Fit Satisfaction of Crocheted Apparel

A thesis submitted to the faculty of the graduate school of the University of Minnesota by

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In partial fulfillment of the requirements for the degree of Master of Sciences

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December 2011
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ACKNOWLEDGMENTS

Many people contributed to making this project a success. I would like to thank my committee – Dr. Elizabeth Bye, Dr. Lucy Dunne, and Dr. Caroline Hayes – for their flexibility, expertise, and support. Dr. Bye contributed her expertise in sizing and fit research to every stage of the process from planning to the final writing.

At the 2011 Crochet Guild of America summer conference in Minneapolis, MN, I interviewed crochet designers (and teachers, authors, experts, bloggers…they wear many hats!) Edie Eckman, Darla Fanton, Marty Miller, and Karen Whooley. Edie and Marty contributed additional time to revising the questionnaire. Their willingness to make time to contribute to this project was invaluable to the development of the Contextual Review, the questionnaire, and the final analysis.

Sarah Kendall, Jen Cook, Pat Hemmis, and Erin McNellis helped with questionnaire pre-testing. Laurie Wheeler and Deborah Burger provided permission and support for recruitment and publicity of the questionnaire, as moderators of Ravelry crochet forums. Special thanks is also due to the participants themselves, who graciously volunteered their time and opinions to add to the body of knowledge.

Patrick Zimmerman of the University of Minnesota School of Statistics provided excellent statistical consultation, and learned a lot about crochet in the process!

My mother, Dr. Ginny Buckner, has taught me to value education and aspire to the academic life. My grandmother, Mildred Paine, taught me to sew and spent many long hours cultivating a child’s love of the creative process, from pasta art and sock dolls to countless handmade garments, costumes, and charity projects.

-KEB 12/2011
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CHAPTER 1 – INTRODUCTION

“We who crochet clothing for ourselves and for others enjoy a very special and personal connection to our craft. It is rewarding in so many ways to wear the items we make with our hands.” – Doris Chan (Interweave Crochet, Winter 2007, p. 42)

Crochet designer Doris Chan sums up the appeal of the handcrafted garment, a unique artifact that stands at the intersection of the limited scholarly study of handcrafts and the evolving field of apparel research. Like ready-to-wear garments, crocheted clothing is subject to many levels of fit assessment, from the designer using a sizing standard to determine how to create her pattern in multiple sizes, to the individual crocheter trying on her finished sweater for the first time only to discover the sleeves reach her knees. Doris Chan goes on to say, “Unfortunately, not everything we crochet looks good on us. Who hasn’t suffered the heartbreak of finishing a gorgeous sweater only to discover that it’s unattractive on the body?” (Chan, 2007a, p. 42) When discussing ready-to-wear clothing, Bougourd (2007) states “fit and comfort have been described by consumers as synonymous with quality… the final evaluation of the fit lies…with the consumer, and there is a need to resolve consumer appearance and size and shape needs.” (p. 130)

Crochet, knitting, and other handcrafts have enjoyed a surge in popularity in recent years. The Craft and Hobby Association 2010 Attitudes & Usage Survey reported that the U.S. craft and hobby industry had $29.2 billion in sales in 2010, of which $1.062
billion was specific to crochet. Their survey covered 114 million U.S. households and reported that 17.4 million reported that they had engaged in crocheting in the last year, ranking it third among the crafts and hobbies profiled in the survey, and above other needle crafts such as knitting and cross-stitch (Craft and Hobby Association, 2011).

The National Needle Arts Association (TNNA), which is a more exclusive, trade association focusing on the “specialty needlearts” (knitting, crochet, needlepoint, embroidery, spinning, and weaving), reported on crochet in their 2010 State of Specialty Needle Arts. From studying over 10,000 “needlearts consumers sourced from needlearts magazines, Web sites, and specialty retailers,” they report that the specialty crochet market consists of 464,000 people who spent $264 million on supplies in 2009. However, it is important to note that this survey categorized knitters and crocheters separately, and 42% of the “knitting” respondents – a larger category with a market size of 780,000 and spending of $629 million – completed at least one crochet project.

A Craft Yarn Council of America (CYCA) study (2004) reports that interest in knitting and crochet increased 150 percent between 2002 and 2004 among women ages 25 to 34, with increases among other age groups as well. Counteracting the stereotype of textile handcrafts as the domain of women of earlier, now older, generations, “knowledge is passing laterally within one generation as friend teaches friend” (Swartz, 2002, p. 1) and crochet and knitting books and publications aim to appeal to a younger market in their choice of graphic design, clothing styles, and language (Chan, 2007b; Lee, 2006; Stoller, 2006).
The Internet has provided crocheters and other needleartists and crafters a revolutionary opportunity to interact with others who share their interests, form online communities, exchange information, and buy and sell materials and completed projects. One of the largest needlearts sites, Ravelry, was started in 2007 by Casey and Jess Forbes (Humphreys, 2009). It offers knitters and crocheters, as well as spinners and dyers, a place to keep track of projects and stored materials (one’s “stash” of yarn), connect with other crafters via public forums and self-organized groups, and buy and sell patterns and products. As a specialist social-networking site, it has enjoyed great success. As of November 2011, there are 1.7 million registered users, and the site is used in a variety of ways for organization, social networking, problem-solving, and business transactions.

As of November 2011, there were 67,410 crochet patterns listed on Ravelry, of which 8,139 are clothing patterns, and 3,921 of those are categorized as “adult female.” Ravelry’s pattern categorization is entirely user-run, and some errors may exist, but these numbers should serve as current working estimates for widely available crochet clothing patterns. In addition, there are garments made by individuals who are not working from a published pattern, and some fraction of patterns not listed on Ravelry. Medford (2006) refers to knitting patterns as the “scripts by which knitters create and customize their garments,” (p. 1) which provides one lens for looking at the purpose of patterns for handcrafted textile artifacts.

On the other hand, the crochet community is regarded as coming more slowly to the idea of making fitted garments than the knitting community, although the interest is there. “By far the largest segment of the crochet population comes from a place of craft
yarn and from making not-garments” (Chan, 2011). Chan suggests that the Craft and Hobby Association Attitude and Usage Survey and the National Needle Arts Association 2010 survey back up the “traditional and stereotypic inference” that crocheters, as a population, focus more on home goods and décor items, and knitters focus more on garments. Designers and the TNNA survey both report that there is demand from crocheters for more garment patterns (E. Eckman, personal communication, July 30, 2011; TNNA, 2010) and the CYCA reports that there was a 40% increase in the number of knitters and crocheters making sweaters and vests between 2005 and 2007 (CYCA, 2008). Although the CYCA study covers both knitters and crocheters, the majority of participants reported that they both knit and crochet, or crochet only.

Blood (2006) used the term “non-industrial textile production” to mean “activities that involve the manual design and creation of textile items that are not mass-produced such as via commercial assembly line methods.” (p. 50) Blood’s study included many other activities besides crochet under this umbrella term, and included many finished textile items besides garments, but the term is nonetheless useful in contrasting “handmade items” or “handcrafting hobbies” from ready-to-wear garments and mass production of apparel and textile products. Johnson and Wilson (2005) define “textile handcraft” as “artifacts that have been individually produced (as opposed to mass produced) using implements such as sewing needles, crochet hook, or knitting needles, and completed as lapwork.” (p. 115)
What is Crochet?

Knitting and crochet have much in common, but there are many differences between the two crafts. Knitting is “the process of forming a fabric by making interlocking loops from a continuous strand of yarn using two or more needles.” ("Basic," 2002, p. 22) The simplest form of knitting is traditionally done using two needles. Stitches are formed by holding stitches on one needle, inserting the other needle into each stitch, wrapping and working the yarn through the loops of the stitch, and transferring the resulting new stitch to the other needle. Crochet, which is defined by Merriam-Webster’s Dictionary as “needlework consisting of the interlocking of looped stitches formed with a single thread and a hooked needle,” is typically started by creating a series of loops, or chain stitches, by pulling a hook through the preceding loop after wrapping the yarn around the hook.

Figure 1 and Figure 2 show the process of making a chain stitch and a simple crochet stitch, the single crochet\(^1\). Taller stitches such as double and treble crochet can be formed by wrapping the yarn around the hook one or more times before pulling through.

“The unwritten rules of crochet and knitting dictate that knitting, with its interlocking loops of a single thickness, creates the thinnest, most flexible fabric possible from looping a strand of yarn. Crochet, on the other hand, with its multiple loops drawn through each other to form a basic stitch, produces a heavier, denser, and more stable fabric.” (Dayne, 2007, p. 22)

\(^1\) Note: American crochet terminology will be used throughout this research. In the United Kingdom and elsewhere, other terminology is used to refer to the same stitches, which can lead to confusion. When reading a crochet pattern, it is critical to understand which regional terminology is in use.
Fig. 1: Forming a chain stitch, commonly used as a foundation on which to add other stitches and form a crocheted fabric. (Source: TLC, http://tlc.howstuffworks.com/home/knitting-instructions10.htm)

Fig. 2: Forming a fabric from single crochet stitches. This shows two rows of existing stitches and the formation of a new stitch using the hook and working yarn. (Source: TLC)
This structural difference is one reason why crochet garment construction is worthy of analysis. “…in many ways we’re experiencing a new era of the craft. The vast majority of crocheted garments used to be unsophisticated. They were stiff, heavy, bulky, and boxy. To say they were unflattering would be an understatement. Because of this, crocheters have not paid a huge amount of attention to garment construction relative to, say, sewers and knitters.” (Werker, 2006, p. 104)

The timeline of the history of crochet includes speculation about how it got its start, including references to other fiber arts such as knitting and macramé. Most chronologies agree that the modern history of crochet begins in the 1800s, when it was used in Europe to make lace. The availability of printed patterns led women in Europe and the United States to make household items both commercially and at home during the 1800s and early 1900s (Ohrenstein, 2009). The craft suffered during World War II due to material shortages and rationing, and experienced a resurgence in the 1970s when it became popular for both home items and clothing (Stoller, 2006; Stanziano, 2002). Sources imply that the popularity was not maintained after that decade, though, and the modern interest in the craft is part of a broader interest in handcrafts and a “DIY” mentality, including the involvement of a younger generation of crafters who crochet as a hobby rather than a necessity.

In terms of fashion, the modern revival of crochet is considered a “new era” as compared to the 1970s styles, and it is common to hear crocheters lament that “people assume that decent fashionable garments can’t be done in crochet” (Merrick, quoted in Blakley Kinsler, 2008, p. 35). It is true that crocheting with equivalent materials will
yield a fabric that is denser and with less stretch than knitting, which means it works well for structured or solid items like afghans and stuffed toys (Stoller, 2006). Between this structural assumption (especially when compared to knitted fabric) and crochet’s history as a technique for making decorative lace such as doilies, the development of commercially and widely available crocheted garment patterns is still very much a work in progress.

**Research Questions and Summary of Justification**

The research questions for this study were developed from personal experience with handmade clothing and handcrafts, including a longstanding interest in and practice of sewing and crochet. Over the last decade, the increased popularity of the Internet has provided an opportunity for online communities to form to connect individuals with similar interests on an unprecedented scale. My experiences with crochet patterns and projects, as well as the experiences reported online by other crocheters on websites such as Ravelry, suggest that research on this topic would be timely and valuable.

Fit satisfaction issues in ready-to-wear garments have been documented in apparel research. Individual body variations coupled with the lack of standardization of sizing systems in the apparel industry can lead to widespread consumer dissatisfaction with the fit of ready-to-wear items. While handmade garments offer the individual an opportunity to customize the garment as it is made, a variety of issues such as sizing systems, size selection, and individual level of expertise may negate some of this theoretical benefit.
Little research has been conducted on topics related to handcrafted clothing, particularly in the context of sizing. In theory, handcrafted garments offer the wearer an opportunity to customize the garment to fit her own measurements. The purpose of this study was to examine fit satisfaction and possible contributing variables among women who crochet clothing for themselves. The study was guided by the following objectives:

1. Identify fit satisfaction and dissatisfaction among garment crocheters
2. Identify crocheter background variables that may affect fit and fit satisfaction, such as experience level and knowledge of related fields
3. Identify crocheter behavior that affects fit, such as garment construction and finishing techniques
4. Seek feedback from crocheters as to their opinions of the sources of fit satisfaction and dissatisfaction and how to improve situations in which dissatisfaction does exist
5. Analyze reported behavior and feedback to suggest exploratory theories and hypotheses that can provide a basis for future research
CHAPTER 2 – CONTEXTUAL REVIEW

The following review contains topics related to the concept of fit satisfaction to the modern crocheter and her experience with crafting her own garments. First, the history of fit satisfaction research concerning ready-to-wear apparel will be discussed to provide background on the concepts of fit and fit satisfaction, and the underlying factors that contribute to an individual’s assessment of how her clothing fits. Next, research about non-industrial textile production techniques such as home sewing and handcrafts will be discussed to situate the current study and justify the importance of studying the topic. Finally, a review of crochet resources and interviews with designers will provide background on sizing and fit in the crochet industry.

Fit Satisfaction Issues in Ready-to-wear

Garment fit contributes significantly to psychological and social well-being (Smathers and Horridge, 1978-79). Fit has been defined as “a correspondence in three-dimensional form and in placement of detail between the figure and its covering to suit the purpose of the garment, to provide for activity, and to fulfill the intended style.” (Berry, 1963, p. 314). The relationship of the garment to the body involves multiple factors including the individual’s overall body size, body proportions, and the garment’s dimension and drape. Problems in this domain can occur when garments are made with deficiencies in pattern development, grading, sizing, or construction; thus, quality of fit will be improved with the appropriate development and implementation of effective
patternmaking techniques and proper sizing and grading systems (Sohn, 2009). Grading is defined as “the process used by clothing manufacturers to produce patterns for a garment in a range of sizes for ready-to-wear clothing.” (Schofield, 2007, p. 152)

The concept of “fit” comprises an objective measure of fit as well as the perception of the fit as analyzed by both experts and subjects (wearers) (Ashdown, 2000). Fit satisfaction will depend on subjective individual fit preference and the extent to which the garment correlates with the wearer’s expectations (LaBat, Salusso, & Rhee, 2007). Fit preference is affected by many factors, such as body cathexis, personal comfort preferences, and social messages (LaBat, 1987).

It has previously been established that issues with fit satisfaction exist in ready-to-wear garments (LaBat, 1987; Ashdown, 1991; Alexander, Connell, & Presley, 2000). The apparel industry must work with the “inherent contradictions of providing well-fitting clothing within the constraints of economical and practical sizing systems for the variety of people in a population.” (Ashdown, 2007, p. xvii) There is not a consistent sizing standard in ready-to-wear clothing, and this combined with differences between the assumptions made by sizing systems and the actual body sizes of the population leads to widespread fit dissatisfaction (Petrova, 2007).

According to Halstead (1989), consumer satisfaction with a product is based on the expectancy disconfirmation model. The individual’s satisfaction with the product is based on the extent and direction of disconfirmation beliefs, which results from “the customer’s comparison of product expectations and perceived product performance.”
Expectations can be set based on the sizing system as well as the visual expectation of how the garment will look on the body based on viewing it on a rack or mannequin. In the case of crocheted clothing made from patterns, there is a parallel experience when the crocheter looks at the photograph of the sample garment that accompanies the pattern. Bye and DeLong (1994) found that the visual effect of a garment design is not maintained across the size range using standard methods of apparel grading. Another element of fit satisfaction is comfort, as outlined by Ashdown (1991). These two facets—comfort and appearance—are one way of understanding the components of fit satisfaction.

LaBat (1987) recruited 107 female apparel students between the ages of 19 and 40 for a study about consumer satisfaction with ready-to-wear clothing fit. The participants were asked to respond to specific statements about fit by rating their response on 5-point Likert scales. The responses indicated that dissatisfaction with fit does exist. LaBat chiefly analyzed body cathexis as a contributing factor, defined as “degree of satisfaction or dissatisfaction with various parts or processes of the body” (Secord and Jourard, 1953, p. 343). LaBat analyzed the relationship between body cathexis and fit satisfaction, noting that women often blame their own bodies for poor garment fit, based on an unrealistic interpretation of the sizing system. This can lead to negative body cathexis and body image in turn. Women reported lower satisfaction with the fit of clothing at particular body sites when they also felt dissatisfied with those parts of their body (LaBat and DeLong, 1990).

Clothing Comfort Theories
Clothing comfort was examined by Branson and Sweeney (1994), who conducted a review of existing models before proposing their own. “Clothing comfort appears to be an extremely complex phenomenon resulting from the interactions of various physical and non-physical stimuli for a person wearing a given ensemble under given environmental conditions.” (p. 94) Sontag (1985) defined “human comfort” as “a mental state of ease of well-being, a state of balance or equilibrium that exists between a person and the environment.” She used a human ecosystems approach and placed variables that affect comfort in one of three concentric circles: person attributes, such as expectations, experience, and physical factors like height and weight; clothing attributes, such as the construction and style of the garment, and environmental attributes such as climate and habitat as well as social factors. Sontag defined three dimensions of comfort with respect to clothing: physical, psychological, and social. Physical comfort involves “satisfaction with the physical attributes of a garment,” psychological comfort is concerned with “satisfaction with desired affective states,” and social comfort is defined as “a mental state of social well-being expressive of the appropriateness of one's clothing to the occasion, satisfaction with the impression conveyed to others, or with the degree of desired conformity to the dress of one's peers.” (p. 98)

The analysis of Sontag's model by Branson and Sweeney states that “empirical data did not support a clear distinction between psychological and social comfort.” Satisfaction with the appearance of the garment can be considered to fall under psychological and social comfort, particularly the elements defined as part of social comfort: appropriateness, impression, and conformity.
Branson and Sweeney then defined their own model of clothing comfort. They emphasize that it is a model in the Gestalt tradition, and “each part influences and in turn is influenced by every other part.” (p. 100) The elements of their model are the physical dimension triad, the social-psychological dimension triad, the physiological/perceptual response, the filter, and finally the clothing comfort judgment. (Figure 3) “Triad” refers to person, clothing, and environment, as in Sontag's model. The physical dimension triad includes elements of each of the three parts that relate to the physical dimension, such as physical attributes of the person, of the garment (which includes the fit), and the environment. The social-psychological dimension triad includes attributes of the person such as body cathexis, values, and attitudes; attributes of the clothing such as aesthetics, fashionability, and design; and attributes of the environment such as the occasion, the presence of particular people, and social norms. The physiological/perceptual response part of the model refers to “responses elicited [by] the interaction of some set of the physical and social attributes of the triad in a given context,” (p. 103) such as body temperature (physiological) or thermal comfort (perceptual). The filter is “the merging of inputs...for a unique individual wearing a given ensemble in a given context to make a unique determination of clothing comfort.” (p. 104) All these elements work together to create the individual's judgment of comfort of the clothing they are wearing.
Branson and Sweeney list “fit” as an element of the “Clothing System” under “Clothing Attributes” of the physical dimension. (Figure 4) In this case, I believe they are referring to the definition of fit as the physical relationship of the garment to the body, without including social-psychological elements such as individual fit preference. These components are covered in the “Person Attributes” of the social-psychological dimension (Figure 5), though they are not explicitly listed there in Branson and Sweeney's model.
I noted the placement of “Aesthetics” of the clothing as part of the “Fabric and Clothing System” under “Clothing Attributes” in the social-psychological dimension of Branson and Sweeney's model. This mirrors the presence of “Fit” under the same category in the physical dimension triad. Branson and Sweeney emphasize the interrelatedness of all parts of their model, so when focusing on fit, it can be theorized that the physical and social-psychological dimensions work together in the combination of physical comfort and aesthetic judgment that lead to an overall judgment of fit satisfaction.

The first three sections of the clothing comfort model were previously used by Chattaraman and Rudd (2006) in their study of preferences for the aesthetic attributes of
clothing in terms of body cathexis and body size. Body cathexis is a social-psychological person attribute and body size is a physical person attribute on Branson and Sweeney’s model, so the Chattaraman and Rudd study focused on the interaction between attributes between triads. The authors found a relationship between body image and body cathexis and preferences for aesthetic attributes – for example, “lower body image correlates with preference for greater body coverage and less revealing silhouettes in clothing and vice versa” (p. 58). The authors also state that their study shows that “both physical and social-psychological attributes relating to the body interact with clothing attributes to produce a perceptual response.” (p. 58)

![Figure 5. Social-psychological dimension triad. From “Conceptualization and measurement of clothing comfort: Toward a metatheory,” by D.H. Branson and M. Sweeney, 1991.](image-url)
In summary, fit satisfaction of ready-to-wear garments has been studied extensively, and researchers have broken down different elements and sources of satisfaction and dissatisfaction, categorizing them into physical and social-psychological elements. “Perception of fit as judged by the wearer involves several major issues, namely appearance or how the wearer perceives that the garment looks on themselves, and perception of comfort based on both tactile and visual responses.” (Branson & Nam, 2007, p. 272) Next, an analysis of research on non-industrial textile production and handcrafts will provide background on this aspect of the current research.

**Non-Industrial Textile Production**

Blood (2006) defines “non-industrial textile production” as “activities that involve the manual design and creation of textile items that are not mass-produced such as via commercial assembly line methods.” (p. 50) According to Blood and other researchers, generalizations can be made between these activities, often considered “hobbies” in contemporary society, in terms of their goals, products, and motivations. Although the present study is specific to crochet, reviewing literature on related topics such as home sewing and knitting, specifically those that also result in the production of garments, will aid in an understanding of the background to this study.

Schofield-Tomschin (1999) conducted a literature review of motivations for home sewing, which included a desire for higher quality, better-fitting garments than what was commercially available, economic motivations, and a desire to express oneself creatively
and obtain psychological benefits through the process. Cerny, Eicher and DeLong (1993) found that quilt guild participants sought to “gain a sense of social self and satisfy leisure and educational needs.” Heglen and Hemmis (1994) found that for a commercial knitwear designer, the process of mastering knitting techniques and skills was intrinsically pleasurable, and she derived a “deep sense of personal satisfaction and accomplishment” from those processes. It is clear that the process of participating in non-industrial textile production activities provides a variety of benefits to the participant.

In her doctoral dissertation, Blood (2006) worked with the Flow Theory developed by Csikszentmihalyi, which is a psychological theory exploring motivation and happiness. Blood was interested in whether the Flow Theory could be applied to what she termed “non-industrial textile production,” meaning handcrafts such as knitting, rug-making, quilting, and sewing. Csikszentmihalyi described “flow” or “optimal experience” as “the state in which people are so involved in an activity that nothing else seems to matter” (1990, p. 4). Blood’s study used mixed-methods to determine whether flow characteristics were present in the experiences and motivations described by participants who participated in non-industrial textile production. She found support for her hypothesis that there was a relationship between flow and skill level – as individuals progressed in skill level, they experienced more episodes of flow and enjoyment. There is a feedback loop involved in this process, as individuals derive motivation to continue the activity and develop their skills further through the positive experience of the flow episode.
Blood's results suggest a relationship between skill level and satisfaction with the textile production activity, as well as motivations for the activity. The results of other researchers on this topic additionally suggest that women may turn to making their own clothes via non-industrial garment production activities such as crochet and sewing in light of their dissatisfaction with ready-to-wear clothing fit. Other motivations such as creative expression and the experience of flow may explain why they continue to engage in these activities in spite of potential dissatisfaction, or they may explain why non-garment projects are undertaken if fit of garment projects is dissatisfying.

Johnson & Wilson (2005) conducted a study on the reasons why contemporary women engage in handcrafts such as embroidery, knitting, and crochet. They found that women described their handmade products as higher in quality than store-bought alternatives, and that women found these items to be high in utility and uniqueness. Another reason frequently cited was the sense of personal meaning inherent in the time invested in creating the garment, and the experience of carrying on a tradition passed down from previous generations. The women interviewed for this study had learned the skills necessary to engage in handcrafting from their mothers or grandmothers, and felt that the process was critical to their personal identity.

LaBat, Salasso, and Rhee (2007) explored home sewers’ satisfaction with the fit of garments made from commercial sewing patterns. In their review of literature, they report that women sew in order to relax and in order to produce garments that cannot be found in stores, either for aesthetic or fit differences, especially for plus sizes. They created a questionnaire that contained demographic items as well as questions about
satisfaction with the fit of sewing patterns before and after self-alteration and collected their data from a sample of women who attended home sewing expos. Their sample consisted of more experienced sewers – the median age was 55 and the majority of respondents had started sewing between the ages of 6 and 12. The respondents indicated that their primary reason for sewing garments was better fit, and 95% of respondents made alterations to patterns to improve fit. However, the researchers summarized the results on pattern fit satisfaction as that the respondents had a “substantially low level” of fit satisfaction both before and after alteration. The respondents said that they spent a lot of time adjusting patterns and that this time significantly decreased their enjoyment of sewing.

Research on textile handcrafts has mostly focused on historical or ethnographic analyses without the level of specificity or focus on particular end products as is being sought in this research. Understanding motivations for activities such as crochet is nonetheless critical to forming a complete picture of contemporary crafters, as the participants.

**Crochet as Garment Production Method**

Crochet fabric is different from the woven materials used in many ready-to-wear garments because it stretches, but it is also unique from machine-made knits such as jersey. The outcome of a finished crochet fabric depends on many factors, most notably the individual differences in the choices and techniques employed by the individual making it.
Similarities & Differences between Crochet and Ready-to-wear

Fitting crocheted garments is different from fitting sewn garments for several reasons. Crocheted fabric can be considered modular – it is constructed by adding one stitch at a time to existing stitches, using one continuous length of yarn. (Stoller, 2006) In sewing, individual pattern pieces can be reshaped before finalization by cutting away excess material, or adding new material using pins or sewing. The properties of the fabric remain the same. In crochet (or knitting), the use of a single strand of yarn means that the fabric could unravel, losing its structural integrity. Therefore, reshaping pieces needs to be done at predefined points in construction.

Different types of construction of the crocheted fabric allow for changes to be made to the shape of the finished garment at different points in the construction. For example, “top down” construction (Fig. 6) of a sweater might involve working the neck and shoulders in one piece first, then joining at the underarms and working around the torso (Chan, 2007b). This allows the wearer to try on the garment as it is being made (Chachula, quoted in Poland, 2008) and easily make length adjustments, or determine problems with girth measurements when the garment is only partially completed. A sweater made in pieces, such as a front, back, and sleeves, would be more difficult to adjust because more of the garment must be completed before the garment can be accurately put on the body for assessment of fit. Designer Karen Whooley offers classes in top-down construction for garments and reports that students “like that they can keep trying it on, [and] it makes sense to them how it’s going to fit.” (K. Whooley, personal communication, July 29, 2011).
Crochet patterns must select a sizing system much like ready-to-wear products. Petrova (2007) defines a sizing system as “a table of numbers which presents the value of each of the body dimensions used to classify the bodies encountered in the population for each size group in the system.” (p. 57) Both apparel manufacturers and crochet designers and publishers must solve the same problem when developing a sizing system for a product: dividing the population into too many groups has costs, such as financial burden,
time investment, and consumer confusion, and too few groups can lead to fit dissatisfaction since there will be more variation in the body dimensions of the individuals that each size is made to fit.

Additionally, sizing systems must be communicated effectively to ensure that consumers are able to select their size properly. Crochet patterns frequently have one benefit over traditional ready-to-wear sizing systems: they define sizes based on a key garment or body dimension, such as the bust measurement. However, the consumer must then deal with the designer’s assumptions about the other dimensions of the garment, such as the relationship between the bust measurement and other length and girth measurements that vary significantly between individuals. In addition, not all patterns state the expected ease amount. *Ease* is defined as the amount of space between the garment and the body – a close-fitting garment has less ease, while a loose-fitting garment has more ease (Branson & Nam, 2007).

In order to increase standardization among crochet and knit garment pattern sizing, the Craft Yarn Council of America (CYCA) publishes standards for body measurements. For women’s garments, the standards cover bust measurements from 28 inches (x-small) to 62 inches (5X) with corresponding measurements for eight other body dimensions, such as back waist length, upper arm circumference, and waist and hip circumferences. Additionally, an ease chart is provided that provides numerical measurements to correspond with subjective amounts of desired ease, such as “close-fitting” (1-2 inches greater than actual bust measurement). Designers often, but not always, use these standards to aid in the sizing and grading of their patterns, especially
when it is requested by an industry publisher. (D. Fanton & M. Miller, personal communication, July 29, 2011). This parallels the process of ready-to-wear product development, in which “the company must translate the body measurements given in the standard into garment dimensions. The garment dimensions must accommodate the body but also incorporate the style of the garment including style ease.” (LaBat, 2007, p. 89) Of course, use of sizing standards does not guarantee good fit for all individuals. “Poor fit may indeed be a consequence of an unsuitable sizing system, but it can also be due to problems with garment construction.” (Petrova, 2007, p. 81)

**Crochet Fit Standards**

Crochet patterns are available from a wide variety of sources, including books, magazines, websites, and Internet downloads. Professional designers usually work with a publisher to include their patterns in books or magazines, or self-publish through a personal website or Ravelry, which allows for both free and paid distribution of PDF patterns by individual designers. While this distribution method allows for good accessibility of patterns for crocheters who make use of the Internet, the absence of editors and other methods of quality control and standardization means that there is also an absence of consistency for fitting standards. Even amongst professionally published pattern sources, designers report that not all publishers adhere to the same sizing or editing standards.

The most common standard that designers are asked to follow is a sizing standard published by the Craft Yarn Council of America, which provides guidelines for body
measurements and suggested ease values depending on the desired closeness of fit (D. Fanton & M. Miller, personal communication, July 29, 2011). Designers expressed an understanding of the idea that not all individual bodies would align with the standards – a woman with a specific size bust does not necessarily have the corresponding arm measurement for that size. They also expressed that while the best solution to this discrepancy probably is that “the individual crocheter should be aware enough of her own body type to know that she should be making some adjustments,” more “numerical guidelines” in the CYCA standards might benefit the designer. (D. Fanton, personal communication, July 29, 2011).

Other feedback from designers indicated that publishers often request a specific number of sizes, such as five or six, but do not provide specifics as to what ready-to-wear sizes or body measurements the sizes should correspond to. Many choices about sizing and fit are left up to the individual designer (K. Whooley, personal communication, July 30, 2011). The publisher, the designer, or both can make decisions about the size range and the number of sizes based on the grading the pattern lends itself to, and a subjective judgment about which body sizes the garment would flatter.

Pattern grading is influenced by the crochet stitch pattern – not all patterns lend themselves to division to allow for precise grading, so the grading is often determined by the width of the stitch pattern (Chan, 2007b). For example, a pattern for a top that is initially designed to have a finished bust of 36” made from nine repeats of a stitch pattern that is 4” wide may be graded up to 39” and down to 33” in order to simplify construction by simply changing the number of repeats. “If you have a stitch multiple of 12 stitches
that's 4” wide, if you're trying to maintain complete multiples around a garment, then your grade increments can only be 4”, or the width of the multiple. The larger that is, the wider the increments, therefore the fewer sizes you can offer.” (E. Eckman, personal communication, July 30, 2011) The need for the garment to be symmetrical in front and back may lead to even greater restrictions, such as using an even number of repeats. In some cases, the designer must choose between a more complex pattern that allows for a greater number of sizes, or a simpler pattern that includes fewer sizes with bigger gaps between sizes. The skill level of the anticipated audience and the amount of space available for publication may influence such decisions. It is common for a pattern's largest size to be set based on an editor or designer's decision that the garment would not look flattering on larger sizes (K. Whooley, E. Eckman, D. Fanton & M. Miller, personal communication, July 29-30, 2011).

There has been an increase in the last few years in the number of patterns published in larger sizes. In her book *Everyday Crochet*, designer Doris Chan states, “Until very recently, I hadn't even considered sizing my designs larger than XL, with a finished bust around 44” (112 cm). And for the most part, the editors and publishers for whom I designed were not much concerned about it.” (2007b, p.11) When she did attempt to expand the size range, she found that “it was really, really difficult to size them, to get all the proportions correct for all of the sizes,” (quoted in Temple, 2007, p. 15) especially in light of using lace stitch patterns that needed to repeat evenly, and seamless designs to facilitate construction and “try-as-you-go” fitting. Other designers echo the sentiment that grading is time-consuming and difficult, and that more sizes
means that the pattern takes up more space when printed, often a concern for publishers. (Temple, 2007; D. Fanton & M. Miller, personal communication, July 29, 2011). There was a consensus among the designers interviewed that the size range has been expanded over the past decade from what publishers requested in the past, especially for larger sizes (larger than XL, such as 2X-5X), as well as some demand for smaller sizes (beginning the range at XS rather than S).

Karen Whooley described discrepancies amongst publishers for dealing with sizing.

The CYCA is trying to get us to the same standards, but some publishers march to the beat of their own drummer. I had one publisher [give me the garment measurements for each size] and it was totally different from the CYCA standards. Other publishers will say they want a finished length of X [inches], and you [the designer] just figure out the sizing yourself… Some are giving standards based on garment measurements, and some are based on body measurements. I just designed for a plus size book and all they gave me was the bust measurement and I had to use other resources to figure out what to use for the other measurements. (personal communication, July 30, 2011)

Much like ready-to-wear, there is not an identical implementation of a sizing standard across the industry, and there is not evidence that efforts to standardize will necessarily reflect individuals’ actual bodies without training crocheters (pattern users) to make alterations.

**Crochet Pattern Development**

Individual designers follow a variety of approaches for determining sizing and measurements for a new design. Some create a paper template, like a sewing pattern, and build up the crocheted fabric so that it conforms to the contours of the template. (D. Fanton, personal communication, July 29, 2011; Wood, 2008). Another designer may
begin with their own size for their sample garment, and then grade the pattern up or down from there based on the publisher’s specifications. Some designers utilize dress forms for fitting during the design process. One theme that emerged from designer interviews and research is that each designer follows a unique process based on her own knowledge and experience, and there is an absence of a common industry standard for the pattern development and grading process.

Marty Miller, an experienced designer, describes her sizing process:

I usually start with my size – whether I determine it’s a small or a medium depends on the finished product and how it measures, and what those measures translate to in the CYCA measurement [standards]. If I want a loose drape and the garment measures as, maybe, a large, I know I’m not a large, so I bring it down to a medium with extra drape. (personal communication, July 29, 2011)

To design the first prototype of a new design, Miller crochets to fit her own body, using her body as a template or mannequin. Other designers reference experiential knowledge gained over time – Edie Eckman says that she uses her own “internal system” for the sizing process that takes the CYCA standards into account, and starts with the size requested by the publisher for the model, typically a small or a medium (personal communication, July 29, 2011). Karen Whooley begins her development by trying the design at a smaller scale, such as a child’s size, to experiment with shaping before developing the design in adult sizes. She starts with the middle of the size range and grades the pattern up and down, feeling that it’s “too time consuming” to grade up from a small size all the way to the upper end of the range (personal communication, July 30,
Variations in the prototyping, sizing, and grading processes will lead to discrepancies in the fit of garments between styles, designers, and publishers.

**Pattern Alterations**

Crochet patterns are not commonly published with directions for fit alterations for specific body areas or shaping changes. Some exceptions exist, especially in more recently published patterns and in higher-end publications. According to designers, one reason for this may be that printed publications are limited by space constraints, and the advent of Internet-distributed patterns allows for more flexibility in what is included in the pattern (E. Eckman, personal communication, July 30, 2011). A few popular designers have recognized the importance of including fit modification suggestions in their designs, or offering tips aimed at a general audience in crochet publications. Lily Chin, a knit and crochet designer with an apparel industry background, offers classes on designing patterns using apparel patternmaking techniques such as draping and drafting. In her book *Couture Crochet Workshop* (2006), aimed at experienced crocheters, she offers specific suggestions about improving fit and customizing patterns to fit the individual body.

Karen Whooley has learned specific techniques to customize fit for a large bust, which she learned from classes taught by Chin. Extra fullness can be added at the bust using short rows, a form of shaping common in knitting but not commonly seen in crochet patterns. “Horizontal bust darts, via short rows…give extra length in the fabric that covers the center of the front and occurs right at the bustline. The sides of the front
remain shorter and are the same length as the back. In sewing, excess fabric is removed by stitching down this dart. In crocheting, more fabric inserted into the middle by having extra rows of work.” (Chin, 2006, p. 31) Whooley theorizes that inclusion and dissemination of information about short row bust shaping will increase, since the most common complaint she hears from dissatisfied crocheters is “I’m busty and the front is sitting too high,” and online publishing helps reduce shape restrictions for written patterns (personal communication, July 30, 2011).

Designers express the attitude that crocheters do not understand how to modify patterns to fit their individual bodies, especially when compared to knitters, and that this can lead to dissatisfaction which can lead to avoidance of future fitted garment projects. (E. Eckman, personal communication, July 30, 2011) Designers realize that “if two people are both smalls, those two people aren’t the same size” (M. Miller, personal communication, July 29, 2011) but may feel that individuals don’t realize it.

“I feel knitters realize when they knit a garment that they’re probably going to have to make some adjustments to fit their personal body, because there is no one universal body shape. I am not sure crocheters realize that they need to do some adjustments, make the sleeves longer, nip it in at the waist, depending on their physical structure...I don’t think crocheters have been trained how to fine tune a pattern.” (D. Fanton, personal communication, July 29, 2011).

A related opinion concerns crocheters choosing to avoid fitted garment patterns due to concerns about fit, based on feedback gained from students in crochet classes. “I find crocheters extremely reluctant to crochet garments that require any kind of fit,” says Eckman, with the exception of classes offered at industry conferences (personal communication, July 30, 2011).
When asked how to improve education for making pattern adjustments, designers recommended taking classes about adjusting sewing patterns to fit the body, and taking crochet classes that touch on the same topic. The interviews were conducted at the 2011 summer Crochet Guild of America conference, so the designers mentioned that conferences are a great opportunity for individuals to take such classes, but that conferences only attract a limited number of self-selecting individuals limited further by geographic and financial accessibility of attending such an event. (D. Fanton & M. Miller, personal communication, July 29, 2011)

Another concern about “alteration ignorance” relates to whether the individual is aware of it.

It’s pretty easy to design garments in crochet, and I use the word design loosely – to make your own garments and make them fit. If you’re doing that and you’re happy with what you’re doing, you may not know that there are technical aspects that you could improve on. I can offer all the classes I want, but if no one will take them… it’s hard to get crocheters to take classes. (E. Eckman, personal communication, July 30, 2011)

According to designers, there is a demand within the industry to determine how to reach out to crocheters and increase their comfort with more aspects of the craft, including fitting (E. Eckman, personal communication, July 30, 2011). “I don’t believe that every design has to be for every age; there is appropriate shape and style of fashion for each age group. Crocheters themselves need to realize that there is no ‘average’ body. If they could just learn to adjust gauge and learn to fit strategic areas, it wouldn’t matter if they were size 2 or size 42 – they’d still be gorgeous!” (Hubert, quoted in Blakley Kinsler, 2010, p. 22)
Sources of Fit and Sizing Variation

Yarn Choice

The absence of standardization in the industry and the parallels between fit satisfaction issues in ready-to-wear and crocheted garments may contribute significantly to fit satisfaction concerns in crochet, but the handmade nature of crocheted garments contributes to the possibility for problems as well. While the fact that each crochet project is individual and unique may provide the benefits of customization and personal choice, variations in design choices and deviations from the pattern can contribute to fit dissatisfaction. Crocheters may choose to change the yarn called for in the pattern, such as changing the weight or fiber content, sometimes unaware of how this will affect the size of their finished garment or the characteristics of the fabric they create (Fig. 7). For example, a designer may design a sweater pattern using a wool yarn with the intent of taking advantage of the properties of the yarn to affect the fit of the garment, but cannot control for the fact that an individual crocheter who opts to use a cotton blend yarn may achieve different results. Designer Edie Eckman theorizes that crocheters may have problems with fit satisfaction when they substitute yarns:

If people are unhappy with the fit of their garments I wouldn’t be surprised if you found out that it’s not the way the designers are designing it, the problem is with the ignorance of gauge and appropriate fabric for the garment. “Oh, this is a worsted weight sweater, that means I can use any worsted weight,” [they’ll think]. Instead of the merino-silk blend the designer used, they used a worsted weight [acrylic fiber] craft yarn and they’re unhappy with the result. (personal communication, July 30, 2011)
Her opinion implies that greater experience with different fibers and their properties may help eliminate problems that arise as a result of this factor.

![Image of two versions of the same garment made with different yarns.](image)

**Fig. 7:** Two versions of the same garment made with different yarns. The substitution was a deliberate design choice by the designer, but offers a good example to illustrate the effects on garment weight, shaping and drape while holding other factors constant. *(Source: Doris Chan: Ravelry and Everyday Crochet)*

**Gauge and Swatching**

Another common issue relates to the differences in tension and stitch formation between individuals. Patterns typically mention a gauge, which refers to the number of stitches per inch or per repeat of the stitch pattern that should be achieved to crochet the pattern to the specified size. It is recommended by crochet designers and experts that
before beginning a pattern, a crocheter should make a swatch, working the stitch pattern in the planned yarn and hook size to a specified minimum size, often four inches square (Fig. 8). Once this has been done, the crocheter should measure the swatch to see if their gauge aligns with that specified in the pattern. Hook size or yarn choice adjustments need to be made if the gauge does not match. Even after swatching, variations can occur throughout a project or between projects due to a wide variety of factors. For instance, variations in body position, muscle tenseness, and focus and attention can lead to discrepancies in stitch tension (Chan, 2008a).

To check gauge, chain 30 to 40 stitches using recommended hook size. Work in pattern stitch until piece measures at least 4” (10 cm) from foundation chain. Lay swatch on a flat surface. Place a ruler over swatch and count number of stitches across and number of rows down (including fractions of stitches and rows) in 4” (10 cm). Repeat two or three times on different areas of swatch to confirm measurements. If you have more stitches and rows than called for in instructions, use a larger hook; if you have fewer, use a smaller hook. Repeat until gauge is correct. (Interweave Crochet, Fall 2010, p. 88)

Due to the time and effort needed to complete this step, many crocheters skip it, a frustration related by many designers and echoed in the introductions to some patterns.

In classes, how many times do we tell people to do a gauge swatch? Nobody wants to do a gauge swatch, they don’t do a gauge swatch, they’ve made half the garment and it’s way too big, [so we ask] “Well, did you do a swatch?” [and they say no] Or they’ll do a gauge swatch in a particular yarn and then switch yarns and don’t re-swatch. They assume all worsted weights [a yarn sizing standard] are going to be the same. Or they assume their gauge is always right on and don’t understand there are differences between patterns. (D. Fanton & M. Miller, personal communication, July 29, 2011)
Fig. 8: Gauge swatches made with increasing hook sizes, from left to right, being measured flat, after blocking. Note the difference in size in both the vertical and horizontal directions and the use of the ruler to count stitches to the inch. This must correspond with the gauge specified in the pattern to achieve the predicted finished measurements.


Another explanation offered for the avoidance of swatching to check gauge is that not all patterns include information about how to make a swatch. In order to swatch, the crocheter needs to understand how to make a small piece of the overall garment. If the pattern itself is complex, it will be difficult to figure out how to modify the given directions in order to make a swatch. One theory proposed by designers for the absence of specific swatching directions is publishers’ desire to minimize the amount of space a pattern takes up for cost reasons. (M. Miller, personal communication, July 29, 2011).
The availability of patterns published electronically has partly addressed this concern, and designers who understand the importance of swatching do make an effort to convince publishers to include swatching information in published patterns. (D. Fanton & M. Miller, personal communication, July 29, 2011) Gauge is a sufficient frustration for crocheters that some designers mentioned that their inability to meet other designers’ gauge is the reason they became designers.

**Blocking**

Blocking (Fig. 9 and 10) is another step in the crochet process that can affect the fit of the finished garment. Blocking is “the means by which pieces are shaped to their final measurements, using moisture and sometimes heat.” (Eckman, 2005, p. 237) Total immersion in water, a spray bottle, or a steam iron can be used to apply the appropriate amount of moisture to the fabric, and the piece is then laid flat to dry, sometimes with the assistance of measuring tools or pins to help with shaping. A frequent explanation for the absence of the anticipated fit in a particular garment is that the crocheter has failed to block the piece correctly or failed to block it entirely. One theory for this behavior is proposed by Chan (2011): “The more I interact with crocheters the more I suspect that our attitude about blocking derives from our personal experience with crochet. By far the largest segment of the crochet population comes from a place of craft yarn and from making not-garments.” She suggests that the Craft and Hobby Association Attitude and Usage Survey and the National Needle Arts Association 2010 survey back up the “traditional and stereotypic inference” that crocheters, as a population, focus more on
home goods and décor items, and knitters focus more on garments. Even if crochet is the third most popular craft in the United States as measured by household participation (Craft and Hobby Association, 2010), crocheters have less experience with making garments, especially when compared to knitters, and therefore may be less aware of the importance of blocking.

Fig. 9: Front side section of a sweater, pre-blocking. Note the bunching and tightness of the raised stitch section on the right side. (Source: Ravelry user LadyLondonderry)
Fig. 10: Another crocheter’s project of the same sweater, using the same yarn in a different color, while being blocked. Note the relaxation of the stitches after immersion in water that modifies the shape and size of the pieces, and the pins used to keep the shape as the fabric dries. The change in fabric characteristics will be permanent. (Source: Linda Permann)

Sizing

Another opportunity for fit satisfaction variations can occur when the crocheter must choose which pattern size to make. There is not consistency in how sizes are reported – usually, patterns for garments for the torso will give either the bust measurement of the wearer or the bust measurement of the garment, but not both. Sometimes other body or garment measurements are given. The Craft Yarn Council standards are based on body measurements, and then ease values are given – for example, a “very loose fitting” garment should include 4-6 inches of ease at the bust.
Local resources such as yarn shops are likely to be knitting-focused. Personal experience with yarn shops in Virginia, North Carolina, Vermont, Minnesota, New York, Pennsylvania, and Massachusetts, among others, tells a story of feeling marginalized when a store employee inquires “What are you going to knit with that [yarn]?” or is unable to answer a question or direct me to crochet hooks or patterns. In her dissertation on the feminine gendered identity of knitting, Medford (2006) shares this story from shopping at a store in Florida in the early 2000s:

As I perused the store, I saw samples of fabulous knitted garments everywhere and started to believe that knitting offered a lot more diversity, project-wise, than crochet. I also got the distinct impression that knitting (at least according to the knitters) was a much more elite activity than crochet. When I asked how many balls of yarn I would need to crochet a scarf, their faces seemed to say, Don’t use our yarn for that. (p. 8)

Crochet designer Gwen Blakly Kinsler feels that “crochet should get equal billing with knitting at needlework gatherings.” She “remember[s] classes [she] taught at TNNA [The National NeedleArts Association conference] in the mid-1990s when [she] encouraged shop owners to increase their business by marketing to crocheters.” (2010, p. 20) In her experience new shop owners approach TNNA, as a trade association, with questions and plans to include crocheters. It may be the case that the prevalence of this attitude is declining as the crochet revival is incorporated into existing knitting business plans, although crochet groups on Ravelry maintain lists of “crochet friendly” yarn shops, implying that a positive attitude and expertise is the exception rather than the norm. As a result, there may be an effect on the outcome of crocheted garments if crocheters do not
feel that they have a readily available local resource – as a tangible piece of handwork, it is often difficult to communicate about the details of a problem with someone who is unable to touch it.

**Designer Feedback**

Many crochet designers are also teachers. Outside of industry events and conferences, classes are their major opportunity to interact with individual crocheters who are working from published patterns. The Internet also gives designers an opportunity for feedback – many designers cited Ravelry as a source of pattern feedback, since many designers have Ravelry accounts through which they may be contacted, and each pattern has its own page on the site with a space for comments. Some designers also receive feedback through their professional website or e-mail address.

**Theory Development**

Theory serves as the foundation of knowledge within a field, yet “theory development in the field of clothing and textiles has been slow and inconsistent,” (Blood, 2006, p. 1) and “theory still generally remains misunderstood and unnamed” (Pedersen, 2007). The practical effects of this state of the field, combined with the exploratory nature of research about sizing and fit of handcrafted clothing, especially non-sewn garments, prompted me to create a model to represent my understanding of fit satisfaction assessment in crochet, based on interviews with designers, a literature review, and my own experiential knowledge as a crocheter, seamstress, and student of apparel studies.
Well-developed theories can be used to organize existing knowledge, and contribute to the discovery of new ideas to advance both research and practice within a field (Walker & Avant, 1995).

As I conducted my interviews with designers, I found myself describing my understanding of the factors that contribute to fit and fit satisfaction to one of my interviewees using a “funnel” analogy. I listed a number of factors and generalized their contributions, as if the design and construction process were modeled as a funnel, in which a variety of factors “fall into” the wide end, and combine in varying ways to produce a final garment, with its unique fit and fit assessment by its creator, at the narrow end.

This model (Fig. 11) provides a basis for evaluating data in this research by defining and distinguishing factors that contribute to fit satisfaction with a final garment. They may work in tandem with each other or separately, and may occur at different stages of the design process, or throughout – thus the choice of an unstructured top to the funnel, rather than a linear model. Some factors have already been defined and tested with ready-to-wear garments by other scholars, and some are unique to crochet, or to crochet and knitting (needle arts) and thus results from ready-to-wear research cannot necessarily be generalized to their effects. Results from the present research and future research may further refine the model, such as by removing, adding, or combining factors, or changing the shape or structure of the model.
Fig. 11: Proposed funnel model for relationship between contributing variables and fit satisfaction
CHAPTER 3: METHODS

The purpose of this study was to examine fit satisfaction and possible contributing variables among women who crochet clothing for themselves. A mixed methods evaluation of data was used, including an online questionnaire with both quantitative and qualitative questions.

Benefits of Mixed-Methods Design

Scholars recommend combining quantitative and qualitative methods when possible in order to gain a richer and more complete picture of the phenomenon being studied. Qualitative research is commonly used for exploratory studies, which describes this study, since neither the crocheting population nor fit satisfaction for handmade garments has been extensively studied. Quantitative research aims to follow what may be viewed, historically, as a more “rigorous” approach to generalize a sample to a population. However, qualitative research should not be seen as lacking scientific validity. Phenomenological qualitative approaches aim to understand the “lived experiences” of participants on a particular phenomenon, which in this case is fit satisfaction with crocheted garments. It is important for the researcher in qualitative research to take her own experiences into account and not let them bias the participants’ experiences when telling their stories. Mixed methods is chosen when the researcher feels that it is the best opportunity to understand the research problem (Creswell, 2009).
A survey-based design allowed for acquisition of data quickly and efficiently. Conducting the survey online allowed for access to a wide variety of individuals from different geographic locations with different experiences of crocheting garments. While these methods were chosen as the best approaches given the scope of the study and short-term research goals, it is understood that they come with certain limitations such as potential homogeneity of respondents or lack of depth in responses.

**Data Collection**

*Participants & Recruitment*

Participants were recruited from crochet-specific forums on the knit and crochet website Ravelry. The majority of Ravelry projects and discussion focus on knitting, though crochet is also popular. The two major crochet forums on Ravelry are Crochet Liberation Front and Crochet on Ravelry. Crochet Liberation Front, or CLF, was started by Laurie Wheeler and takes its name and mission from the oft-stated opinion that crocheters feel left out or undermined by the knitting-focused yarn community. The Ravelry group has just over 7000 members as of November 2011, and Wheeler also runs an associated website and Facebook page.

Crochet on Ravelry has 14,400 members as of November 2011, and is run by a team of moderators. Participants were recruited from both groups after discussion with Wheeler and Deborah Burger, a Crochet on Ravelry moderator, concluded that while there was overlap in the membership, a wider group of potential participants could be reached by posting the recruitment notice in these two forums. Online forum etiquette
often indicates that it is impolite to post the same message in multiple forums, which was one reason for limiting recruitment to two major forums. It was anticipated that using these two sources would lead to an appropriately large and diverse group of potential participants.

It was understood that using Ravelry would lead to limitations of generalizability, but it would also allow access to a large number of crocheters with garment-making interest and experience. It was anticipated that both those who felt generally satisfied and those who felt generally dissatisfied would respond to the survey. Reaching a range of skill levels should also be possible on Ravelry, as the community brings together novices and experts to seek assistance and share expertise.

**Questionnaire Development**

The questionnaire (Appendix A) was developed through consultation with crochet designers beginning at the July 2011 Crochet Guild of America conference in Minneapolis, MN, and continuing through e-mail exchanges afterwards. Existing questionnaires on fit satisfaction (LaBat, 1987; Alexander, Connell, & Presley, 2000) were examined for question structure and wording, and the contextual review served as additional content resources. The questionnaire construction advice given by Frankfort-Nachmias and Nachmias (2008) was consulted to ensure that questions were constructed following established social science research methods.

The questionnaire was divided into fourteen sections based on content areas. Section 1 asked demographic questions to help gain a descriptive understanding of the
sample, including age, country of residence, and whether the participant felt she lived in an urban, rural, or suburban area. Section 2 asked for information about the participants’ ready-to-wear experience, including the dress size most commonly purchased on a scale of “2 or smaller” to “24 or larger,” the department the participant most commonly shopped in (such as Misses, Petite, Plus, etc.), and her satisfaction with the fit of ready-to-wear clothing, on a 7-point Likert-type scale.

Section 3 asked for body measurements and bra cup size, to provide an opportunity for researcher assessment of body size independent of other self-report indicators like dress size. The two body measurements requests were bust and underbust measurements. Like all questions on the questionnaire, a participant had the option of leaving these blank if she was not comfortable reporting the information or simply chose not to take the time to collect the measurements.

Section 4 was about craft experience levels, including total number of fitted garments crocheted for oneself, and an assessment of knitting, crochet, and sewing experience levels, each on a scale of Beginner to Expert. Sections 5 and 6 offered two identical sets of questions about fit satisfaction. The first asked the participant to consider the last garment she had completed for herself that involved fitting, and to report what type of garment it was from a list of choices based on Ravelry’s garment categories, such as sweater, jacket, top, and so on. She was then asked to rate her satisfaction with the fit of the garment in different body areas on a 7-point Likert-type scale. In the second set of questions, the participant rated her combined satisfaction with all garments she had crocheted for herself in the same body areas using the same Likert-type scale. After each
set of questions, there was a free-response comment section where the participant could comment on her responses if she wished.

In Section 7, the participant was asked which sources she most commonly consults to find patterns for these garments. The list of sources was developed from personal experience, Ravelry research, and consultation with professional crochet designers, including options for a variety of online and published sources and self-designed garments. The participant was asked to choose her top three sources, and given a free-response section to elaborate on her choices. In Section 8, the questions were about adjusting and customizing garments during the process, including a Likert-type scale question about how frequently the participant chooses to make adjustments, and a question in which the participant could indicate when in the process she made adjustments, which allowed for multiple responses such as “before,” “during,” and “after” the crocheting process.

Section 9 asked about what sources were used when the participant had difficulty with the fit of a garment project. The list was developed from personal experience and conversations with professional crochet designers. Acknowledging that one potential source of low satisfaction with finished garments may come from difficulty getting help, a second version of the question let participants choose which sources they would prefer to use if they were available. Both questions included a free-response field for elaboration.
Section 10 asked about number of classes taken in knit, crochet, and sewing that may have touched on different aspects of the process that may affect fit, such as fitting to the body, the importance of swatching before beginning a garment, and blocking the garment after completion. The reasoning was that classes may offer participants an opportunity to gain knowledge from more experienced crafters that they can then translate into their own work, and that knitting and sewing knowledge may transfer to an increased understanding of sizing, fit, and process in crochet.

Sections 11 and 12 were about swatching and blocking, respectively. Section 11 asked participants about frequency of swatching behavior, how big they typically made a swatch, and how frequently they washed or blocked the swatch once it was completed. Information gained from swatching can affect the finished size of a garment because it determines whether the participant’s gauge aligns with the designer’s gauge. Washing and blocking can change the gauge and behavior of the fibers, so crochet experts recommend treating the swatch similarly to the finishing process for the completed garment. Section 12 asked about frequency of behavior for blocking the finished garment, for the same reasons.

Section 13 asked participants if concerns about fit had ever caused them to avoid crocheting a garment from a pattern they liked, including a free-response field for comments. Section 14 was an open-ended comment field for information the participant wanted to share with the researcher than had not been addressed previously in the questionnaire, or elaboration on included topics. At the end of the questionnaire, the participant was thanked for participating.
**Questionnaire pre-testing**

Prior to data collection, the content of the questionnaire was examined by two individuals known to be highly experienced crochet designers, and one with significant experience in apparel education and research, including instrument design. Changes were made to the questions, including overall inclusion and exclusion, and phrasing, with their input. After this stage, a computerized version of the questionnaire was implemented and piloted with four individuals with some level of experience with knitting or crochet, which offered an opportunity for assessment of content clarity across the skill level range. Minor changes were made to the questionnaire based on feedback from the pilot before the recruitment posts were made. Both the pilot and final questionnaires were implemented using UMSurvey, a survey service offered by the University of Minnesota for members of the university community that uses the LimeSurvey system.

The questionnaire was posted in September 2011 and was active for one month. A brief introduction to the study and a request to participate was made in a post on each of the two forums. The criteria for participation were outlined as follows: female, over the age of 18, and “Have crocheted at least one upper-body/torso garment for yourself that involves some fitting/shaping (sweaters, vests, tank tops, dresses, jackets, etc…. unfitted accessories like shawls don’t count).” When participants clicked the link to the questionnaire, they reached a page with information about informed consent, and upon proceeding could take the entire questionnaire.
Sampling

This sample was collected through volunteer convenience sampling, in which participants were chosen based on those who voluntarily opted to complete the questionnaire once it was advertised on a private forum they frequented related to a hobby activity of interest to them. While convenience sampling suffers from drawbacks that can be avoided through more scientifically rigorous sampling techniques, in this case the participant profile was so narrow that it was chosen in order to maximize the number of cases available for analysis. In this case, an additional concern regarding the sampling technique is that participants were not only self-selecting, but limited to the population of garment crocheters who read the forums selected for recruitment. It is likely that there is a significant portion of garment crocheters who were not included in the population from which the sample was drawn because they did not read the post, did not access the site during the time of recruitment, did not participate in Ravelry, or did not have access to the Internet. The study proceeded in spite of these limitations because of its exploratory nature, understanding that the generalizability of the results may be limited, and that future research on this topic should strive for a more inclusive and rigorous sampling procedure.

Data Analysis

Quantitative Analysis

First, descriptive and summary statistics were calculated to show basic quantitative results to survey questions. The relationships among the variables were
statistically analyzed using the SPSS software package. Multiple categorical principal component analysis (PCA) procedures were run to analyze possible correlations among variables. From there, multiple tests such as linear regression, Chi-square tests, and other correlations were run to test different relationships depending on the type of variables, since the data included both ordinal and scale variables.

*Qualitative Analysis*

Content analysis was used to study and analyze the qualitative data. The process included organizing the open-ended responses from the questionnaire into categories based on responses to specific questions, and then coding the data based on possible themes and relationships within and between categories. Multiple iterations of coding occurred to ensure that all possible themes were explored and that data were allowed to reflect multiple ideas or opinions.

Creswell (2007) describes a “data analysis spiral” for qualitative data, which begins with organizing the data, then reading it and taking stock of the big ideas and the entire picture, moving on to describing, classifying, and interpreting, and presenting results at the end. It is appropriate in qualitative research to return to earlier stages of the process as the researcher struggles to understand the data and confirm the optimal understanding of the implications. Originally, the data were coded into several large categories or themes. Over time, data points (individual participant question responses) were reorganized between categories, and categories were collapsed, eliminated, and invented anew. The final decision for organization and presentation of the data followed
an approximately chronological path through the process of crocheting a garment, focusing on similarities between responses that allowed for top-level conclusions to be drawn.

For final analysis, quantitative and qualitative results were combined, contrasted, and compared. Quantitative results can be used to back up qualitative themes, and qualitative experiences can support preliminary quantitative findings. The next chapter describes the results of both elements of the questionnaire.
CHAPTER 4 – RESULTS

The purpose of this study was to examine fit satisfaction and possible contributing variables among women who crochet clothing for themselves. The relationships between these variables, such as body size, experience level, specific behaviors during the process such as swatching and blocking, were examined both quantitatively and qualitatively.

According to Ravelry’s page view count, about 370 people read the two forum recruitment threads including a link to the questionnaire. A total of 70 questionnaires were filled out in their entirety. Further characteristics describing the participant sample include an age range that covered all possible age sub-categories offered on the questionnaire, from “under 20” to “71 and over.” 52 of the 70 participants lived in the United States and 7 in the United Kingdom. Other countries represented include Australia, Canada, China, Denmark, Germany, Japan, Latvia, and New Zealand.

Descriptive Statistics

Descriptive statistics were calculated to determine basic characteristics of the sample and of the data set.

Section 1: Age and Body Size Data

Age was reported on the questionnaire using age range brackets of 5 years, starting with “under 20” and ending at “71 and older.” All age brackets were represented, with a mean and median both in the 41-45 age group. When asked about the dress size most commonly purchased, 16 out of 70 participants did not respond, so the data is based
on 56 participants, who reported a mean dress size between 12 and 14.\textsuperscript{2} Mean bust measurement was 40.8” and mean underbust measurement was 35.6”, and mean bra cup size was between C and D, with a median of a D cup.\textsuperscript{3}

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>41-45</td>
<td>41-45</td>
</tr>
<tr>
<td>Dress size</td>
<td>12-14</td>
<td>14</td>
</tr>
<tr>
<td>Bust</td>
<td>40.8”</td>
<td>40”</td>
</tr>
<tr>
<td>Underbust</td>
<td>35.6”</td>
<td>34.5”</td>
</tr>
<tr>
<td>Bra Cup Size</td>
<td>C-D</td>
<td>C</td>
</tr>
</tbody>
</table>

Participants were asked which clothing department they commonly shop in. Twenty-four indicated Misses (34%), 23 indicated Womens or Plus (33%), 10 indicated Petite (14%), 7 indicated Tall (10%), 4 indicated Other (6%), and there were 2 missing responses.

\textsuperscript{2} Note that the scale of dress sizes was “2 or smaller” to “24 or larger.” 3 participants indicated their dress size fell in each of these categories, so if their true size was reported (such as 0 or 28) it might slightly skew the reported mean.

\textsuperscript{3} The scale of bra cup sizes was “A or smaller” to “DD or larger.” 7 participants reported they wore an “A or smaller” and 21 reported “DD or larger.” Again, true sizes, such as AA or F, may change the reported mean of the data in a meaningful way. The median is a good indicator of central tendency with data like this.
Section 2: Experience Level Data

The questionnaire included several questions designed to determine participants’ experience level with crochet and other garment construction methods, using a variety of indicators. Figure 12 shows the results of the question “How many garments have you crocheted for yourself?” 26 participants had crocheted 10 or more garments, the largest single category, although a significant number had made a smaller number, including just 1 or 2.

Figure 12: Responses to “How many fitted garments have you crocheted for yourself?”
Table 2 shows the results of the questions asking participants to rate their experience level with crocheting, knitting, and sewing garments. Participants had more experience with crochet than with the other two crafts in this domain, and the majority of participants rated themselves as at least “advanced beginner” crocheters. Almost half of participants had no garment knitting experience at all, and sewing experience was more evenly distributed between the categories.

Table 2: Participant-reported Experience Level in Garment-making by Category

<table>
<thead>
<tr>
<th></th>
<th>Crocheting</th>
<th>Knitting</th>
<th>Sewing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No experience</td>
<td>0</td>
<td>32</td>
<td>17</td>
</tr>
<tr>
<td>Beginner</td>
<td>4</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Advanced beginner</td>
<td>13</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>Intermediate</td>
<td>33</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Expert</td>
<td>19</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 5 shows the results of the questions asking participants if they had taken classes in crochet, knitting, or sewing that covered specific behavior-based topics such as swatching, finishing, and garment fitting in general. The results show that the majority of participants had not taken any classes. Options were given for “2” or “3 or more” classes, but the participants who had taken classes only reported taking one.
Table 3: Class Experience

<table>
<thead>
<tr>
<th></th>
<th>No response</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crochet – fitting</td>
<td>8</td>
<td>58</td>
<td>4</td>
</tr>
<tr>
<td>Crochet - swatching</td>
<td>8</td>
<td>55</td>
<td>7</td>
</tr>
<tr>
<td>Crochet – finishing</td>
<td>8</td>
<td>59</td>
<td>3</td>
</tr>
<tr>
<td>Crochet – yarn selection</td>
<td>8</td>
<td>57</td>
<td>5</td>
</tr>
<tr>
<td>Knitting - fitting</td>
<td>10</td>
<td>56</td>
<td>4</td>
</tr>
<tr>
<td>Knitting – swatching</td>
<td>11</td>
<td>56</td>
<td>3</td>
</tr>
<tr>
<td>Knitting – yarn selection</td>
<td>9</td>
<td>56</td>
<td>5</td>
</tr>
<tr>
<td>Knitting – finishing</td>
<td>11</td>
<td>56</td>
<td>3</td>
</tr>
<tr>
<td>Sewing – fitting</td>
<td>18</td>
<td>43</td>
<td>9</td>
</tr>
</tbody>
</table>

Section 3: Behavioral Variables

Several questions asked participants about their tendency to engage in specific behaviors when making a crochet garment, such as adjusting the pattern, blocking the finished garment, or making a swatch before starting. Participants were also asked where they go when they need help with a pattern or project, and where they would prefer to go if the option were available. Figure 13 shows bar charts of three significant behavioral variables, in which participants were asked how frequently they adjust a pattern, swatch before starting, and block after finishing, respectively. Additionally, participants were asked how often they adjust a pattern. Participants could choose as many of the options
that applied: “Before starting to crochet” (36, or 51%), “Partway through the process” (50, or 70%), “After the garment is mostly or entirely done (17, or 24%), or “I don’t typically adjust it” (7, or 10%). Since some participants checked multiple responses, the responses add up to more than 70 (100%).

**Figure 13: Graphs of Behavioral Variables**

![Graphs of Behavioral Variables](image)

Additional questions about swatching covered size of swatch (shown in Table 4) and whether the participant commonly washed or blocked her swatch before beginning her project. Table 5 shows the frequencies of the different possible responses to the second set of questions, shown side-by-side with data about whether the participant commonly swatched to start or not.
Table 4: Swatch Sizes: How large do you commonly make your swatch?

<table>
<thead>
<tr>
<th>Swatch Size</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2” square</td>
<td>1</td>
</tr>
<tr>
<td>4” square</td>
<td>41</td>
</tr>
<tr>
<td>6” square</td>
<td>12</td>
</tr>
<tr>
<td>I don’t typically swatch</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5: Frequency of swatching, and washing and blocking swatch

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Swatching</th>
<th>Washing</th>
<th>Blocking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>3</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>Occasionally</td>
<td>13</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>About half the time</td>
<td>9</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Most of the time</td>
<td>16</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Always or almost always</td>
<td>28</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Participants were asked what sources they commonly use for the patterns they make garments from. Participants were asked to choose their top three sources, but could choose fewer than three. As a result, the frequency responses in Table 6 add to greater than the total number of participants.
Table 6: Common sources of garment patterns

<table>
<thead>
<tr>
<th>Source</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-designed (I make my own)</td>
<td>26</td>
</tr>
<tr>
<td>Magazines</td>
<td>42</td>
</tr>
<tr>
<td>Books</td>
<td>46</td>
</tr>
<tr>
<td>Local yarn shop</td>
<td>3</td>
</tr>
<tr>
<td>Yarn company website</td>
<td>9</td>
</tr>
<tr>
<td>Craft retailers</td>
<td>1</td>
</tr>
<tr>
<td>Online – purchased</td>
<td>17</td>
</tr>
<tr>
<td>Online - free</td>
<td>29</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

Participants were asked where they commonly go for help when they have trouble with the fitting of a garment project. Again, this question allowed participants to select multiple responses. The next section of the questionnaire gave the participant the same options, but asked where she would prefer to get help if the option were available. Table 7 summarizes the results of these two questions.
Table 7: Current (Available) and Preferred (Unavailable) Sources of Help

<table>
<thead>
<tr>
<th>Source</th>
<th>Current source</th>
<th>Preferred source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local yarn shop</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Friends or crochet group</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Contacting designer</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Ravelry forums</td>
<td>26</td>
<td>19</td>
</tr>
<tr>
<td>Other online resource</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>“I figure it out myself”</td>
<td>57</td>
<td>37</td>
</tr>
</tbody>
</table>

The final question in this category asked participants if concerns about fit satisfaction or fitting had ever caused them to avoid crocheting a garment from a pattern they liked. The results are shown in Table 8.

Table 8: Frequency of Avoiding a Pattern Due to Fitting Concerns

<table>
<thead>
<tr>
<th>Concern</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, never</td>
<td>16</td>
</tr>
<tr>
<td>Yes, occasionally</td>
<td>28</td>
</tr>
<tr>
<td>Yes, fairly often</td>
<td>15</td>
</tr>
<tr>
<td>Yes, this happens all the time</td>
<td>10</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
</tr>
</tbody>
</table>
Section 4: Satisfaction Data

Participants were asked how satisfied they felt with the fit of ready-to-wear clothing, with responses measured on a 7-point Likert-type scale. The responses are shown in Figure 14.

Figure 14: Graph of Ready-to-wear clothing fit satisfaction

![Graph showing fit satisfaction levels](image)

The same Likert-type scale was used to measure fit satisfaction for different body areas. Participants were asked to respond to the scale for eight different body areas, as well as assess the overall fit, twice: once for the last garment they had made, and once summarizing their overall experience with the garments they had crocheted for themselves. The responses, given as the means on the 7-point scale, are shown in Table 9.
Table 9: Mean Fit Satisfaction by Body Area for Last Garment Made and for All Garments Made

(Scale: 1-7, in which higher scores represent greater satisfaction)

<table>
<thead>
<tr>
<th></th>
<th>Last Garment</th>
<th>All Garments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>5.68</td>
<td>5.45</td>
</tr>
<tr>
<td>Neckline</td>
<td>5.76</td>
<td>5.55</td>
</tr>
<tr>
<td>Bust</td>
<td>5.86</td>
<td>5.59</td>
</tr>
<tr>
<td>Shoulders</td>
<td>5.84</td>
<td>5.57</td>
</tr>
<tr>
<td>Sleeve length</td>
<td>6.24</td>
<td>5.90</td>
</tr>
<tr>
<td>Armhole</td>
<td>5.78</td>
<td>5.56</td>
</tr>
<tr>
<td>Waist</td>
<td>5.83</td>
<td>5.57</td>
</tr>
<tr>
<td>Hip</td>
<td>5.96</td>
<td>5.56</td>
</tr>
<tr>
<td>Overall length</td>
<td>5.96</td>
<td>5.84</td>
</tr>
</tbody>
</table>

Participants were also asked which type of garment this “last garment” was. The responses are summarized in Table 10.

Table 10: Garment Type for Last Garment

<table>
<thead>
<tr>
<th>Garment Type</th>
<th>Last Garment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolero/shrug</td>
<td>5</td>
</tr>
<tr>
<td>Coat or jacket</td>
<td>7</td>
</tr>
<tr>
<td>Dress</td>
<td>4</td>
</tr>
<tr>
<td>Sleeveless top</td>
<td>13</td>
</tr>
<tr>
<td>Sweater</td>
<td>30</td>
</tr>
<tr>
<td>Tee</td>
<td>3</td>
</tr>
<tr>
<td>Vest</td>
<td>7</td>
</tr>
</tbody>
</table>
In order to understand relationships between variables, the next phase of the data analysis used statistical software to calculate regressions, correlations, and test for significance.

**Analytical Quantitative Results**

Due to the large number of quantitative variables on the questionnaire, a categorical principle component analysis (PCA) was done first using IBM’s SPSS Statistics software. The visual results of the PCA were used to guide further data analysis. To gain the broadest understanding of the data and ensure the control of specific variables, a linear regression (univariate analysis of variance) was done using the following variables: dress size, bust measurement, bra cup size, crochet experience level, frequency of swatching, and frequency of blocking finished garments. The dependent variable was the overall satisfaction with the last garment crocheted (Table 11). The same regression was calculated using overall satisfaction with all crocheted garments as the dependent variable, and similar results were obtained. All tests for significance were conducted at the p < .005 significance level.

The two variables that showed significance in this particular analysis were experience level (p < .0001) and frequency of blocking behavior (p = .006). These variables showed a positive correlation with fit satisfaction, indicating that as experience level increases, if other variables in the regression are held constant, fit satisfaction increases. Similarly, as self-reported frequency of blocking behavior increases, fit satisfaction increases if other variables are held constant. The body size variables (dress
size, bra cup size, and bust measurement) and the variable concerning swatching did not show a significant relationship with the dependent variable.

Table 11: Univariate Analysis of Variance – General Subset

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Intercept</td>
<td>-2.874</td>
<td>2.811</td>
<td>-1.022</td>
<td>.313</td>
<td>-8.547</td>
</tr>
<tr>
<td>Dress size</td>
<td>-.072</td>
<td>.068</td>
<td>-1.050</td>
<td>.300</td>
<td>-.209</td>
</tr>
<tr>
<td>Bust measurement</td>
<td>.078</td>
<td>.079</td>
<td>.984</td>
<td>.331</td>
<td>-.082</td>
</tr>
<tr>
<td>Bra cup size</td>
<td>.171</td>
<td>.180</td>
<td>.948</td>
<td>.348</td>
<td>-.193</td>
</tr>
<tr>
<td>Crochet experience level</td>
<td>1.041</td>
<td>.250</td>
<td>4.169</td>
<td>.000</td>
<td>.537</td>
</tr>
<tr>
<td>Swatching frequency</td>
<td>-.095</td>
<td>.182</td>
<td>-.522</td>
<td>.604</td>
<td>-.462</td>
</tr>
<tr>
<td>Blocking frequency</td>
<td>.474</td>
<td>.165</td>
<td>2.881</td>
<td>.006</td>
<td>.142</td>
</tr>
</tbody>
</table>

To test the possible effect of experience with knitting and sewing garments on satisfaction level, another linear regression was done using the three experience variables, as well as previously included behavioral variables about swatching and blocking (Table 12). The results were similar to the previous analysis, in which crochet experience was shown to have a significant effect on satisfaction when other variables are held constant (p = .001). The other variables studied did not show a significant relationship with the dependent variable.
Table 12: Univariate Analysis of Variance – Experience Level Subset

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>Std. Error</th>
<th>t</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.348</td>
<td>.797</td>
<td>2.946</td>
<td>.005</td>
<td>.752</td>
</tr>
<tr>
<td>Crochet experience</td>
<td>.609</td>
<td>.169</td>
<td>3.609</td>
<td>.001</td>
<td>.271</td>
</tr>
<tr>
<td>Knit experience</td>
<td>.048</td>
<td>.105</td>
<td>.463</td>
<td>.646</td>
<td>-.161</td>
</tr>
<tr>
<td>Sewing experience</td>
<td>-.164</td>
<td>.114</td>
<td>-1.439</td>
<td>.156</td>
<td>-.393</td>
</tr>
<tr>
<td>Swatching frequency</td>
<td>-.025</td>
<td>.122</td>
<td>-.209</td>
<td>.835</td>
<td>-.269</td>
</tr>
<tr>
<td>Blocking frequency</td>
<td>.289</td>
<td>.108</td>
<td>2.673</td>
<td>.010</td>
<td>.072</td>
</tr>
</tbody>
</table>

The existence of a possible correlation between specific variables was studied using Kendall and Spearman correlation tests, Chi-square tests, and visual analysis of scatter plots. The relationship between ready-to-wear fit satisfaction and overall satisfaction with crocheted clothing fit was assessed using correlation tests and a scatterplot. The relationship was not found to be significant (p = .044).
Figure 15: Scatterplot for Ready-to-wear Fit Satisfaction and Overall Crocheted Apparel Fit Satisfaction

Qualitative Results

The qualitative data for this study was taken from open-ended questions asked on the questionnaire, including optional fields at the end of particular sections where the participant could choose to provide additional information on a topic, such as fit satisfaction or pattern sources. Results (Table 13) based on the analysis are structured around a model of the product development process for crochet, and themes are integrated chronologically. The beginning of the process includes themes around pattern
choice, including avoidance of particular styles, body size and body cathexis, and choice of materials. This initial planning and preparation processes comprise a large segment of the qualitative data. While a few responses relate to the middle of the process, including the actual act of forming the crochet stitches and fabric, most are either from the beginning or the end of the process. The end of the process includes finishing techniques such as blocking, and the crocheter’s ability to assess the finished product, observe fit issues over time (such as elongation due to gravity), and learn from mistakes.

Quantitative and qualitative results can be combined to give the most complete understanding of the phenomenon. Patterns can be found between both types of results. This analysis will be discussed in the next chapter.
Table 13: Qualitative Results

<table>
<thead>
<tr>
<th>Body Shape and Body Cathexis</th>
<th>“It can be hard to find tops that are flattering to small-busted women.”</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>“Perhaps it is a self-esteem issue. I know that I don’t feel good in clothes, so I am not too excited to try many patterns.”</td>
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<tr>
<td></td>
<td>“Certain styles don’t suit my body shape.”</td>
</tr>
<tr>
<td></td>
<td>“There are not enough resources for plus size crochet garments.”</td>
</tr>
<tr>
<td>Willingness to Modify</td>
<td>“I generally have to modify any pattern to fit me.”</td>
</tr>
<tr>
<td></td>
<td>“When making a garment I constantly try it on and adjust as I go, I like top down seamless construction for this reason.”</td>
</tr>
<tr>
<td></td>
<td>“I take a pattern from a book, magazine, or leaflet and make the adjustments necessary for it to fit me.”</td>
</tr>
<tr>
<td></td>
<td>“I customized length, used bust short rows, and did some waist decreases in back.”</td>
</tr>
<tr>
<td>“I Design for Myself”</td>
<td>“I crochet solely from my own designs.”</td>
</tr>
<tr>
<td></td>
<td>“I don’t use patterns, I make my own designs. So what I create for myself always fits.”</td>
</tr>
<tr>
<td></td>
<td>“I have started designing my own patterns because of my frustration with others.”</td>
</tr>
<tr>
<td>Avoidance</td>
<td>“Now I try to find a men’s pattern, as that’s a roomy XL. I don’t think I’ll bother with women’s patterns anymore.”</td>
</tr>
<tr>
<td></td>
<td>“If the pattern is too intricate, I will avoid it, because I always need to make adjustments.”</td>
</tr>
</tbody>
</table>
“I have become obsessed with avoiding anything that might stretch out of shape.”

“I’m pretty sure I can solve any fitting problems that arise if the designer has provided enough information, i.e. measurements on a schematic. I’ve seen patterns that I’ve rejected for the lack of such information.”

“I’ve only made one crocheted garment and it was such an awful procedure, I doubt if I will ever make another one.”

Acceptance of Responsibility and Learning through Experience

Participants discussed their willingness to accept responsibility for dissatisfaction or mistakes, and to learn through experience to improve their skills.

“The failure in fit was mine. I do not make a habit of swatching and often substitute yarns, and I reap the ‘rewards’ of that.”

“The overall length issue was my own fault, and not that of the designer.”

“I find the process helpful and always learn from mistakes.”

“I’m a self-taught crocheter. I either need lots more trial and error or to take a class.”

“I think the problem is more my measuring and gauge than the pattern shape itself.”
CHAPTER 5: ANALYSIS AND CONCLUSIONS

The purpose of this study was to examine fit satisfaction and possible contributing variables among women who crochet clothing for themselves. A mixed methods evaluation of data was used, including an online questionnaire with both quantitative and qualitative questions. Statistical analysis was conducted to understand the quantitative results, and coding and processing of the qualitative data was done using methods as described by Creswell (2007, 2009). This chapter describes the contextual analysis of these results.

After a brief analysis of the implications of the demographic characteristics of the sample, experience level data, which correlates with objective 2, “Identify crocheter background variables that may affect fit and fit satisfaction, such as experience level and knowledge of related fields,” and behavioral data, which correlates with objective 3, “Identify crocheter behavior that affects fit, such as garment construction and finishing techniques,” will be discussed. Objective 1 is addressed throughout the analysis but is particularly addressed by a section on satisfaction data. Objectives 4 and 5 are covered by the summary and implications of the findings.

Demographic Information

The participants represented a wide variety of ages, body sizes, and geographic locations. Participants were fairly evenly distributed between rural, suburban, and urban communities, and 25% of the participants (18 of 70) came from outside the United States. Both smaller and larger body sizes were represented, including a significant portion of the participants who described themselves as “plus-sized.” A more complete picture
would be obtained by avoiding self-reporting of body size information, which is prone to user error (for measures such as measurements) or lack of standardization in the measure itself (such as dress size). Nonetheless, given the scope and nature of the study, the data show a good distribution of body sizes and allow for analysis of whether there is a relationship between these measures and measures of fit satisfaction.

**Experience Level Factors (Objective 2)**

Participants reported higher experience levels in crocheting garments than in knitting or sewing garments, which is not surprising given the nature of the study and the population targeted by the recruitment. In the same context, it is not surprising that some participants did have significant experience with knitting and sewing. Ravelry was originally designed as a knitting website (Humphreys, 2009) and contains a significantly larger proportion of knitting patterns and discussions than those for crochet. There is often overlap in crafting participation between similar crafts such as needle arts (Johnson and Wilson, 2005) and knitters are often drawn to try crochet and vice versa.

The results of the question “How many fitted garments have you crocheted for yourself?” show significant skew towards the higher end of the scale and the option “10 or more.” Due to concerns about visual presentation of the survey, numbers higher than 10 were not given as specific options on the survey. In retrospect, the study would have benefited from a more thorough understanding of the data at this end of the range; however, it is possible that individuals might have had trouble recalling the exact number if they had crocheted a large number of garments. Between this data and the large number of crocheters (42 out of 70) who characterized themselves as “intermediate” or “expert,”
it is apparent that the majority of participants can be categorized as experienced in the
domain being studied. While lower experience levels are still represented, generalizations
about participants can be drawn considering them to be at the higher end of the
experience level continuum.

The regression results indicate that there is a significant (p < .0001) relationship
between experience level and overall fit satisfaction with the last garment made by the
participant. The numerical results of the regression can be interpreted as follows: as the
crocheter’s experience level increases by one step on the scale used to measure
experience level (from Beginner to Expert, with 4 steps), her fit satisfaction level will
increase by one step (on a 7-point Likert-type scale). This assumes that the other
variables used in the regression (dress size, bust measurement, bra cup size, and
swatching and blocking behavior) are held constant. The quantitative analysis of this
relationship depends on interpreting the fit satisfaction scale as an interval variable, in
which the values are equally spaced (the difference in fit satisfaction between “Very
dissatisfied” and “Somewhat dissatisfied” is the same as the difference between
“Somewhat dissatisfied” and “Slightly dissatisfied,” and so on), rather than simply an
ordinal variable, in which all that can be concluded is that there is a clear ordering of the
steps of the values of the variable. Regardless of whether this is actually true – as it
would depend on each participant interpreting the Likert-type scale in the same manner –
these results do show a clear and significant relationship between fit satisfaction and
crochet garment-making experience level. The second linear regression, which held
experience level in other areas constant as well as swatching and blocking behavior,
showed similar statistical significance (p = .001) When combined with qualitative results,
it is evident that crocheters learn about fit through experience, including mistakes, and experienced crocheters perceive that they have gained mastery of skills over time and feel empowered to make alterations. These characteristics then lead to an increase in fit satisfaction with finished garments.

The results of questions about experience taking classes backs up the hypothesis presented by Edie Eckman in Chapter 2: that crocheters are not drawn to taking classes. 10% or fewer of participants reported that they had taken a class in any of the areas of knowledge, and most responses were not unique (i.e. participants who answered that they had taken a class in one domain were more likely to answer that they had taken a class in another domain, likely indicating that the same class had covered more than one topic). The sample of participants who had taken classes is too small to allow for an accurate assessment of a causal relationship between lack of fit satisfaction and class experience, however. This data does allow for a descriptive understanding of the sample and their experience with this particular form of outside knowledge gain.

**Behavioral Variables (Objective 3)**

Participants were asked about their tendency to adjust a pattern to improve the fit before completion of the project, whether they make a swatch before beginning, and whether they block their garments after completion. Information gathered from the review of literature hypothesized that these behaviors may contribute to increased fit satisfaction. It is evident from the graphs of these results that the most common response was “Always or almost always” in all categories, though there were a significant number of participants who indicated they did not “always” do these things (up to half of the 70).
When considering the high number of participants who reported the highest value on this scale, a few explanations are possible. One is that the overall higher experience level of the participants led them to gain knowledge about the importance of these behaviors, either through outside knowledge gain such as reading (perhaps prompted by a high motivation to understand their hobby), or through hands-on knowledge gain and experience. It is also possible that some participants felt they “should” be engaging in these activities but were not doing so for reasons of time or motivation, as hypothesized by some designers. While it is less likely since the data were collected anonymously and without direct interaction with the researcher, it is possible that some participants exaggerated behaviors in order to give the “right” answer, a potential concern in questionnaire and interview research (Frankfort-Nachmias and Nachmias, 2008).

**Satisfaction Data (Objective 1)**

Participants reported average levels of ready-to-wear fit satisfaction, with significant variation between participants. The most common category reported was “Somewhat dissatisfied,” with around half of participants stating they would categorize themselves as “dissatisfied.” This corresponds with results found by other researchers (LaBat, 1987; Alexander, Connell, & Presley, 2000) and is also notable given variations in body size between participants. By contrast, mean levels of fit satisfaction for crocheted garments were significantly higher, averaging somewhere between “Slightly” and “Somewhat” satisfied for most body areas.

The mean fit satisfaction results in most categories as well as between categories were not statistically variable, although sleeve length and overall length were a bit higher.
As shown in the qualitative results, crocheters feel empowered to make easy modifications in length, especially for sleeves, which often simply involve adding additional rows rather than making complex shaping changes to the stitch pattern. One participant went so far as to respond cheekily to the question about sleeve length satisfaction: “Ahm, sleeve length? I’m crocheting it. I crocheted to the length I want. Sheesh!” Other participants reported areas of dissatisfaction related to modifications, such as “in order to increase for the bust, the armholes became too large.” Many reports of positive fit satisfaction were accompanied with comments about experience over time or the decision to design the pattern themselves: “The sweater fit perfectly because it was my own design,” and “It was made to measure, so it fits.” Choosing to design for oneself was a popular response in the qualitative data, and 26 out of 70 participants reported that self-designed patterns were one of their top three sources for patterns.

Body shape and body cathexis do contribute to fit satisfaction, according to comments by participants, reinforcing results of prior researchers (LaBat, 1987). Participants mentioned an avoidance of crochet garments or of particular styles due to concerns about their bodies. “Certain styles don’t suit my body shape” or are not “flattering” was a common response, and a few participants went deeper into an analysis of body cathexis, such as “I don’t feel good in clothes, so I am not excited to try many patterns.” Many participants who categorized themselves as “plus-sized” asked for more resources for plus-sized patterns, and more information about modification. While the review of literature shows that the number of plus-sized patterns is increasing, many plus-sized crocheters may still feel marginalized, or that patterns are designed for a smaller body size and are not flattering when scaled up to their size.
Many crocheters expressed a willingness to modify patterns, which, combined with the high average fit satisfaction levels, supports the hypothesis that empowerment to make alterations can contribute to increased fit satisfaction. Crocheters expressed that they feel there is a relationship between fit satisfaction and alterations, such as in statements like “I’m satisfied with the fit because I can usually adjust things to my satisfaction as need be” and “I adjusted as I went along.” They made modifications at all stages of the process, from combining different sizes from the same pattern before starting, to the common behavior of “trying it on and adjusting as I go.” Participants frequently mentioned top-down as a contributor to positive fit satisfaction, as it allows for the “try-as-you-go” method of fitting. Doris Chan’s top-down designs were frequently mentioned, likely because they are widely distributed in professionally published books and magazines as well as online, and because they often contain additional information about modifications, particularly for length and for larger bust sizes – given that the average bra cup size of participants was a C or a D, including many “DD and larger,” it is not surprising that they were drawn to patterns that included this particular modification.

In spite of all these positive comments, there were still concerns and negative experiences among the participants. One theme was avoidance of patterns – the quantitative data indicate that 75% (53 out of 70) crocheters had avoided a pattern due to concerns about the fit, and qualitative comments back this up. Observations such as “If I see that the pattern is missing key information, like a schematic, I will avoid it” indicate that crocheters rely on specific pattern features to guide their decision-making. These features, such as measurement schematics, which show the finished measurements of
either individual pieces (prior to construction) (Figure 16) or of the finished garment (Figure 17), in each size, contribute to sizing, fit, and modification decisions.

Figure 16. Schematic of individual pieces showing finished measurements by size. (Source: Crochetology.net)

Figure 17. Schematic of finished garment showing finished measurements by size. (Source: Crochet Me, http://www.crochetme.com)
Crocheters are often willing to accept responsibility for fit satisfaction problems, and acknowledge that learning through experience is critical. One participant summarized it as “I find the process helpful and always learn from mistakes.” Comments such as “The failure in fit was mine. I do not make a habit of swatching and often substitute yarns, and I reap the ‘rewards’ of that” show that some crocheters understand the relationship of the contributing variables and the outcome of the finished garment. However, some also place blame on the pattern or the designer, especially indicating that poorly written patterns or those from a non-“reputable” source are likely to contribute to dissatisfaction. It is likely that poorly written, graded, or edited patterns are in fact contributing to fit dissatisfaction, especially due to the increased prevalence of free or amateur patterns on the Internet. However, it is also possible that in some cases crocheters are misinterpreting the source of the difficulty when it is in fact due to a personal decision, or a lack of knowledge or willingness to modify.

**Summary**

Participants are, on average, satisfied with the fit of their crocheted garments, and significantly more so than they are with the fit of ready-to-wear garments. They attribute this success to making modifications, using well-written patterns, and choosing patterns wisely to allow for easy modification and “try-as-you-go” fitting. Quantitative results support this hypothesis by indicating that participants frequently engage in thorough planning and finishing behaviors such as modifying the pattern, swatching before beginning, and blocking a finished garment. The results support the idea that these behaviors are developed through experience, as the majority of participants felt they were at least at an “Intermediate” level of expertise.
Dissatisfaction can be a result of poor planning, difficulties with modification based on the sizing and grading of the pattern (such as “adjusting for a ‘long’ waist can lead to less than satisfactory overall results in a finished garment”), or poorly written patterns (including an absence of helpful information such as finished garment measurements). Experience level is an important contributor to fit satisfaction, and may be the overarching factor that explains these contributing behaviors.

**Limitations**

Convenience sampling limited the generalizability of this study. The population from which the sample was drawn was limited to individual crocheters who made use of the Ravelry website’s crochet forums during the time that the survey was active. This naturally limited the sample to crocheters who actively make use of a web forum about their hobby, and eliminated the portion of the crochet garment-making population that is unaware of or chooses not to use Ravelry, or does not have Internet access. Respondents were predominantly American, which could be seen as an additional limitation. Future research could use additional resources to reach the population, such as other websites catering to crocheters, yarn and craft stores, paper mailing lists, and local stitching groups.

It is likely that participants were self-selecting based on the topic of the survey. The responses to the forum threads and in the comments section of the questionnaire indicated that many participants were enthusiastic about participating in the survey and were eager to share their positive and negative experiences. This selection bias may have limited the range of responses. The survey software tracked questionnaires that were begun but not completed, of which there were several. Understanding the reasons that
participants were interested enough to begin the questionnaire but opted not to finish would help capture a broader range of the population in the future. Additionally, different methods of encouraging responses besides intrinsic interest in the topic of crochet fit satisfaction could be attempted, such as offering incentives for participation, broadening the crochet-specific questions asked, or limiting the length of the survey.

Additionally, one particular choice in the criteria for participation likely also contributed to bias: the criteria stated that the participant must have completed at least one garment for herself. It is probable that this eliminated a section of the population that would have contributed more negative results to the study; namely, the population of crocheters who have attempted to make a garment and given up, or chosen to avoid garment-making entirely due to concerns about fit. Respondents indicated confidence in pattern alterations, and I suspect that individuals who do not feel such confidence make up a large portion of the population of crocheters who might provide valuable feedback to the industry and to the body of knowledge, but were excluded from the study as a result of the completion criterion. A future study that specifically targets those who have experienced frustration, avoidance, or non-completion may contribute to the body of knowledge.

**Implications**

While the limitations may prevent generalizability in some domains, there is still important knowledge to be gained from the results of this research. The data support the conclusion that there is a relationship between crochet experience level and fit satisfaction, and that those who feel empowered to make alterations feel more
comfortable with the fit of their projects. While designers expressed concerns that the crochet community is hard to reach via traditional educational methods such as classes, techniques should be explored for empowering less experienced crocheters with the same knowledge used by those who feel more confident in their skills. Online discussions and direct access to designers, often via web sites, already allows for an exchange of knowledge that is being drawn upon by participants at all skill levels. While many participants used magazines and books as major sources of patterns, increased online distribution may allow for more of this kind of information – such as how to make alterations, the importance of swatching and blocking, and detailed schematics of the finished garment – to be distributed directly with patterns. This may help the beginner making the leap from an understanding of basic stitches and an unfitted, non-garment pattern to being able to follow a more complex garment pattern, and improve the fit of the finished garment for her individual body.

Additionally, increased availability of information may help any crocheter, particularly the novice, who opts to avoid crocheting garments because of concerns about fit. This research supports the theory that there is an “untapped market” of crocheters who are capable of the basic mechanics of the craft itself and may be interested in trying garments, but express fear or concerns about fit and thus do not actually choose to do so – thus they were missed in participant recruitment for this study!

**Recommendations for Future Research**

Future research should aim to increase generalizability by using alternative research and recruitment methods to reach a wider segment of the crocheting population.
Additionally, the body of knowledge would benefit from a deeper understanding of the variables discussed in this study, which could be done via more focused quantitative research, focusing on a few variables, or more focused qualitative research, using narrative or case-study methodology to gain a deep understanding of the experience of individuals at different skill levels.

A broader understanding of the crochet and needlearts industry is needed, building on the results of my interviews with designers. A full understanding of the views, needs, and goals of the industry as it designs and produces patterns, materials, and sources of knowledge for the crocheter would significantly add to the body of knowledge and allow for a better understanding of causal relationships and implications.

The number of studies of handcrafted garments in general is small, and research on fit satisfaction for home sewing, knitting, and other garment construction methods would also reinforce the body of knowledge. Several designers speculated that knitters were more experienced and comfortable with pattern alterations, and it is likely that there is a lot that crocheters can learn from the experiences of the knitting community. While there are mechanical and construction differences between the two crafts that may inhibit knowledge transfer, it is probable that a sense of competition or condescension between practitioners of each craft is also working to prohibit this knowledge transfer. While Internet communities may be self-segregating (such as via crochet-specific forums), they may also be a good inclusive opportunity for knowledge transfer. The industry also reports positive strides in the comfort level of local yarn shops with crochet – since these are often the best “real world” gathering places for needle artists, this is another positive opportunity for knowledge transfer. Needle arts are often a social craft, as participants
gather to work on projects together, share stories, or find common ground in their love of yarn and fiber. This tendency can be harnessed, together with the above factors, to contribute to improved knowledge and comfort of the experiential and behavior variables that lead to fit satisfaction.
REFERENCES


Appendix A. Questionnaire

1. How old are you? (20 or younger, 21-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51-55, 56-60, 61-65, 66-70, 71 or older)
2. How would you describe the area you live in? (Urban, Suburban, Rural)
3. What country do you live in?
4. What dress size do you most commonly purchase? (2 or smaller, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 or larger, Don’t Know)
5. What department do you most commonly shop in when purchasing ready-to-wear clothing? (Misses, Petites, Tall, Womens/Plus, Other)
6. How satisfied are you with the fit of ready-to-wear clothing for yourself? (1 = Very Dissatisfied, 7 = Very Satisfied)
7. What is your bust measurement in inches? Please measure your bust around the fullest part, over your bra. Round to the nearest inch.
8. What is your underbust measurement in inches? Please measure around your ribcage, right beneath your breasts.
9. What is your bra cup size? (A or smaller, B, C, D, DD or larger, Don’t Know)
10. How many fitted garments have you crocheted for yourself? Consider a fitted garment to be a top, jacket, sweater, tank top, vest, bolero, or dress - unfitted accessories such as shawls and scarves do not count. (I’m working on my first one now, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or more)
11. How would you rate your overall experience level with crocheting garments? (No experience, Beginner, Advanced Beginner, Intermediate, Expert)
12. How would you rate your overall experience level with knitting garments? (No experience, Beginner, Advanced Beginner, Intermediate, Expert)
13. How would you rate your overall experience level with sewing garments? (No experience, Beginner, Advanced Beginner, Intermediate, Expert)

For the following questions, consider the LAST fitted garment you crocheted for yourself.

14. What type of garment was it? (Coat or jacket, Sweater, Sleeveless top or tank top, Bolero, Tee, Vest, Dress)
15. Please rate your satisfaction with the fit of the finished garment in the following body areas (1 = Not at all satisfied, 7 = Completely Satisfied, N/A = Not applicable). If a section does not apply to the garment (for example "sleeve length" on a sleeveless top), select "No answer": General overall fit, Neckline, Bust, Shoulders, Sleeve length, Armhole, Waist, Hip, Overall Length
16. Open-ended field for comments on question 15 (Comments:)

For the following questions, consider ALL the garments you have crocheted for yourself.

17. Please rate your satisfaction with the fit of these garments, in summary, in the following body areas (1 = Not at all satisfied, 7 = Completely satisfied, N/A = Not applicable). If a section does not apply to any of the garments you have made, for example "sleeve length" if you have never made a garment with sleeves, select "no answer." General overall fit, Neckline, Bust, Shoulders, Sleeve length, Armhole, Waist, Hip, Overall Length
18. Open-ended field for comments on question 16 (Comments:)

19. When you crochet garments for yourself, which of the following sources for patterns do you commonly use? Please select up to three sources that you use the most often. (Self-designed (I make my own), Magazines (such as Interweave Crochet, Crochet Today, Inside Crochet...), Books (professionally published), Purchased individually from a local yarn shop, Yarn company website, Major craft retailers such as Jo-Ann, Hobby Lobby, etc. (on the wall, pamphlets for sale, on the ball band), Purchased online (Etsy, Ravelry downloads, direct from designer, etc.), Free online patterns (Free Ravelry downloads, personal blogs, etc.), Other (please explain in comments))

20. Open-ended field for comments on question 19 (Comments:)

21. When you crochet garments for yourself, how often do you adjust the pattern from how it is written in order to customize the fit? (1 = Never, 5 = Always or Almost Always)

22. When do you adjust it? (Check all that apply) (Before starting to crochet, Partway through the process, After the garment is mostly or entirely done, N/A - I don't typically adjust it)

23. When you have difficulty with the fit of a pattern, where do you usually go for help? Select all that apply. (Local yarn shop, Friends or crochet circle/group, Contacting the designer (via e-mail, designer website, Ravelry), Asking other crocheters on Ravelry, Other online resources (please explain in comments), Nowhere - I figure it out myself)

24. Open-ended field for comments on question 23 (Comments:)

25. Where would you prefer to go if the option were available? (Local yarn shop, Friends or crochet circle/group, Contacting the designer (via e-mail, designer website, Ravelry), Asking other crocheters on Ravelry, Other online resources (please explain in comments), Nowhere - I figure it out myself)

26. Open-ended field for comments on question 26 (Comments:)

27. How many crochet classes have you taken that discussed the following topics? Fitting, Swatching, Yarn Selection, Finishing (choices were 0, 1, and 2 or more for each of the four topics)

28. How many knitting classes have you taken that discussed the following topics? Fitting, Swatching, Yarn Selection, Finishing (choices were 0, 1, and 2 or more for each of the four topics)

29. How many sewing classes have you taken that discussed garment fit? (0, 1, 2 or more)

30. How frequently do you make a swatch before beginning a garment project? (Never, Occasionally, About half the time, Most of the time, Always or almost always)

31. How big do you usually make your swatch? (2” square, 4” square, 6” square, I don’t typically swatch, Other)

32. How frequently do you wash your swatch? (Never, Occasionally, About half the time, Most of the time, Always or almost always, N/A – I don’t typically swatch)

33. How frequently do you block your swatch? (Never, Occasionally, About half the time, Most of the time, Always or almost always, N/A – I don’t typically swatch)

34. How frequently do you block your garments after they are completed? (Never, Occasionally, About half the time, Most of the time, Always or almost always)

35. Have concerns about fit ever caused you to avoid crocheting a garment from a pattern you liked? (No, never; Yes, occasionally; Yes, a fair amount; Yes, this happens all the time)

36. Open-ended field for comments on question 35 (Comments: )

37. Anything else you’d like to share about this topic? (Comments: )