



An historical study of U.S. apparel size labeling  
by Penney Lynn Wiley

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in  
Home Economics  
Montana State University  
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**Abstract:**

Consumers, producers and distributors of apparel in the United States would benefit from clarity and efficiency of size labeling. To be adequate, the current practice must be straightforward in communicating the essential information necessary for the consumer to make an accurate size choice. The result would be efficient marketing of size labeling while providing the consumer with satisfaction and optimal allocation of economic resources. Current efforts by industry to improve sizing has not dealt with the size labeling but rather with manipulations of the size charts. The primary objective of this study was to conduct an historical analysis of size labeling changes within the U.S. apparel industry from 1840 to 1991.

This is an historical study based on the naturalistic approach. A chronology of Men's, Women's and Children's size labeling from Sears & Roebuck, Co. catalogs from 1897 to 1990 was developed for the study. A review of literature from J.C. Penney's, McCall's, government documents, trade journals, popular and professional literature supplement the study and aid in the analysis of the Sears chronology.

Size labeling has remained invalid, unreliable and uninformative about the body measurements they represent.

The exception to this is Men's sizing which has been based on control body dimensions. Although, sizing agencies have made attempts to correct sizing confusion, improved body dimension charts based on a current body measurement study of the general U.S. population would be necessary.

With or without improved body dimension information, apparel sizing could be vastly improved. Incorporating body measurements into all size labels as has always been the case for men's sizing would make size selection more straightforward.

Therefore, this study recommends implementation of a mandatory labeling system depicting a body form pictogram with associated body measurements for the type of apparel being marketed. Mandatory labeling, using body measurements would lead to more reliability of the U.S. apparel industry.

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A thesis submitted in partial fulfillment  
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of

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in

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APPROVAL

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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December 17, 1991  
Date

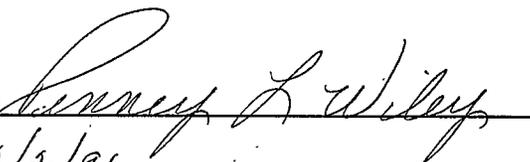
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## ABSTRACT

Consumers, producers and distributors of apparel in the United States would benefit from clarity and efficiency of size labeling. To be adequate, the current practice must be straightforward in communicating the essential information necessary for the consumer to make an accurate size choice. The result would be efficient marketing of size labeling while providing the consumer with satisfaction and optimal allocation of economic resources. Current efforts by industry to improve sizing has not dealt with the size labeling but rather with manipulations of the size charts. The primary objective of this study was to conduct an historical analysis of size labeling changes within the U.S. apparel industry from 1840 to 1991.

This is an historical study based on the naturalistic approach. A chronology of Men's, Women's and Children's size labeling from *Sears & Roebuck, Co.* catalogs from 1897 to 1990 was developed for the study. A review of literature from *J.C. Penney's*, *McCall's*, government documents, trade journals, popular and professional literature supplement the study and aid in the analysis of the *Sears* chronology.

Size labeling has remained invalid, unreliable and uninformative about the body measurements they represent. The exception to this is Men's sizing which has been based on control body dimensions. Although, sizing agencies have made attempts to correct sizing confusion, improved body dimension charts based on a current body measurement study of the general U.S. population would be necessary.

With or without improved body dimension information, apparel sizing could be vastly improved. Incorporating body measurements into all size labels as has always been the case for men's sizing would make size selection more straightforward.

Therefore, this study recommends implementation of a mandatory labeling system depicting a body form pictogram with associated body measurements for the type of apparel being marketed. Mandatory labeling, using body measurements would lead to more reliability of the U.S. apparel industry.

## INTRODUCTION

Clothing is our most intimate environment. It is an unique environment because it is carried or worn everywhere by an individual, creating its own climate within the larger context of an individual's surroundings. The importance of clothing is both functional and social. With regard to function, clothing may be a key factor in regulating an individual's body temperature (e.g. wearing clothing for warmth), and in protection (e.g. flame retardant clothing worn by firemen). With respect to social importance, clothing is important for signaling various roles played by certain individuals in society (e.g. frock worn by a minister).

Because of the importance of clothing in the daily lives of individuals, it is of interest to consider the process involved in the creation of clothing and the attendant underlying problems. For example, apparel sizing is based on sets of body proportions which are communicated to the consumer by a size label. Apparel size labeling is a code which may employ arbitrary titles or numbers for a given compilation of anthropometric measurements. The measurements are for individuals whose body measurements are within the range of body measurements for a particular size (Solinger 1988). Because the labels may represent an

arbitrary code, the body measurements represented by the codes may vary from manufacturer to manufacturer.

Apparel size labeling is as important to the manufacturer of apparel as it is to the consumer buying the garments. This study will focus on an analysis and historical review of apparel size labeling within the U.S. Apparel Industry. The main purpose of this study is to better understand present size labeling practices by examining landmark practices of the past.

The first step in this analysis is to examine the problems of validity and reliability associated with size labeling.

## PROBLEM ANALYSIS

The human body is a three-dimensional arrangement of surfaces which vary in their relative proportions, depending upon the particular individual in question (Solinger 1989). To design and manufacture apparel for groups of people, variability in body proportions must be categorized into discrete measurement intervals.

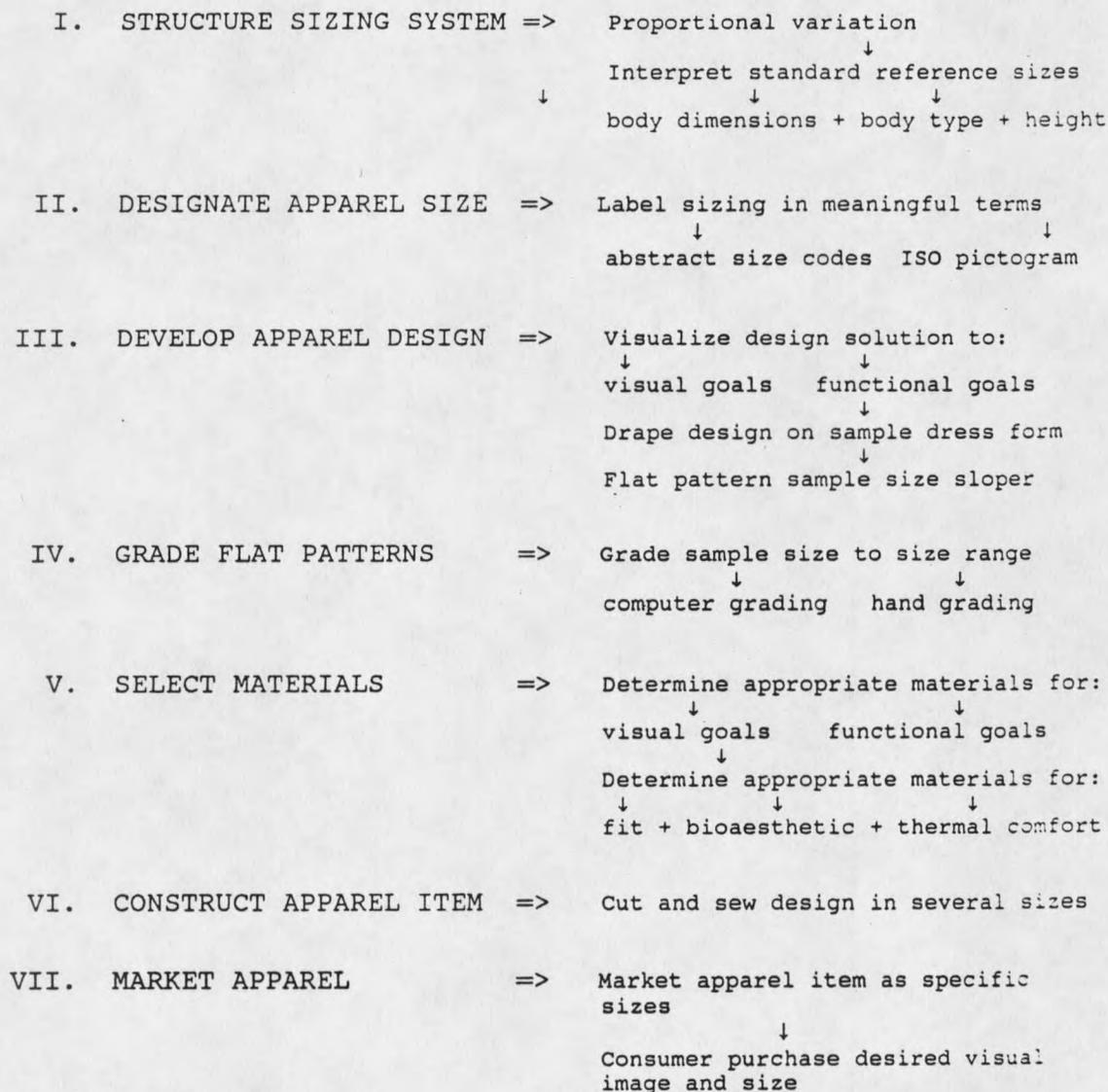
This, in turn, gives rise to several fundamental issues for the apparel industry. For example, in rendering a continuous variable as discrete, what range of apparel sizes should be represented discretely? How fine will the gradations be as one proceeds from one size to the next on the apparel scale? How consistently can the finite gradations be reproduced by the same or different manufacturers? Finally, how valid will the size labeling be given a certain degree of consistency in the reproduction of the gradations (French 1975).

At the heart of these issues are the concepts of reliability and validity across the apparel manufacturing process outlined in Figure 1 (Salusso-Deonier 1982). Reliability of measurement refers to the degree to which a given measurement process is repeatable or consistent. For sizing and size labeling to be reliable, the same range of sizes, the same gradations in size, and the same labels

reflecting these gradations would be used consistently within and across manufacturers. Manufacturers could, for example, follow guidelines set down by individual production departments or by the American Society for Testing and Materials voluntary standards.

Validity of measurement, on the other hand, refers to the degree to which a given measurement process is accurate. For sizing and size labeling to be valid, the range of sizes, the gradations in size, and the label reflecting those gradations would be accurate in fitting intended wearers. For example, a given size labelled "small" should actually refer to a small-sized garment that fits a small-sized person, not a medium or large size person. Again, manufacturers could either follow guidelines set down by their production department or follow published sizing standards. Finally, note that reliability is a necessary, but not sufficient, condition for validity. For example, apparel manufacturers may consistently label (i.e. reliability) apparel with a particular size code, but that code may actually be an incorrect one, such as a small size consistently labelled large.

Figure 1. Role of Size Labeling within the U.S. Apparel Industry.



(Adapted with permission from Salusso-Deonier 1982)

In short, both reliability and validity are important for sizing and the construction of patterns and garments, because the range of sizes and the coarseness/fineness of the gradations should be consistent and valid within and across manufacturers. Reliability and validity are also important for size labeling, because the same label should be applied consistently to a given physical size and that label should also be the correct one.

In order for the issues of validity and reliability to be clearly understood it is necessary to examine how size labeling is represented throughout each stage of the apparel production process. A brief discussion of Figure 1 follows.

#### Structure sizing system

Creation of a sizing system became one of the primary issues of the mail order industry. Recurrent efforts have been made across this century to devise and implement an adequate sizing system. Throughout these efforts, the emphasis has been on gathering the necessary anthropometric data from a sample population. This is the primary step to developing a sizing system (Jay 1976). From the data collected sizes are classified to represent variations in body types and size. Accurate data and body form classification and consistent use of a sizing system by the

apparel industry lends itself to reliable and valid communication. Valid and reliable sizing and size labeling information throughout each step of the production process and the consumer is crucial to successful apparel marketing.

The apparel size label communicates to the consumer what has transpired throughout the production process, in more detail, the proportional formula is created which determines a particular size code label for the garment, the garment is designed, the garment is graded out to the prescribed proportional formula based on the type of fabrics chosen for the particular garment design, which is constructed in a prescribed way in order to retain the proportional formula intact, the garment is marketed and the consumer either accepts or rejects the end product based on the aesthetic and functional aspects of the garment. The label communicates to the consumer what they are purchasing (Salusso-Deonier 1982).

#### Designate apparel size

Apparel size labeling has been the primary communication link between the design/production and the marketing/consumption segments of the apparel industry. Size labeling identifies a garment "size" typically

represented by a figure type/age category and number designation (Kunick 1978). Consumers rely on size labels as the single indicator of garment proportions.

A garment "size code" typically represents size and proportions with a figure type/age category and number designation. For example, Misses size 10 refers to 34½"-35" bust, 26½"-27" waist, 37"-37½" hip. These body proportions also refer to Junior's size 9 or Jr./Miss size 9/10 (PS 42-70). Lack of consistency in fit or garments labeled the same size creates confusion for the consumer.

#### Develop apparel design

The apparel design process must take into account the visual and functional goals of the garment. The design is draped on a dressform to create a particular style which plays an important role in the size labeling of the garment.

Throughout history women's fashions have been targeted towards a conceptualized 'average' women who is believed to represent the general female population. 'Average' is typically determined by the producer's interpretation of sample size proportions and a limited size range (Clothes 1 February 1977; 15 May 1969; 1 September 1969; 15 December 1975).

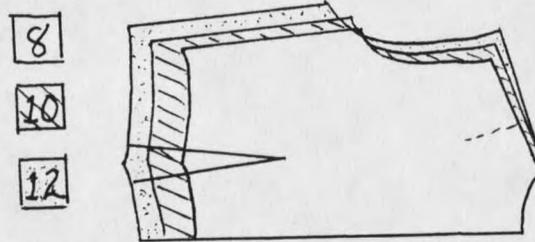
Apparel producers frequently use dress forms as a basis for sizing. Dressforms represent concepts of "average" proportions at a given time. Manufacturers may prefer to use the one from last year or they may decide to create their own dress form. The use of the dressform has made ready-to-wear very impersonal and has abstracted human bodies to the dressform. Another major criticism of dressforms is the unrealistic posture represented in the forms (Salusso-Deonier 1989). Thus, the dressform size chosen is a major determining factor in the quality of sizing.

#### Grade flat patterns

Grading is a term given to a method of enlarging or reducing any given pattern(or garment), to produce the same style garment in many sizes (Rohr 1965). Theoretically, grading allows efficiency in incorporating dimensions across the sizing system into three-dimensional patterns.

Figure 2: Illustration of graded bodice, Misses size 8 - 12.

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However, grading seems to distort rather than reflect sizing system proportions. There is evidence of a 'poetic license' in the grading process from grading out from a sample size. Proportional variations result even from the same size code in the grading process (Clothes 1 February 1977). Validity is further jeopardized when different sized samples are used in the process.

More variations occur in this process due to the many interpretations of the sizing specifications. Design fullness is left to interpretation as the sizing specifications do not allow for this. Therefore, validity of size labeling can be retained or destroyed at this stage of the apparel production process.

Currently, grading can be performed by hand or by computer. Computer grading can eliminate some errors but still relies on traditional grading concepts as a basis for

grading proportions. Therefore, determining the accuracy of the end product by any variances produced throughout the grading process is necessary. For example, a  $\frac{1}{2}$ " more or less could have major effects on the size of the resulting apparel item.

### Select materials

The type of fabric or materials selected for a particular end product will have a definite influence on the visual and functional qualities of the item. Textiles are important in the final outcome of the product as they may be used for aesthetic and/or functional properties and must interact with the style and fit of the garment. Textiles can conform to the body or drape from the body. For example, a fitted blouse made of tightly woven cotton muslin in comparison with a fitted blouse made of cotton knit fabric will have a very different consequence. Small-Medium-Large styles of stretch knit exercise sportswear allow for collapsing size categories to result in generalized sizes. Therefore, sizing must be determined relative to garment style and fabric in order to protect the validity of the size label.

### Construct apparel item

The process of fit and sizing apparel is clearly an art form depending on the skill, equipment, and experience of the apparel industry participants. Controlling production variations requires time, skill, and dedication to quality control. Widely adopted sizing/size labeling standards may help reduce size variations among manufacturers. Some factors that may cause changes in garment quality during production include: (a) tolerances allowed in cutting and sewing; (b) fabric distortion during spreading, sewing, pressing; (c) inaccurate cutting and sewing; (d) shrinkage from heat, steam and fusing (Glock & Kunz 1989). Generally, the variations begin with the dress forms, grading specifications, and stylistic interpretations (Clothes 15 May 1975). Further reliability and validity problems arise when garments of similar proportions are labeled different sizes. For example, expensive clothing manufacturers may size their garments larger so as to give the customer the feeling of being smaller than actual body measurements indicate (Belkin 1986).

### Market Apparel

The label communicates to the consumer the interpretation of the structured sizing system. The label

alone may be the single factor to determine if the product is purchased. Common practice among industry has been to create their own sizing proportions/labeling. Therefore, a size 10 of Brand A, and size 10 of Brand B would rarely fit the same consumer the same way, creating constant confusion for the consumer (Belkin 1986). Major retailers/mail order have created their own specifications for the manufacturer of their products. Thus, providing the consumer with the desired visual image and size of garment has not been readily successful.

Mass production of apparel has been aided by sizing and is further aided by reliable labeling by all producers. Interpretation and use of apparel sizing by designers, producers and consumers requires labeling to be understandable and reliably used by the producer or the consumer. Whether or not this has been the case is yet to be seen in the apparel industry.

Consistent use and communication among producers lends reliability to the process and the sizing standard being used. When the sizing standard is used universally in the same way it is a reliable tool in the production process. When the sizing standard is based on body measurements of the current population, validity becomes more likely. The German sizing system has been the most successful world

wide. The Germans have a mandatory sizing standard, which is based on a database of new measurements of the general population prepared every ten years (Auflage 1972).

### Summary

Having discussed the basic issues of reliability and validity for sizing and size labeling, the development of the size labeling process throughout the history of the U.S. apparel industry, from the year 1840 to 1991, will be the principal focus of this study. The methodology of this study follows in the next section.

## METHODOLOGY

### Approach

This is an historical case study based on "Naturalistic Inquiry". Naturalistic Inquiry is defined as evaluation which: 1) focuses on naturalistic generalizations on the part of the audience; 2) targets non-technical audiences such as teachers or the public at large; 3) uses ordinary language; 4) employs informal everyday reasoning; and 5) makes extensive use of arguments which attempt to establish the structure of reality.

Typically, historical research is a method of research which is highly descriptive. Collection and understanding of facts is the body of the research. It is not the function of the researcher to manipulate or control variables. Data for an historical study comes from all possible sources. Patterns begin to form categories as data is collected (Guba 1978).

### Procedures

This study combines a review of literature and data collection to develop a chronology of size labeling (Appendix A). Using the naturalistic approach, data on **Mens's, Women's and Children's** size labeling from *Sears & Roebuck, Co.* catalog is the core of the study. *Sears* was

chosen as an index because it has been a leading merchandiser of apparel that has been in existence for over one hundred years. The mail order industry has historically shown the most concern for reliability and validity of apparel sizing. Without the opportunity to try on clothing, accurate sizing becomes much more critical in preventing returns of apparel and loss of sales. A better understanding of the evolution of size labeling will be attained with this focus. As a leading mail order business for almost 100 years, *Sears* is the best obtainable barometer of the apparel industry.

#### Data Collection and Analysis

Data for this study has been obtained from *Sears & Roebuck* catalog size charts and garment descriptions from 1897 to the present. Data are limited to information at landmarks of change in size labeling of tailored garments for Men and Women's apparel and general garments for Children. The entire chronology is included in Appendix A.

Using the naturalistic inquiry approach, the resulting apparel size labeling chronology in Appendix A is analyzed relative to context information found in the literature.

A review of literature from *J.C. Penney's*, *McCall's Pattern*

Co., Government documents, trade journals, popular and professional literature supplements the study and aids in describing the data from *Sears*.

For convenience, this history is grouped into 8 landmark change periods. Each period was selected to represent landmark periods beginning with 1840-1896 and ending with 1984-1991.

## RESULTS AND DISCUSSION

The results of this study are discussed in terms of key developments in the evolution of size labeling used by Sears. Developments are discussed for each of the 8 landmark change periods in terms of reliability and validity of size labeling practices as applied by Sears.

### 1840 - 1896

Eighteen-forty was chosen as the starting point of this time period because apparel sizing became more of an issue as apparel production became more organized. Eighteen-ninety six was chosen as the end of the period because it is the year prior to the beginning of the *Sears Chronology* (Appendix A).

Many events throughout history ignited the interest and need for apparel sizing. The Industrial Revolution which took place during a span of over one hundred years resulted in the evolution of skilled labor. Representative of the skilled labor movement were many fine master tailors and dressmakers who trained many helpers and seamstresses. Specialization in the areas of patternmaking, cutting and inspecting of the final product made the production of

clothing a more efficient process. Improved transportation allowed for the clothing to be shipped to more cities. The apparel industry was dominated from 1860 - 1890 by highly skilled German tailors, and marketed by German Jews (Kidwell & Christman 1974).

Women's dressmaking took many roads, following many different drafting system authorities such as, S.T. Taylor in 1850, McFadden in 1853, to Demorest patterns in *Godey's* on its way to manuals, such as those by Hapgood and Banner in the 1890's, which were intended for the classroom. By contrast, menswear drafting followed a continuous course from the first system introduced by Amanda Jones in 1822 until Mitchell became popular.

Newspapers and magazines such as Godey's Ladys Magazine, Demorest's Magazine and Ladies Home Journal permitted the advertisement of clothing manufacturing and retail as well as patterns for clothing. Lewis and Hanford, a catalog aimed towards the clothing manufacturer, was also in print at this time. Technological advances commenced as industry moved from the home to the factory and labor moved from hand to machinery. The pace of life quickened and many advances were being made in the area of machinery, such as the carding and drawing machinery used with wool. More

textiles were available for selection by the consumer as well as the manufacturer (Kidwell & Christman 1974).

Apparel sizing emerged as a transition took place in the 1840's, from custom production to the manufacture of garments for the masses. As the idea of made-to-order became more popular, the great bulk of 19th century clothing can be characterized as having been made for *somebody* but not *anybody*. Garments were ordered by a particular size and if the consumer did not find the fit of the garment satisfactory, it could be altered easily by a tailor or dressmaker. *Hudson and Reed* of Boston advertised in 1853 to carry "more than a HUNDRED sizes" (Kidwell 1979).

A differentiation emerged between ready-to-wear and custom-made, based on technology available. Custom-made clothes at this time were of high quality and good fit. Fabrics were usually draped on the body by a highly experienced tailor or dressmaker and altered to a near perfect fit. Only the "well-to-do" were permitted the luxury of custom-made clothing. Thus, the 19th century ready-made industry lacked style, fit and quality.

At the inception of the mail order business, *Sears* asked its customers to follow their measurement instructions and describe their general build when ordering clothing.

Sears stated that due to their size ranges customers could think of themselves as a particular size and order accordingly.

Garments were sold without actual sewn in labels but were sold labelled "size 40" referring to the bust size of a blouse. The consumer had to rely on this label in order to find the proper fitting garment. Women in 1883 ordered sizes based on bust sizes 34,36,38,40... the waist and hip size were proportioned accordingly. Usually these garments were made with ample ease that a dressmaker or tailor could easily alter to fit at little cost (Kidwell & Christman 1974). In 1899, more measurements were considered; bust, waist and skirt length measurements were stated in the *Sears* catalog. It wasn't long after this that manufacturers were urged to sell odd sizes also and create less reason for alteration after the purchase.

In the late 1800's and early 1900's sailors created a demand for clothing that could be worn immediately, as they were rarely in one place for very long. Waiting for a garment to be tailored was not feasible. Nor did the sailor have enough money to pay for such a service as custom tailoring. Clothing consisting of jackets, shirts, and trousers, coats and Pea jackets were regularly imported from Europe and advertised for sale (Kidwell & Christman 1974).

The garments marketed towards the sailor became known as "slops" or cheap ready-made clothing. If a fit were achieved it was quite by accident. These "slops" were later marketed as clothing for slaves (Kidwell & Christman 1974).

The early ready-made industry in general seemed to have one primary flaw and that was in the matter of fit. It was expected that three coats or four overalls sizes would fit ten thousand or more men in one way or another (Kidwell & Christman 1974).

The Civil War era(1861-65) brought the need for anthropometric data for the creation of army uniforms. Men were measured and an anthropometric data base was gathered on a large sample. The Civil War database provided a statistical resource for the form of the American male. Following the war this database was released to men's clothing manufacturers.

Prior to the availability of this database, ready-made manufacturers used their favorite drafting system and own expertise to arrive at an acceptable pattern in hopes of fitting the most people. The basis for most systems was the concept of proportional sizing where one measurement was used to derive overall body proportions. At this time of

tremendous experimentation, manufacturers had a multitude of resources on various proportional systems available to them (Kidwell 1974). Albert Bolles in this 1879 *Industrial History of the United States* stated that for a long time there was prejudice against the ready-made garment industry because they did not always fit (Bolles 1879).

The war database was helpful as a guide but many body dimensions were omitted and arriving at a good fit based on scientific methods was not achieved. Manufacturers continued to experiment with drafting systems and sets of body proportions to reach the goal of good fit as evidenced in the Location Index of American Pattern Drafting Systems (Trautman 1987).

Many retail apparel businesses claimed that people could now think of themselves as a particular size during this time period. For example, one store advertised that sizes were indicated by number and that once a customer became familiar with that number there would be no need to try on a second garment (Kidwell & Christman 1974). In 1895 Sears assured their customers an adequate fit in their ready-made garments (Sears 1985).

### Men's

Manufacturers began to recognize the differences in figure types of men and that some proportions were more "average" than others (Poole 1936). Throughout this period of the apparel industry, many body type labels have been used to refer to the size of clothing. For example, Men's may have been referred to as: slender, stout, fat, extra stout, regular, corpulent or an extra size man. Apparel sized this way were selected by the body measurements provided by the customer for the tailor or mail order catalogs.

### Women's

The only ready-made clothing for women were cloaks. Not until the census of 1860 was the manufacture of women's clothing deemed worthy of enumeration.

Women's clothing has never been considered to be completely adequate in quality of fit (Kidwell & Christman 1974). With the inability to try garments on, the consumer was left at the mercy of the manufacturer to create a quality fit. Ready-to-wear garments needed to fit the majority of wearers with as few size categories as possible. Ready-made apparel available for women at this time

was sized by using the bust measurements or best fit was chosen after the customer provided body measurements.

### Children's

At this time, children's apparel was primarily custom-made by the dressmaker, tailor or home seamstress. Some articles of clothing were available in mail order catalogs sized according to age of child.

### Assessing Validity and Reliability

During this development period experimentation and trial and error concepts of sizing practices did not focus on either validity or reliability in sizing. Achieving a good fit was a matter of luck or good alteration skills. The uncertainty of sizing within the apparel industry at this time is evidenced in the inconsistency of the reported fit of ready-made apparel.

### 1897 - 1914

This time period begins with 1897 to reflect the beginning of the Sears Chronology (Appendix A). Nineteen fourteen was chosen as the end of this time period because

it is when actual size charts are provided for **Misses'**, **Juniors** and **Children's** ready-made garments in mail order catalogs.

**Young Men's** apparel sizing in 1906 was based on a set of body dimensions as well as age. **Young Men's** ready-made garments began to flourish. The fashion focus of this time period was on youth and a youthful appearance (Anspach 1967). The importance of the sizing of apparel was becoming apparent.

Dressmaking became quite an art early in the 20th century as the availability of fashion magazines increased and added instructions to their patterns and a number of different styles were available during the final quarter of the century.

Dressforms have been used extensively since the first patent was applied for a "Dress Fitting Model" in the 1880's. Dressforms have taken on many forms since their inception. Depending on the clothing styles of the day, the form would take on a particular style. When fashion dictated the famous 'S' shape in women's wear in the early 1900's, the dressform also took on the 'S' shape.

With the excitement in the advancements of the machine, factory, and power sources the climate was ripe for ready-made clothing. From 1860 to 1920, mass production developed

an organized production process. The availability of textiles increased further. The production process allowed for maximum use of machinery and the large labor force of varying skill levels (Kidwell 1979).

As the sewing machine became available clothes were more readily produced. The sewing machine gave rise to the famed "sweat shop" phenomenon, where many women and children were worked many hard hours with very little pay. During the Industrial Revolution improvements in the machinery of the clothing production process and construction became more organized. The sewing machine brought specialization to the manufacturing process and a task system was developed. Work was divided between workers: a machine operator, a baster and a finisher who worked together to complete a certain number of garments each day. Pressing was done separately and was common for one presser to be assigned to each team.

More modern methods introduced more intricacy, and perfect styling and durability to the multiplication of parts. The early nineteenth century was a time of fertile experimentation in the field of proportional drafting systems and measurement devices.

The publication of over 400 drafting and sizing systems by personal clothiers between 1822 and 1900 exemplify the growing need for appropriate technology (Trautman 1987).

These sizing systems were a significant technological and economic breakthrough. They reduced the amount of time and skill required to cut a fashionable garment that fit well. Various types of sizing systems have been devised and used throughout the history of the apparel industry. The nineteenth century drafting systems were based on proportional sizing where one body measurement was used to derive overall body proportions. For example, men's sizing revolved around chest circumference. Women's sizing was derived from men's and thus was based on bust circumference. Both Men's and Women's apparel were sized using this method. Height was used to vary average proportions to obtain tall and short sizing. Proportional sizing derived from these early drafting systems became the basis for the sizing systems of the paper pattern industry and the ready-to-wear industry (Kidwell 1979).

The manufacture of clothing for a mass market presupposed standardized patterns designed to fit a certain number of various body sizes. At this early time manufacturers created their sizes to meet their own specifications. In the early 1900's when styles became looser there became a larger choice of sizes in all dimensions. Closer fitting apparel created a large margin for error. The inability of the consumer to try specific

garments on prior to purchasing led to a considerable number of returns and industry had to accept the returns and take the losses (Slom 1978).

An important contribution to the women's garment industry was the system of pattern drafting, or, as sometimes termed flat pattern designing. It has become recognized as a practical method for making patterns because they can be made with greater speed and efficiency. The concept of flat patterning/grading originated from early drafting systems mentioned earlier. The practice of grading came into being with the inception of the wholesale clothing manufacturer. In the early days, it was assumed that human beings developed in regular arithmetical progression; these notions have been primarily retained today (Poole 1936).

### Men's

Between 1897 and 1906 Young Men's apparel sizes were based on age and weight only with no reference to body dimensions. Men's apparel during this time period were represented by terms such as "lean" and "stout" forms/sizes. Some other terms referring to the forms of men were corpulent, regular, tall, long, short, and so on. (Kidwell & Christman 1974).

Men's apparel at this time is based on chest

measurements provided by the customer. **Men's** upper body garments were based on chest girth measurements; lower body garments were based on waist and inseam.

**Men's** sizing has traditionally been based on body measurements from the inception of ready-made apparel. Master tailors (fitters) noticed the regularity of particular sizes/forms of men and drew from the measurements a pattern by which to develop **Men's** sizing. At this time, **Men's** apparel could be selected from a range of body measurements.

#### Women's

**Women's** apparel was primarily made-to-order early in this time period. The early 1900's brought some basic sized fashions to the ready-made market for women.

**Women's** garments were sized based on **Men's** sizing. For example, the sizing was proportional to the bust measurements as **Men's** sizing was proportional to the chest measurement.

The label **Ladies** of the early 1900's is synonymous with **Misses'** of the 1990's. **Ladies** in the 1900's were referred to as normally developed and having mature proportions. Some of the terms used to describe the female figure were stout, short, or long. Other terms describing Women were

mature, immature, or well-developed.

**Junior** size labeling was first introduced in 1910. **Junior's** provided for more youthful styling for the young women entering the work force. **Junior's** corresponded to style and age as the only determinate of size. During this same time **Junior** and **Intermediate** sizing corresponded to age for older girls and young women. **Intermediate** later evolved into **Half-sizes** for women.

Labeling sometimes referred to the styling of the garment rather than the body dimensions involved. For example, **Juniors** sizing was introduced to represent youthful styling for young women already represented by Misses size categories. Consumer were led to believe they were getting a more precise fit when in fact they were getting new styling (Anspach 1937).

### Children's

Children's apparel was sized by age. In 1897 garments were primarily custom-made to fit body measurements provided by the customer. Body measurements were sent to mail order companies and the garment reflecting the most accurate dimensions was placed in the order. More styling was added to children's apparel and size categories were added to facilitate this at this time.

Mail order catalogs at this time asked that customers determine if children were large or small for their age. Imagine the way most of those garments fit?

In 1902 ready-made garments were still made to order. Mail order clothing was based on body dimensions and age provided by the customer. **Girl's** and **Misses'** size categories were synonymous.

#### Assessing Validity and Reliability

During this time period the apparel industry began to see the importance of proper fitting garments. Custom-made clothing for men and women was based on actual customer body measurements. Mail order clothing was based on expected body measurements relative to childrens' ages. Sizing systems lacked validity and reliability because they lacked appropriate scientific data.

#### 1918 - 1923

Nineteen-eighteen begins this time period with the continued practice of using age as a basis for size labeling for **Children's** and **Junior** and **Intermediate** size categories.

In 1923 Extra Large or Stout Men's styling and sizing was highlighted.

### Men's

Size labels were assigned to a set of body measurements in 1918. In 1923 Men's size categories extended to include the large and stout men's styling and sizing.

### Women's

Ladies abstract size codes were used until 1918 and then Misses was reinterpreted as adult rather than young woman. Ladies tailor-made suits were custom-made relative to customers' measurements. Ladies was renamed to Women's and reinterpreted to represent a "young, slimmer, smaller figure" (Kidwell & Christman 1974).

### Children's

Age continued to be used as size code.

### Assessing Validity and Reliability

During this time period age continued to be used as a size indicator for Children's apparel. The lack of actual body sizes resulted in inaccuracies in the sizing practices resulting in unreliable and invalid size categories. The

reinterpretation of a child's size such as, **Misses'** to adult representation is a mind boggling concept. Also **Ladies** was reinterpreted as a young, slimmer, smaller figure labeled **Women**. **Men's** apparel began to included large and stout styling and sizing.

#### 1929 - 1945

In 1929 sizing began to be increasingly important in the apparel industry with increased numbers of size categories in hopes of fitting many people most of the time. A period of evolution took place in 1941 as size labeling began to be referred to as a set of body proportions.

#### Men's

In the 1930's **Men's** labels became more standard: short, regular, or long. Size standards were published in 1941 for **Young Men** but not for mature men. **Young Men's** sizing was based on data collected for the purpose of apparel sizing in the 1940's (Glock & Kunz 1989).

### Women's

Women's apparel was sized according to particular garments. For example, skirts and dresses were sized differently using separate size charts. Specialty dress lines were marketed using terms such as, Average, Short and Tall (i.e. "Anne Williams Dress", Sears 1936).

Misses tailored garments were still sized from 12 to 22 ranging from a size 33" bust to 41" bust.

In 1941, Junior's is reflected as a youthful adult female figure rather than the older girls' figure described earlier. The trend during this time was focusing more and more on youthfulness in all aspects of life. Clothing styles reflected this trend (Anspach 1967).

### Children's

During this time period, size charts appeared for Boy's and Girl's separately. The reasons for the separate size charts may be reflective of style and sex differences. Age continues to correspond to the sizes given. Boy's sizing bears a resemblance to Men's sizing using the control body measurements of waist and inseam for pant sizing.

In 1929, Boy's suits were sold in sizes 5-10 and 11-16 which referred to average body proportions for age intervals.

### Assessing Validity and Reliability

Age continued to be used as a size code for children's apparel. Labels are changed throughout this time period but achieving a good fit is still a trial-and-error effort. Categories for Women continue to include smaller sizes and more youthful styling. Men's apparel continue to include short, regular and large size categories.

#### 1946 - 1957

Nineteen forty-six was chosen as the beginning of this time period because Women's figure types were defined in the Sears catalogs. Nineteen fifty-seven was a year prior to the publishing of the first Women's sizing standard CS215-58.

In 1950 the National Bureau of Standards (NBS) published a size standard for Infants/ Babies, Toddlers and Children, CS151-50. Unfortunately, these size charts overlap with duplicate measurements which creates more confusion. The reason for these particular size categories is the degree of self-locomotion. The degree of self-locomotion determines the standards of minimum allowance above body dimension required for proper garment utility

such as providing for a diaper. **Infants** are those who cannot creep or sit unassisted. **Babies** are those who can creep or sit on their own. **Toddlers** are those who can stand up unassisted, but cannot walk without assistance and **Children** are those who can walk or run on their own (U.S. Dept. of Commerce 1958).

Industry made some efforts to improve sizing by the issuance of CS151-50 based on the self-locomotion of developing children.

#### Men's

Size labels reflected control body dimensions making sizing more straightforward for Men's apparel. For example, chest measurements, sleeve length and height were used to select the size for a sport's jacket. Men's apparel sizing has remained more consistent with body dimensions and less has been recorded in reference to "bad sizing" in Men's apparel (Ensom 1987).

#### Women's

Women's figure types were defined in Sears catalogs and reflect a set of body measurements as stated in Table 1. In

1946, **Misses'** size charts added size 10 to compensate for smaller women wanting more variety of styling. Larger sizes were added to the **Juniors** category and in 1954 size 8 was added to **Misses**, again reflecting the need for smaller sizes. **Teens** and **Short Teens** size categories appeared in 1954.

Table 1 imparts interesting terminology relative to the female human form. **Junior** and **Misses'** were considered youthful, **Misses'** was considered well developed and youthful and average. **Women's** was defined as well-proportioned and mature.

**Table 1. Sears 1946 apparel figure descriptions**

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Junior figure is slightly shorter than a Misses'. the bustline is higher, the waistline slimmer. Garments are youthful in style for youthful figures of all ages.

Misses' figure has a well-developed but youthful bustline. The waist is slender. The figure is well proportioned throughout. This average figure type has the widest choice of styles.

Women's figure is well proportioned, mature figure with waistline slightly larger than Misses' figure.



























































































































































