be used in future charts. Experience in desktop color imaging was ranked the highest at 49.1% while knowledge of software applications was second at 48.2% and skilled operator in desktop color imaging equipment was ranked third at 33.9%.

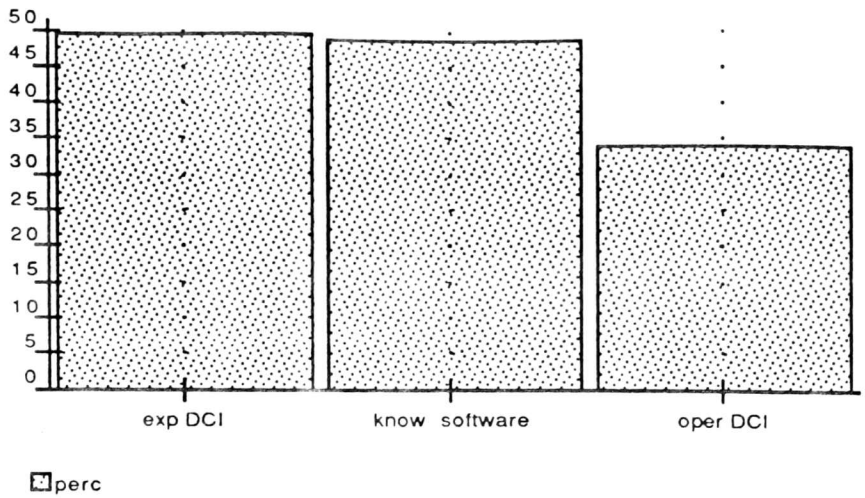


Figure 20 - Basic fundamental DCI skills that are essential for prepress managers

Figure 21 answered research question #8 which provides information concerning what the industry currently recognize as basic fundamental DCI skills that are essential for prepress workers. The information gathered was derived from the likert scale. The responses were rated according to values from 1 to 4. Those values were represented as follows:

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

The frequency of the response was transposed into a valid percent. The skills charted below were ranked by the respondents as being very necessary and necessary. Other skills that ranked somewhat necessary or not necessary will not be used in future charts. Skilled operator in desktop color imaging equipment was ranked highest at 55.8% while knowledge of software applications ranked second at 48.1% and experience in desktop color imaging ranked third at 45.1%.

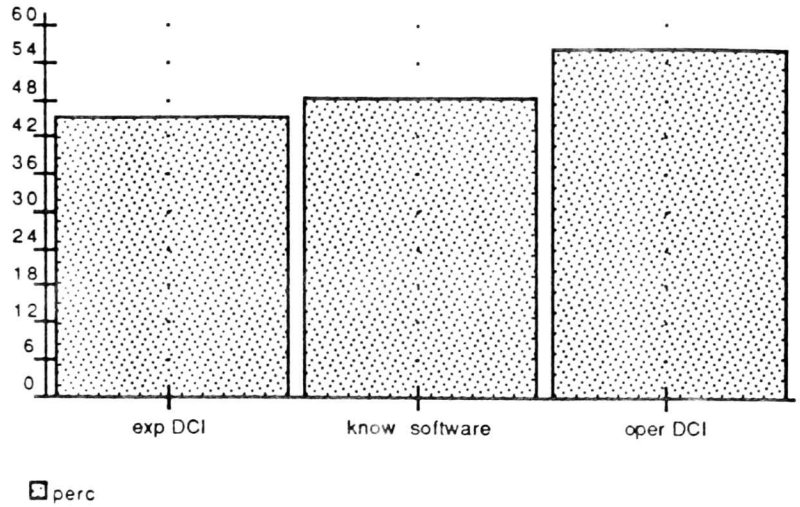


Figure 21 - Basic fundamental DCI skills that are essential for prepress workers

Figure 22 answered research question #9 which shows what training is being utilized by the industry for upgrading personnel skills to provide for continued employment in the area of prepress. The frequency of the response was transposed into a valid percent. Many of the respondents offered several different types of training. This area of the survey allowed the respondent to "check all that apply." On the job training was ranked highest with a response rate of 58.3% or 60 respondents. Other skills were ranked as follows: outside consultant 30.1% or 31 respondents, manufacturer school 27.2% or 28 respondents, video 22.3% or 23 respondents, and technical school 12.6% or 13 respondents. Other areas were rated below 10% response which is shown on the next page.

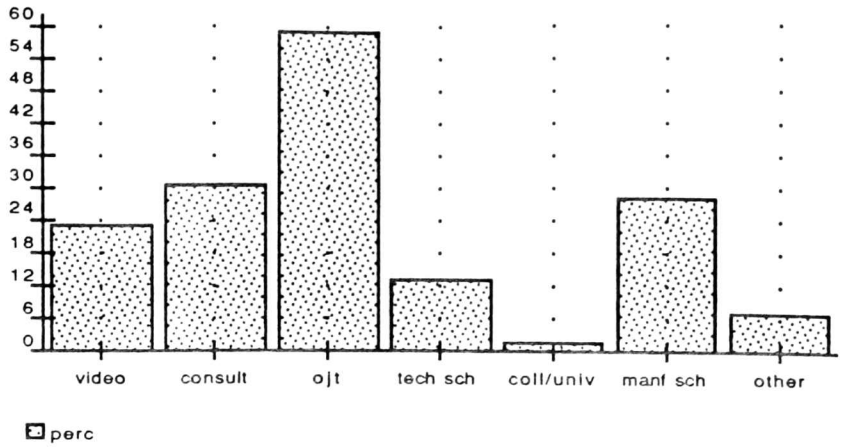


Figure 22 - Training for upgrading prepress personnel skills

Figure 23 answered research question #10 which shows what training is being utilized by the industry to reposition prepress employees that have been displaced by implementation or upgrading prepress areas with modern DCI types of equipment. The frequency of the response is provided below. The results from this area were not translated into a valid percent. The information was more valuable to the results as the number of responses. The most frequently used type of training utilized for displaced worker is by far on the job training with 22 responses. The other types of training which were of significance were outside consultant with 11 responses, manufacturer's school with 11 responses and video with 10 responses. The other types of training had responses below 10 and are shown below.

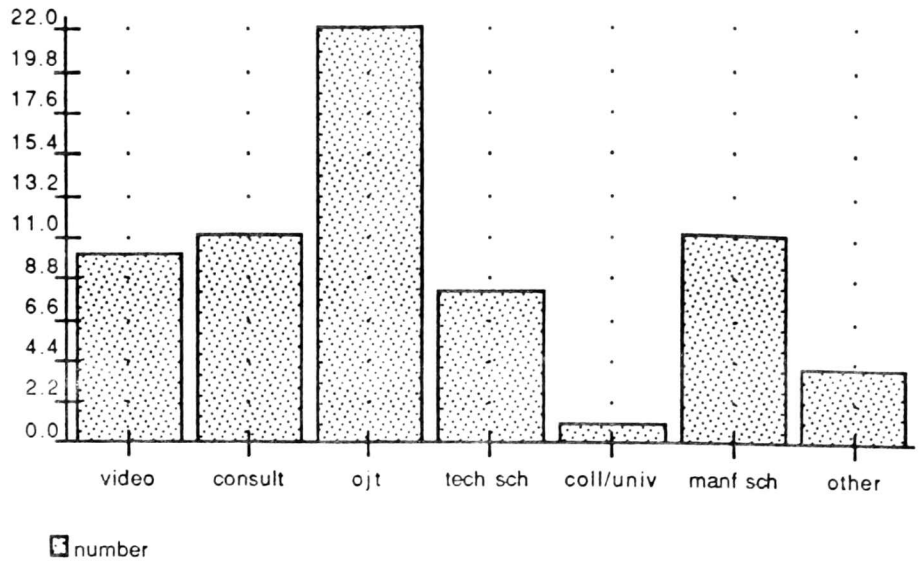


Figure 23 - Training for displaced workers

Summary

The purpose of this chapter was to present the results and findings of the questionaire which was mailed to 300 businesses/printers in Georgia. This study determined what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The study addressed which traditional prepress skills would be essential, which would become obselete and which desktop color imaging skills would become essential. The study provided information concerning the need for upgrading management and worker skills and education, retaining technically competent employees and repositioning technologically displaced workers. With the use of the statistical package known as SPSSx, each of the research questions were answered sufficiently. The summary, conclusions, and recommendations of the study will be made in Chapter V.

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS AND SUMMARY

Introduction

How the printing and publishing industry will handle the implementation and outcome of desktop color imaging (DCI) will depend on its desire and ability to motivate managers and workers into higher production and higher profits. Clearly the impact of DCI has become a major issue with respect to job skill improvement of prepress employees. The determination of DCI's impact on prepress job skills and knowledge will reveal information that the industry desires to survive in a rapidly changing prepress environment.

Chapters I through IV of this study dealt with the introduction, review of literature, methodology and analysis of this research. This chapter restates the problem, purpose, and objectives of the study. A brief discussion and conclusions based upon the findings follow each objective. Finally, the chapter summarizes results, presents conclusions, and makes recommendations.

Restatement of the Problem

The problem of the study is to determine the essential prepress personnel skills for desktop color imaging.

Restatement of the Purpose

The purpose of the study is to determine what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The study will provide information concerning the need for upgrading management and worker skills and education, retaining technically competent employees and repositioning technologically displaced workers.

Conclusions

For managers the most necessary traditional skills were work planning and scheduling and written and verbal communications. Other skills were ranked accordingly: Manufacturing order entry and scheduling, supervisory skills in working with designers and pasteup artists, excellent color sense, understand color separation and correction procedures, specialized training in electronics, and electronic maintenance and photographic science.

The most obselete traditional management skills were ranked as follows: accomplished typing skills, both speed and accuracy, experience in design and mechanical art, skilled operator on one or more of the typesetting systems, and an in-depth knowledge of typography and type faces.

For management desktop color imaging skills, experience in desktop color imaging was ranked the highest while knowledge of software applications was second and skilled operator in desktop color imaging equipment was ranked third.

The management educational level was identified according to the level of education necessary in different areas. In the area of computer technology, the educational level of vocational or technical training was ranked the highest. The area of fine or commercial art was ranked highest in the area of vocational or technical training. The industrial management area was ranked highest in the bachelor's degree area. Printing technology

was ranked highest in vocational or technical training. And finally, the graphic arts area was ranked highest in the bachelor's degree area.

The skills that were rated as the most important worker skills were experience in design or mechanical art, and an in-depth knowledge of typography and type faces. The other skills were ranked as follows: excellent color sense, complete understanding of color separation and correction procedures, skill in work planning and scheduling, skilled operator on one or more of the typesetting systems, written and verbal communications, and accomplished typing skills, both speed and accuracy.

The obselete traditional worker skills were identified as follows: manufacturing order entry and scheduling and aptitude or specialized training in electronics, electronic maintenance and photographic science.

For worker desktop color imaging skills, being a skilled operator in desktop color imaging equipment was ranked highest while knowledge of software applications ranked second and experience in desktop color imaging ranked third.

The worker educational level was identified according to the level of education necessary in different areas. In the area of computer technology, the respondents ranked the highest educational level to be vocational or technical training. The area of fine or commercial art was ranked highest in the area of vocational or technical training. The industrial management area was ranked highest in the vocational or technical training area. Printing technology was ranked highest in vocational or technical training. And finally, the graphic arts area was ranked highest in the vocational or technical training area.

The training which is being utilized by the industry for upgrading personnel skills to provide for continued employment in the area of prepress were ranked by the respondents. On the job training was ranked highest while other skills were ranked as follows: outside consultant, manufacturer school, video, and technical school.

The training which is being utilized by the industry to reposition prepress employees that have been displaced by implementation or upgrading prepress areas with modern DCI types of equipment were identified by the respondents. The most frequently used type of training utilized for displaced worker is by far on the job training. The other types of training which were of significance were outside consultant, manufacturer's school and video.

Recommendations

The findings and conclusions of this study generated the basis for the following recommendations. The recommendations are presented in two parts. The first part contains recommendations based on the findings and conclusions; the second part offers recommendations for further research related to this study.

Recommendations based on the findings and conclusions

1. The printing and publishing industry needs to have an up-to-date publication identifying the skills and educational level for all prepress positions with the advent of modern desktop color imaging procedures.

2. There is a need to identify training for upgrading personnel skills to provide for continued employment in the area of prepress. Currently there are many forms of training being utilized and based upon the findings of the study. The company should be able to identify the proper method for it's employees based upon cost and need.

3. Many employees are concerned about becoming displaced by the implementation of desktop color imaging equipment. There is a need to identify those skills in prepress which will become obselete and retrain those individuals according to the type of training the company finds applicable to their employees.

4. Schools must reflect changes in curriculum based on technological changes to meet the emerging and prevalent industrial practices.

5. Given the changing nature of the industry, surveys must be conducted regularly to determine needs in the printing and publishing industry.

6. Given that the industry is in need of educated individuals, a survey must be conducted to identify the areas of printing and publishing that need improvements. This survey should also address which individuals, managers and/or workers, and the level of education necessary.

7. The survey results indicated that the Prepress Manager strongly supported vocational education. A study should be done to identify what other managers might indicate.

Recommendations for further studies

1. A similar study can be conducted cover a different geographical area. Further studies need to be conducted to see whether the findings in this study can be generalized to other populations beyond the state of Georgia.

2. This study can also be conducted using graphic arts educators to see how their perceptions about prepress personnel skills compare with the industries perceptions.

3. Further investigations are needed to determine what skills are necessary in other rapidly changing areas of the printing and publishing industry.

4. Further investigations are needed to determine what the role of the university/college would become as a result of desktop color imaging as it relates to training.

5. Other investigations could be designed to ask the opinion of upper level managers within the company.

Observations

The observations which the researcher made concerning the study related to the responses of the Prepress Manager as related to educational level of the prepress manager and worker. The results of the study relating to this issue could be based upon the perception of the individual's educational level and level of management within the company.

Summary

A review of literature was conducted and reported. This review presented information on the following areas: the impact of the microcomputer on the printing and publishing industry, prepress job skills, and future implications of desktop color imaging.

The questionaire consisted of eighteen questions including Likert four-point and closed ended questions. Demographic information regarding the type of company, gross sales per year, total number of employees, and number of prepress employees were questioned to better understand the sample population which was surveyed. Questions regarding the objectives of the study were included as well. The sample population consisted of 300 randomly selected members of the Printing Industries Association of Georgia. The questionaires were returned by 34% of the companies surveyed.

The findings of the study were based upon the statistical program of SPSSx which is design for social statistical research. The frequency at which the each question were answered was determined by this program which revealed what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The study provided information concerning the need for upgrading management and worker skills and education, retaining technically competent employees and repositioning technologically displaced workers.

APPENDIX A

SURVEY INFORMATION

(All Items Reduced 85%)

ACADEMIC EXCELLENCE
GEORGIA SOUTHERN UNIVERSITY

DEPARTMENT OF INDUSTRIAL TECHNOLOGY
GEORGIA SOUTHERN UNIVERSITY
LANDRUM BOX 8046
STATESBORO, GEORGIA 30460-8046
TELEPHONE: (912) 681-5761

APPAREL MANUFACTURING
BUILDING CONSTRUCTION AND CONTRACTING
INDUSTRIAL MANAGEMENT
PRINTING MANAGEMENT

October 11,1991

Iva Fowke
Landrum Box 8046
Georgia Southern University
Statesboro, Georgia 30460

Dear Prepress Department Manager:

I am currently a graduate student at Georgia Southern University preparing a thesis for the Master of Technology degree with a major in Printing Management. The purpose of the study is to forecast what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods. The study will provide information concerning the need for upgrading management and worker skills, retaining technically competent employees and repositioning workers displaced by new prepress technologies.

I am requesting your help in gathering data which is essential for this study. Enclosed is a short questionaire pertaining to your prepress employees' skills and knowledge which are necessary to perform job functions. Only a few minutes are needed to complete it. Please answer and return the form in the self addressed stamped envelope by October 25, 1991.

All responses will be kept confidential. The report will group all responses so that no individual will be identified. Your assistance will be greatly appreciated.

Sincerely,

Iva Fowke
Graduate Student

Dr. Keith Hickman
Major Professor

ACADEMIC EXCELLENCE
GEORGIA SOUTHERN UNIVERSITY

DEPARTMENT OF INDUSTRIAL TECHNOLOGY
GEORGIA SOUTHERN UNIVERSITY
LANDRUM BOX 8046
STATESBORO, GEORGIA 30460-8046
TELEPHONE (912) 681-5761

APPAREL MANUFACTURING
BUILDING CONSTRUCTION AND CONTRACTING
INDUSTRIAL MANAGEMENT
PRINTING MANAGEMENT

October 28,1991

Iva Fowke
Landrum Box 8046
Georgia Southern University
Statesboro, Georgia 30460

Dear Prepress Department Manager:

You recently received a questionaire concerning what desktop color imaging skills will be essential as a result of the transition from mechanical color prepress methods to desktop color methods.

I wish to remind you of the importance of this study if you have not returned your questionaire. It will provide essential information to the industry as well as educational institutions concerning the need for upgrading management and worker skills, retaining technically competent employees and repositioning workers displaced by new prepress technologies. If you have returned your questionaire, please disregard this information.

I have enclosed another copy for you to complete at your convenience. Your response is extremely important because only you can supply this valuable information. Only a few minutes of your valuable time are needed to complete it. Please answer and return the form in the self addressed stamped envelope by November 15, 1991.

All responses will be kept confidential. The report will group all responses so that no individual will be identified. Your assistance in this matter will be greatly appreciated.

Sincerely,

Iva Fowke
Graduate Student

Dr. Keith Hickman, Head
Major Professor
Industrial Technology Department

Survey For:

The Impact of Desktop Color Imaging on Prepress Personnel Skills

By Iva Fowke
Candidate for Master of Technology Degree
Printing Management Program
Department of Industrial Technology

Georgia Southern University
October 1991

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1. Please indicate the type(s) of graphic arts operations of your firm (Check all that apply):

___ Commercial Printing	___ Specialty Printing	___ Book Printing
___ In-Plant Printing	___ Paper Box/pkg/converter	___ Quick Printing
___ Newspaper	___ Trade Service	___ Business Forms
___ Publications Printing	___ Manufacturer/ Dealer	___ Other_____

2. Does your firm have a prepress department?

☐ yes — If yes, please go to question #3

☐ no — If no, please skip to question #16

3. Does your firm have microcomputers that are being used in the prepress area?

☐ yes — If yes, please go to question #4

☐ no — If no, please skip to question #6

4. Read each item below and indicate its relative importance in the area of prepress as it relates to management and worker skills.

Not Necessary	1
Somewhat Necessary	2
Necessary	3
Very Necessary	4

(Please Circle Your Responses)

	Management Skills				Craft/ Worker Skills			
Computer Skills								
Computer programming	1	2	3	4	1	2	3	4
System analysis	1	2	3	4	1	2	3	4
Experience in desktop color imaging	1	2	3	4	1	2	3	4
Knowledge of software applications	1	2	3	4	1	2	3	4
Skilled operator in desktop color imaging equipment	1	2	3	4	1	2	3	4
Design Skills								
Experience in design or mechanical art	1	2	3	4	1	2	3	4
In-depth knowledge of typography and type faces	1	2	3	4	1	2	3	4
Excellent color sense	1	2	3	4	1	2	3	4
Management Skills								
Proven supervisory skills in working with designers and pasteup artists	1	2	3	4	1	2	3	4
Strong skills in work planning and scheduling	1	2	3	4	1	2	3	4
Mechanical or Preparatory Skills								
Complete understanding of color separation and correction procedures	1	2	3	4	1	2	3	4
Aptitude or specialized training in electronics, electronic maintenance and photographic science	1	2	3	4	1	2	3	4
Typesetting Skills								
Skilled operator on one or more of the typesetting systems	1	2	3	4	1	2	3	4
Accomplished typing skills, both speed and accuracy	1	2	3	4	1	2	3	4
Other Skills								
Written and verbal communications	1	2	3	4	1	2	3	4
Experience in manufacturing order entry and scheduling	1	2	3	4	1	2	3	4
Other, please Specify_____	1	2	3	4	1	2	3	4

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5. Please indicate the level of education or training your company feels necessary for management and craft/ workers in the specified areas.
(**please answer and go directly to question #9**)

Vocational or Technical training	1
Bachelor's degree	2
Master's degree	3
Doctorate degree	4

	Management				Craft/ Worker			
Computer Technology	1	2	3	4	1	2	3	4
Fine or Commercial Art	1	2	3	4	1	2	3	4
Industrial Management	1	2	3	4	1	2	3	4
Printing Technology	1	2	3	4	1	2	3	4
Graphic Arts	1	2	3	4	1	2	3	4
Other, please specify_____	1	2	3	4	1	2	3	4

Go to Question #9

6. If you are not currently utilizing the computer in the prepress area, do you plan to purchase the necessary equipment?

☐ yes ☐ no

7. We plan to purchase the following equipment: (Check all that apply)

___ Color Computer
___ Flatbed Color Scanner
___ Color Electronic Prepress Systems
___ Color copier
___ B & W Scanner
___ Prepress Composition Equipment
___ Other _____

8. We Plan to purchase this equipment:

___ Immediately ___ 3 Months ___ 6 Months ___ 12 Months

9. If you utilize computers in the prepress area, have you eliminated positions or anticipate the elimination of positions?

☐ yes ☐ no

10. Have you combined prepress skills of one or more positions to create new positions?

☐ yes ☐ no

11. How do you currently train your staff for computer applications? (Check all that apply)

___Video
___Outside Consultant
___On the Job Training
___technical school
___Community college or university
___manufacturer's school
___Other_____

12. Do you anticipate that desktop color imaging will cause some of your employees to become displaced?

☐ yes ☐ no

13. Will your firm expect "future" prepress employees to come to your company with mechanical color prepress skills as well as desktop color skills?

☐ yes ☐ no

14. Would your firm hire a job applicant with only mechanical color prepress skills?

☐ yes ☐ no

15. Would your firm hire job applicant with only desktop color skills?

☐ yes ☐ no

16. Gross sales per year:

___$500,000 - less
___$500,000 - 1,000,000
___$1,000,000 - 5,000,000
___$5,000,000 - 10,000,000
___$10,000,000 - 20,000,000
___$20,000,000 - more

17. Total number of employees:

___0-3
___4-10
___11-15
___16-20
___21-30
___31-40
___41-50
___50-over

18. Number of employees working in prepress area:

___0-3
___4-10
___11-15
___16-20
___21-30
___31-40
___41-50
___50-over

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*All responses will be kept confidential. The report will group all responses so that no individual will be identified. Your response and assistance in this matter are greatly appreciated.

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Iva Fowke

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DEPARTMENT OF INDUSTRIAL TECHNOLOGY
GEORGIA SOUTHERN UNIVERSITY
LANDRUM BOX 8046
STATESBORO, GEORGIA 30460-8046

APPENDIX B

CORRESPONDENCE WITH:
PIAG AND PANEL MEMBERS

December 26, 1990

Iva Fowke
Landrum Box 18051
Georgia Southern University
Statesboro, Georgia 30460

Mr. Jim Sprouse
Printing Industry Assoc. of Georgia
5020 Highlands Parkway
Smyrna, Georgia 30082

Dear Mr. Sprouse:

Enclosed is the information pertaining to my thesis which covers the effects of digital color imaging in Georgia upon small printers within the next five years. I am currently gathering information on the subject and constructing a questionaire which will be used to provide the needed information to complete the study.

I would greatly appreciate your assistance to provide the data needed to send the questionaires to small printers in Georgia, such as mailing information and demographics. As mentioned in a previous conversation, you had stated that small printers were approximately 70% of your membership. Due to your knowledge of small printers in Georgia, I would like for you to review the information which I have enclosed in order to offer any suggestions or information which you feel necessary for the study.

If you have any further questions, please contact me at (912) 681-6362. I will be more than happy to meet with you at your convenience if you wish to discuss this matter in greater detail. I look forward to any suggestions which you may have and thank you for your assistance.

Sincerely,

Iva Fowke

cc: Dr. Jim Holmes

March 27, 1991

Iva Fowke
Landrum Box 18051
Georgia Southern University
Statesboro, Georgia 30460

Mr. Jim Sprouse
Printing Industry Assoc. of Georgia
5020 Highlands Parkway
Smyrna, Georgia 30082

Dear Mr. Sprouse,

The past several months have been very busy for me, and I imagine they have been very busy for you. After writing a paper for Print Production '91 on Digital Color, I received a $1500 scholarship and an all expense paid trip to the conference in Chicago. While at the conference, I learned a great deal about my thesis topic.

I am very eager to continue my study with PIAG's assistance. I would like to follow up on the information sent to you on December 26, 1990 concerning a database for the questionaire. Please contact me as soon as possible with any information due to the timeliness of completing my thesis.

The telephone number at which I can be reached is (912) 681-6362 (home) or Dr. Holmes work number (912) 681-0334. I will be more than happy to meet with you at your convenience if you wish to discuss this matter in greater detail. I look forward to any suggestions which you may have and thank you for your assistance.

Sincerely,

Iva Fowke

cc: Dr. Jim Holmes

May 25, 1991

Iva Fowke
Landrum Box 18051
Georgia Southern University
Statesboro, Georgia 30460

Mr. Dave Ebel
3E Lithographing Company
3441 North Ridge Avenue
Arlington Heights, Illinois 60004-1413

Dear Mr. Ebel:

Thank you very much for your interest in my thesis pertaining to the impact of technological change on prepress personnel over the next five years. As a result of our last conversation, I spoke to my committee members about your participation on the committee as an expert in digital color prepress. The members expressed interest in your involvement and requested a brief biographical sketch of your experience to submit to the graduate school.

This information is a requirement of each member of a thesis committee by the graduate school. At your convenience, please mail this information to the above address.

If you have any questions, please contact me at (912) 681-6362. I look forward to working with you and thank you for your assistance.

Sincerely,

Iva Fowke

cc: Dr. Jim Holmes

July 28, 1991

Iva Fowke
Landrum Box 18051
Georgia Southern University
Statesboro, Georgia 30460

Mr. Dave Ebel
3E Lithographing Company
3441 North Ridge Avenue
Arlington Heights, Illinois 60004-1413

Dear Mr. Ebel:

Thank you very much for your brief biographical sketch of your experience. I am very impressed by your qualifications and welcome your knowledge and expertise in the area of desktop color imaging. Please review the enclosed copy of my thesis overview at your convenience.

As an expert in this area, your assistance will be needed in the validation of my survey which will be sent to a population of printers. As my study progresses, I will be forwarding the necessary information to you for your approval.

If you have any questions, please contact me at (912) 681-6362. I look forward to working with you and thank you for your assistance.

Sincerely,

Iva Fowke

cc: Dr. Jim Holmes

July 30, 1991

Iva Fowke
Landrum Box 18051
Georgia Southern University
Statesboro, Georgia 30460

Mr. Bob Jose
Agfa Corporation

Dear Mr. Jose:

After my wonderful experience at Print Production '91 in Chicago, I have been diligently working on my thesis. The topic I will be addressing is the impact of desktop color imaging on prepress personnel skills over the next five years.

A major part of the study will be involving a survey of printers and publishers in the industry. In order to validate the survey to provide the needed results, I will need to consult industry experts. After meeting you in Chicago, I would like to involve you as one of my industry experts. I feel that your involvement would be very beneficial to my thesis.

I have enclosed a copy of an overview of my thesis for you to review and will be mailing you a copy of the questionaire as soon as I complete it. If you have any questions please feel free to contact me at (912) 681-7411 or at work (912) 681-5761. I look forward to working with you and thank you for your assistance.

Sincerely,

Iva Fowke

cc: Dr. Jim Holmes

AGFA

VOICE MAIL: 1800-447-3434 Ext. 7730 (24-hour coverage)

OFFICE TELE: 713-470-1709

Agfa Corporation
100 Challenger Road
Ridgefield Park NJ 07660

NJ (201) 440-2500
NY (212) 971-0260

AGFA Compugraphic Print Media # (713) 471-2303 (FAX #)
La Porte, TX

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(This sheet is transmitted with your copy.)

DO NOT STAPLE PAPERS TOGETHER!

Date: Oct. 5th 1991

TO: Georgia Southern Univ. (Company/Location)
Name: Iva Fowke/Graduate Student.
Dept.: Eng. Technology
FAX #: (912) 681-0537 (if overseas, give country code)

FROM: Agfa Compugraphic - La Porte, TX
Name: Bob Jose
102 Jefferson
La Porte, TX 77571

Pages of Transmission: -6- (including this page)

MESSAGE: Dear Iva: I'm sure that this will not be what you had hoped for..or expected..as I have no desire to just pat you on the back..(although you deserve a pat or two)..and just blindly send you out on the streets to find out what the "REAL" world is all about. With 21-years in both pressroom and management at Meredith's in Des Moines, Iowa..another 8-years heading up a position in the World Color plants, for a major publisher..and the rest of my 40-years in the business..with 3M and AGFA in a Print Media Position..calling on major agencies, publishers, trade shops..and printers..all over the U.S.A...I've learned to tell it like it is.. and try to help others "Get in" and make their own marks in the Graphic Arts...so on the following you will find that I ramble a little..BUT..please listen to the overall theme..which is: "THE MAIN SKILLS YOU NEED ARE COOMUNICATIONS..AND.. NETWORKING WITH OTHERS."

IVA POWER/10/5/91...From: Bob Jose.

AS NOTED:WILL JUST RAMBLE A LITTLE AND HIT ON DIFFERENT SUBJECTS THAT MIGHT WELL HELP YOU!!

BIG ONE: You had noted several weeks ago that you wanted to send something through to me..and I had been ready...

In the meantime I hosted a major meeting for publishers and agencies in Antwerp, Belgium..came home for four days..and jumped on a plane for Scottsdale Arizona..to moderate a panel on..(of all things)... QUALITY COMMUNICATIONS..at the G.C.A./Spectrum program.

Next week I haed up a session in Cincinnati at the Association of Graphic Arts Trainers..then on to the St. Louis Post Dispatch to help them put together a Quality Control program..(They have NONE) and lastly..speak on the subject of How To Give A Color O.K. for the St. Louis Ad Club.. The next week it's out to California to head up a program for the Printing Industries of Northern Calif.

None of this is to wave my flag..nor promote my ego..RATHER it's to point out that I had waited several weeks for your information.. and when I got it..was in Arizona..and you put a time limit of two days for me to return it.!!

For Quality Communications in the Graphic Arts..and to gain co-operation from others..you must make your information known quickly..and give them a great deal of time to give you a fair and just critique

On that same note..I had returned your calls right away..had talked to someone in your offices..and had sent through a FAX..trying to point out the above..all to little avail.

WHEN YOU MAKE A CONTACT..in the Graphic Arts..keep in mind that we are..(at this time more than any other in those 40-years) out working our fool heads off..trying to keep business alive and jumping.

Printing plants are going under..trade shops are merging//and/or going under..publishers are folding up..and agencies are running off in several directions trying to hold together..and stay alive.. S-o-o-o-o when you can get someones attention you have to move at their pace..NOT..at the pace of a University..that has few time limits. "IF" you think you are under the gun now..then run three times faster and you will just start to understand the market as it

In recent months I've spoken to grads at several universities..the National Business Techers Association, etc.etc. and the one common thing I find is that COUNCELORS are the enemy!! Counselors are telling students things like.."You will start out in middle management"..and.." You should start out at 35-to 45 thousand a year.."

Councelors are telling the students..that they only need to know the electronics..and we are finding people who do not at all know the basics of printing..of paper..of what they need to know in dealing with suppliers.

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To impress the lack of training..on the part of most universities. let me tell you about a "REAL LIFE" situation.

The LEO BURNETT agency is one of the largest in the United States.

I received a call from BERT IWINSKI..Sr. V.P. of Production..and the conversation went like this:

"Bob..do you still do those BASIC programs on production.."

"Sure do BERT..what did you have in mind?"

"Over the past two years I've hired some of the best students available from R.I.T...Clemson..Stout,,etc.etc. and you put them in front of a screen..with a mouse in their hands..and they can do things you would not believe..they are fantastic..BUT..."

"But..what BERT?"

"They have no idea how to deal with suppliers..They do not know how to follow up and give color O.Ks on webs..or even sheetfed.. I send them out to tour a printer..or a trade shop..and they never seem to ask the right questions..They can tell me how many megabyte they saw on some equipment..BUT..they have no idea if the printer or trade shop is capable of doing the job..they simply do not know how to communicate!!!!"

At the meeting [redacted] he turned out 48-people..and the creative art director for Burnett.. What was to have been two hours..turned into four hours of questions and answers..like:

"What's an in-line??" "How do I know if my printer is lying??" "What's a progressive proof??" (Remember most of them grew up only dealing with photomechanical proofs..)

"Why do the same things..like TRAP..mean one thing to the printer.. and something else to electronics people?"....and on and on.

What I'm finding..all over the country is that in the past ten years the PEER TRAINING..and or GOOD OLD BOY training of people moving up in the trade came to a halt.

Ten years ago..two things happened that changed the Graphic Arts forever..#1..Computer Nerds moved into a craft trade..and because they did not understand the craft they started their own language and ignored the man in the bib-overhauls with ink all over his hands..It's taken ten years to get the two groups to talk to each other.

The other thing that happened ten years ago was women!!!!

If you attended a major Graphic Arts meeting..ten years ago, and there were 100 people there..5-were women..the rest were men.

Today at that same meeting 60 are women..and 40 are men.

You ladies are smarter and quicker than us old folks..BUT..you have not learned how to NETWORK..or work in teams like men. Your basic reaction is.."MOTHER..I'D RATHER DO IT MYSELF!!"

Because of this women all over the country are re-inventing the wheel on problems..fighting battles that others have solved..and all the time thinking men are trying to hold them back..NOT SO..in most instances..but..the ladies are slow to get on to how do I get my information on this problem.

Men will pick up a phone and call others who have the information ..women will tend to work out their problems in their own way..and in doing so become frustrated.

NICE LADY..I could go on like this for dozens of more pages..talki about things that I run into..as my lot in life is that of a proble solver..and educator..and I get more problems thrown my way than you would ever believe..and in most instances I give them answers.. or ways to get those answers.... Very often I solve a problem for someone..by simply telling them how others..in another part of the country solved the problem..I'm more of a COMMUNICATIONS CENTER than a smart person..'cause I know how dumb I really am..HOWEVER.. I've learned how to NETWORK with smart people.

LET'S GO TO YOUR SURVEY:

1.) It's great..but..do not expect a big return..as you are asking very busy people to give you some in-depth information on many subjects for which they are not qualified to answer.

2.) The trick in this type of survey..is in getting to the right people..and the right people..(more often than not) are not the ones listed by the company. WHAT DOES THAT MEAN:??? Within every organization there is a formal line of managemen and an informal line..more often than not the "INFOMAL" power base is where you get information. NEVER go to personel departments..even for a job..as these people simply process forms and fill out insurance papers..in the main they do not know the business. PRE-PRESS MANAGERS are your friends..use them. Plant Managers think about dollar returnes in 30-days and will sluff off your requests for information. Quality Control Managers are your friends..as they always want input.

3.) Most of the questions you have asked..have been done and do again...Do yourself a favor..RIGHT NOW..AND CALL:

MICHAEL SCHEIBACH..or MIKE KREITER the owners of South Wind Publications..("Magazine Design and Production..and PRE-Magazines...) at (913) 642-6611 ----------

Start your remarks off..with "BOB JOSE..told me to call you and ask for your help on this project I'm doing...etc.etc."

What you will find is that they just sent out a similiar SURVEY to over 1,000 major buyers and specifiers all over the USA.

My next suggestion would be for you to FAX your forms to them..and ask that they FAX they questionaire to you..and when you get done with them..make sure they know your name well..and that they become part of IVA'S NETWORK for the future.

Tell you what..write it all down and they will publish an article for you in one of their magazines..THAT'S how you get your name out in the industry..and that's how you get others networking with you.

4.) Your questions..lead me to believe that you are not thinking about the buyers..(Agencies..publishers..major in-house producers..catalogs..etc.etc.) but..rather they are geared to the guys who run the black boxes.. That's fine..if that's where you want to end up..BUT..there are many parts to the Graphic Arts chain..and to "REALLY" grow and understand this industry..you must know each of these links...NOT BE AN EXPERT..simply know what they do in their daily tasks.

IVA...at one time I thought I was the smartest guy in the Graphic Arts..then I saw that I'm really not too smart at all..but..have learned to rely on friends..who are smart...and we pool our knowledge to work together. You do thisthrough conventions..and associations ..get their attendance lists..local ad clubs..local litho clubs.. get in and work with them..get on committees..make presentations.. and in the end you will find your job..no matter what part of the industry you get in..will be much-much easier.

Your questions will dig out a lot of information..if they reply.. and when you get done..you will know very little about the organization itself. Sorrta like knowing what furniture is in the house.. but..not knowing the people who will use the furniture.

I told you this would ramble..and it did..and I'll be very honest with you and tell you I had about two dozen things my company would rather I'd worked on during this time..BUT..your desire to do the job..and do it right..led me to sit down and unload...my thoughts about the Graphic Arts are summed up on the next page----------

Page Five: IVA.

"I'm not what I think I am...

I'm not what I'd hoped I'd be..

I'm not what I should be...

BUT...

By the Grace of God..

I'm not what I was..."

(Tremendous Jones Quote.)

As noted this was not what either you or I had expected..BUT..you gave me only a short time to do it..so rather than pat you on the back..and give you warm fuzzies...thought I'd take the time and give you real world stuff.

You have my best...sic 'em!!!

HAVE A GREAT DAY!!!

Robert(Bob)Jose
AGFA/Print Media.

October 15, 1991

Landrum Box 18051
Georgia Southern University
Statesboro, Georgia 30460

Mr. Bob Jose
Agfa Corporation
102 Jefferson St.
La Porte, TX 77571

Dear Mr. Jose:

Thank you very much for taking the time out of your very busy schedule to comment about my thesis questionaire. Due your vast knowledge and experience in the printing industry, your comments about my questionaire were very useful.

I would also like to apologize for inconveniencing you at such a busy time. I did, however, fax a copy of my thesis overview at the time of our first conversation, and explained how pressing my schedule would be concerning the questionaire. This effort to communicate with you seemed to have failed at that time. I have been working so diligently to complete the information that I seemed to have forgotten about how demanding schedules are in the real world. I have certainly learned a great deal from you concerning the importance of communication.

Once again, I do apologize for any trouble that I may have caused and hope that it will not damage any future relations with you. I have enclosed a copy of the overview and questionaire in its final form so that you can see how your efforts have benefitted my research. I look forward to meeting you again at the National Panel for Electronic Imaging in November.

Sincerely,

Iva Fowke

cc. Dr. Jim Holmes

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