

# **C**hapter 5: Conclusion, Recommendations and **Evaluation**

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The purpose of the study was to describe the situation in the South African clothing industry regarding the supply of well-fitting garments. The objectives of this study was to compile a comprehensive list of all body measurements required by South African apparel manufacturers and retailers, to compare the descriptions of the identified body measurements with international descriptions, and to describe the problems experienced with body measurements. To achieve the objectives of the study it was also necessary to describe the sizing systems currently used in South Africa, to describe how block patterns are created, and to describe how fit testing and wear testing are done by the South African manufacturers and retailers. As explained in the conceptual framework for the study, a clear description of the above aspects is necessary in the process of supplying well-fitting garments to the South African consumer.

In this chapter the study will also be evaluated with regard to the limitations and success of the research strategy, sampling methods, data collection techniques, data analysis and the validity and reliability of the study. Some recommendations for future studies will also be done.

## **5.1 CONCLUSIONS AND RECOMMENDATIONS**

It can be concluded that the situation within the South African clothing industry with regard to practices that may contribute to the manufacturing of well-fitting garments, is problematic. It seems to be characterised by various different, outdated and in many cases unscientific practices and in some cases also a “don’t care” attitude. This

results in the problems that are experienced by the industry and/or the lack of well-fitting garments to satisfy the South African consumer.

In order to get a clear picture, conclusions are drawn and recommendations made with regard to each of the objectives.

### **5.1.1 Conclusions and recommendations regarding body measurements**

The overall conclusion that can be drawn is that a wide variety of measurements are needed and are used in the South African clothing industry, and that an alarming number of problems exist with regard to the taking of these measurements – probably resulting in the consumer’s current dilemma of not being able to find well-fitting garments.

In order to ensure well-fitting garments and good fit in general, it is of the utmost importance that manufacturers and retailers should have a sound knowledge on exactly how and where on the body the various measurements should be taken, and should have and use the equipment that will enable them to consistently take accurate measurements. There should preferably be consensus, both locally and also with standardised international descriptions, with regard to exactly how and where the measurements should be taken on the body.

In the absence of the above, one would expect that manufacturers and retailers will experience problems regarding the taking and use of measurements (as is the case with 66,7% of the height measurements, 88,2% of the width and depth measurements, 26,7% of the circumference measurements, and 71,1% of the other measurements). One would also expect a number of consumers to be dissatisfied with the fit of garments and a high return rate due to poor fit. According to the retailers and manufacturers however, the return rate as a result of poor fit is not that high. The retailers do admit though that the recordkeeping system for returns is unreliable and should be better developed, in order to give a more accurate reflection of the current situation. Taking into account the many cases where there are no international descriptions available, or no international consensus and no national

consensus with regard to exactly how and where specific measurements should be taken, one would expect the above percentages to have been even higher.

It was clear from the results that the taking of vertical measurements is problematic among the respondents. This may be due to the fact that in 22,2% of cases there were no international descriptions available and for a further 6,9% there were no international consensus with regard to the descriptions. If one assumes that South African retailers and manufacturers probably rely on standardised international descriptions, one can understand the uncertainty in the industry as to where and how the measurements should be taken. This uncertainty is reflected in the 52,8% of cases with consensus among respondents, which is just more than half of the measurements, and in consensus among respondents and international descriptions for less than half of the measurements (47,2%). One would expect, and in fact require, a much higher rate of consensus in order to ensure consistency and accuracy of measurements.

It was clear from the results that the highest percentage of problem measurements was experienced with the taking of width and depth measurements. This is in spite of the fact that international descriptions were available for all measurements. To be able to take the width and depth measurements consistently and accurately, special equipment is necessary which the respondents did not have, and this lack of equipment could possibly contribute to the large number of problems experienced with the width and depth measurements. For the sake of consistency and accuracy of measurements, one would also expect a higher rate of consensus among respondents' descriptions of measurements, and between the international and the respondents' descriptions.

It was clear from the results that the taking of circumference measurements is the least problematic among the respondents. This is in spite of the fact that in 26,7% of cases there were no international descriptions available or no international consensus with regard to the descriptions. If one assumes that South African retailers and manufacturers probably rely on standardised international descriptions, one would expect a much higher number of problems regarding the taking of the circumference measurements. A high level of uncertainty is however reflected in the

46,7% of measurements with consensus among respondents, which is less than half of the measurements, and in consensus between respondents' and international descriptions, also for less than half of the measurements (40%). One would expect, and in fact require, a much higher rate of consensus in order to ensure consistency and accuracy of measurements, especially because of the importance of the circumference measurements. It is clear that the circumference measurements are more problematic than the respondents were willing to admit.

It was clear from the results that the taking of the other measurements is problematic among the respondents. This may be due to the fact that in 28,9% of cases there were no international descriptions available and only 9,6% there were international consensus with regard to the descriptions. If one assumes that South African retailers and manufacturers probably rely on standardised international descriptions, one can understand the uncertainty in the industry as to where and how the measurements should be taken. This uncertainty is reflected in the 65,1% of cases where the respondents did not offer any description. This clearly illustrated that the respondents were not familiar with these body measurements, although some of these measurements might be relevant for a detailed description of the population's body shape.

It was also clear that the problems that the respondents experienced, and/or the fact that there was no consensus between the respondents' and the international descriptions, were due to the fact that:

- ✓ It was a difficult measurement to take (as in the case of crotch length, for instance);
- ✓ The international description was not clear with regard to the landmarking – exactly where and how the landmark should be determined (as in the case of armscye depth, for instance) ;
- ✓ Uncertainty with regard to whether the measurement should be taken on the contour of the body or in a straight line (as in the case of cervical height, for instance);
- ✓ The unavailability of the necessary anthropometric tools (as in the case of neck width, for instance);

- ✓ The unavailability of actual data on some measurements (as in the case of most of the hand and foot measurements).

The results clearly show that a lack of consensus among descriptions of body measurements is the cause of many problems that are being experienced. A study by Hwang and Istook (2001) also found a lack of consensus of terminology and acceptance of standard measurements for apparel. They found that traditional body measurement methods for apparel have been based on “feel” by hand. This is also true for the respondents of this study, since measurements are taken with a tape measure. It is therefore important for the measurer to be trained to know what he or she is feeling even on fuller figures where important landmarks are covered. The importance of consistently being able to identify landmarks was repeatedly emphasised by the respondents. This was seen as a very important influence on whether the accuracy of the data could be trusted. There seemed to be a definite need for as much as possible information on the body measurements of South African consumers. It is of vital importance to potential industry users that measurement definitions be absolute and repeatable, so that they can be used most accurately for customisation and production activities (Simmons & Istook, 2003:311). Landmarking was identified as a problem with a number of measurements and this problem needs to be addressed, not only by the local industry but also internationally.

Hwang and Istook (2001) also found that different methods and definitions add to the lack of consensus, for instance where arm length can be measured with a bent or straight arm and from different landmarks, and that imaginary lines such as “side seam to side seam” were very vague descriptions. The situation is similar in the results of this study, where an important discrepancy between the international and the respondents’ descriptions was the issue of measuring either along the contour of the body or in a straight line. This has important implications for the fit of garments, since contoured measurements could assist in defining the body shape to the pattern maker. For patternmaking purposes, it is important to have the actual measurement taking the contour into consideration, but also to have the straight measurement as a control in order to apply the measurements correctly to the pattern. It is however difficult to take the contoured body measurements accurately. It is important that consensus is reached on the method used for taking the measurements, for instance

whether arm length should be taken over a bent or a straight arm. One of the requirements that Tamburrino (1992b:56) sets for anthropometrical data to be of practical use, is that the data must satisfy the technical requirements of the clothing industry. This would imply that measurements be taken following uniform and standard criteria. In order to increase efficiency in CAD garment sizing, pattern development and the alteration process as Hwang and Istook (2001) suggest, it is critical that the clothing industry in South Africa reach consensus on their preferred measuring methods, although it is also an international problem.

There is widespread consensus amongst the clothing manufacturing and retail industries as well as academics in the field, that a more relevant and representative anthropometric database should be developed and that sizing systems should be revised accordingly. The results of this study confirm the need and urgency of such a survey since little information is available on the South African body. Retailers and manufacturers in the UK have experienced the value of the SizeUK survey by revealing a reduction in returns. Using accurate and current body measurement data and understanding the relationship of body shape to size, had definite advantages for retailers and manufacturers in the UK, commercially as well as by enhancing customer satisfaction (Bougourd, 2004:10,11). This also confirms the importance of and the need for a survey of South African body measurements. By doing such a survey the first requirement set by Tamburrino (1992b:56), namely that anthropometrical data should be current, can be met. The second requirement, namely that data must reflect the distribution of the population's body measurements by geographical area can also be incorporated in such a survey. The ideal would be to do such a survey by using a body scanner. The use of 3D body scanning technology makes it possible to capture the shape of a population and as Bougourd (2004:11) states: "The existence of shape information provides retailers with a new concept on the basis of which to consider customer satisfaction." One such an example where shape information would be crucial to improve the fit, and as a result the customers' satisfaction with the garment, is the crotch measurement. Allocating the total crotch length correctly to the front and the back of the garment is critical to ensure well-fitting trousers. The respondents agreed that it would be very useful to have a crotch front and a crotch back measurement, if it was possible to measure it on the human body. With the development of 3D body scanning it seems as if such

measurements are not just wishful thinking anymore. According to Simmons and Istook (2003:9), it is possible with the [TC]2 body scanning system to define whether a front, back or full crotch length is needed. Since the CSIR has received a body scanner during 2005, a South African body measurement survey might become a reality in the near future. Accurate measurements, obtained from body scans for example, would depend on clear definitions of where and how the measurements are to be taken (Laing & Sleivert, 2002:4 and Pargas et al, 1997:161), and therefore consensus on where and how measurements are to be taken needs to be the first priority before a survey can be undertaken in South Africa.

### **5.1.2 Conclusion and recommendations regarding South African sizing systems**

The overall conclusion that can be drawn with regard to the sizing system used in South Africa is that it is not as sophisticated as some international sizing systems and that it needs to be revised with updated body dimensions and body shape data on the South African population specifically. For this purpose a representative body measurement survey would be necessary.

Figure types or different body shapes seem to be taken into account by different companies targeting different consumers through a variety of clothing ranges, but this is not communicated to the consumer by different size designations, which contributes to consumers' confusion regarding the size that they should wear. The fit models of different companies might have the same body measurements but their shapes may vary. Ladies' wear seems to be only made for an average height, while men's wear seems to provide for different heights, and children's wear are sized according to age, which is very unsatisfactory.

The concept of the system and the coding used, seem to be largely based on the British sizing system. A numerical size code is used to indicate the sizes on garments. It seems that for ladies' wear the size code is not necessarily related to body measurements, but for men's wear the size code and body dimensions are related; for instance, on lounge shirts the size indicates the neck circumference in

centimetres. The data regarding the body measurements applicable to the size code, seem to be South African. The data seem to be re-evaluated and adjusted from time to time, however not by means of proper body measurement surveys. It seems that it is also not done on a regular basis, but as and when problems are identified. Companies seem to become aware of changes through customer complaints. However, record-keeping of exactly why customers return garments does not seem to be accurate and more efficient systems should be developed. Other possible sources of information about changes in the dimensions or shapes of customers that were identified by the respondents, are fitting sessions and ranges that do not sell well. This again highlights the importance of a South African body measurements survey, in order to obtain current data about the size and shape of our population.

Bougourd (2004) reports that the UK population has grown taller, larger and heavier than 50 years ago. The average height, bust and hip measurements for women in the UK have increased by 4 cms. What was surprising however, and it has a major influence on the drafting of patterns, is the 14 cms increase in the waist circumference of women in the UK. This implies a rather straight figure and much less of an hourglass figure as in the 1950s (Bougourd, 2004:11). The hourglass figure has always been viewed as the ideal figure type, and most of the existing block patterns for the “average” woman that the retailers cater for, are probably based on such a figure type (LaBat & DeLong, 1990:44). If one considers these major changes in the body measurements and shape of the UK female population, together with the fact that the South African sizing system is based on the British sizing system, it becomes even more clear how important and necessary a body measurement survey of the South African population is, and that the full co-operation and support therefor from the clothing industry is needed.

#### **5.1.2.1 Key dimensions**

The overall conclusion that can be drawn with regard to key dimensions is that an alarming number of problems seem to be experienced with the taking of the key dimensions and this situation needs urgent attention.



It was clear from the results that the taking of key dimensions is problematic among the respondents. This is in spite of the fact that international descriptions are available for 97,1% of the measurements. The problems may be due to the fact that in 17,1% of the cases there were no international consensus with regard to the descriptions or no international descriptions. If one assumes that South African retailers and manufacturers probably rely on standardised international descriptions, one can understand the uncertainty in the industry as to where and how the measurements should be taken. This uncertainty is reflected in only 34,3% of cases with consensus among respondents, which is less than half of the key dimensions, and in consensus among respondents and international descriptions for less than half of the measurements (42,9%). One would expect, and in fact require, a much higher rate of consensus in order to ensure consistency and accuracy of measurements. Since these are the key dimensions, it has serious implications for the sizing as well as the fit of garments and will require serious attention from the industry.

Sixteen measurements that were considered critical in the design of the initial blocks or slopers, needed for well-fitting garments, were identified for a study by Simmons and Istook (2003:308). According to Simmons and Istook (2003:308) patternmaking experts and textbooks were consulted to determine these sixteen critical measurements. In **Table 5.1** the sixteen critical measurements are compared with what the respondents identified as key dimensions. Only measurements relevant to garments were included and not key dimensions of headwear or footwear. They were the following:

**TABLE 5.1: COMPARISON OF KEY DIMENSIONS**

| Simmons & Istook (2003)                          | Respondents                 | Number of respondents |
|--|-----------------------------|-----------------------|
| 1. Mid-neck / neck base                          | Neck girth (92)             | 5                     |
| 2. Chest / bust                                  | Bust (95) / Chest (94)      | 9                     |
| 3. Waist by natural indentation / waist by navel | Waist girth (98)            | 8                     |
| 4. Hips / seat                                   | Hip girth (103)             | 7                     |
| 5. Sleeve length / arm length                    | Overarm (60)/ sleeve length | 4                     |



| Simmons & Istook (2003)   | Respondents                        | Number of respondents |
|---------------------------|------------------------------------|-----------------------|
|                           | (59)                               |                       |
| 6. Inseam                 | Inner leg length (32)              | 8                     |
| 7. Outseam                | Outer leg length (31)              | 9                     |
| <b>8. Shoulder length</b> |                                    |                       |
| 9. Across back            | Across back (79)                   | 3                     |
| 10. Across chest          | Across front (80)                  | 2                     |
| 11. Back of neck to waist | <b>Nape to waist (38)</b>          | 1                     |
| 12. Rise                  | <b>Rise height (37)</b>            | 1                     |
| 13. Crotch length         | Crotch length (34)                 | 6                     |
| 14. Thigh circumference   | Thigh girth (113)                  | 4                     |
| 15. Biceps circumference  | Biceps girth (107)                 | 4                     |
| 16. Wrist circumference   | Wrist girth (112)                  | 2                     |
|                           | Elbow girth (109)                  | 1                     |
|                           | Forearm girth (111)                | 1                     |
|                           | Shoulder to shoulder (77)          | 2                     |
|                           | Shoulder to bust point (46)        | 1                     |
|                           | Scye depth (56)                    | 1                     |
|                           | Underarm length (64)               | 1                     |
|                           | Neck shoulder point to foot (4)    | 1                     |
|                           | Neck shoulder point to crotch (33) | 2                     |
|                           | Total height (1)                   | 1                     |
|                           | CF length (28)                     | 1                     |
|                           | CB length (4 & 24)                 | 3                     |

What was surprising was that nape to waist, which is a critical measurement for upper body garments, namely to position the waistline correctly, and rise height, which is critical for the fit of trousers, were both identified by one respondent only. Shoulder length was not identified as a key dimension by any of the respondents. The reason for this could be that the respondents question the accuracy of measurements concerning side neck point as a landmark, because of the difficulty to consistently identify the exact position of the landmark. Centre back length and centre front length refer to garment measurements, although they are based on certain body measurements. It is clear that the use of key dimensions compares well with what is being used as key dimensions internationally.

According to McConville in Chun-Yoon and Jasper (1996:90), key dimensions should fulfil the following requirements:

- 1) be convenient to measure;
- 2) be an integral part of the garment;
- 3) have a high degree of correlation with other dimensions important in design and sizing; and
- 4) should not highly correlate with each other.

To fulfil the first requirement, it is clear that participants from the clothing industry need to discuss the identification of landmarks, as well as specific methods for taking the measurement on the body. Once consensus on these issues has been reached, the key dimensions will be convenient to measure.

When one looks at **Figures 4.16 – 4.21** it is clear that some of the key dimensions identified seem to be integral parts of specific garments. This is the reason why quite a few measurements were listed that were not included by Simmons and Istook (2003). These key dimensions were mainly identified by only one respondent and were necessary for specialised garments or where a very close fit was needed. Therefore one can conclude that the key dimensions identified by the respondents do form an integral part of the different garment types.

To be able to fulfil the last two requirements, the correlation between actual dimensions need to be tested and this did not form part of the objectives of this study. However, to be able to test the correlation between measurements in a meaningful way, one would need current and accurate data to work from. This again highlights the need for a South African body measurement survey. Differences between sizes as well as grading rules are based on the correlations between key dimensions, and to test whether these rules are still applicable it is crucial to have data applicable to the current South African population. It is also critical, for accuracy and comparability, that the data be collected using consistent measuring methods and landmark identification.

### 5.1.3 Conclusion and recommendations regarding block patterns

The overall conclusion that can be drawn with regard to block patterns is that block patterns need to be revised and adjusted according to current and accurate measurements of the South African population. It is necessary to pay some attention to the fact that different block patterns are needed to accommodate better fit for different figure types, especially because fit is determined by pattern making as Hudson states (1980:109).

It seems to be the manufacturer's responsibility to create or obtain block patterns. Retailers supplied size charts and garment measurements, and then manufacturers had to develop the necessary patterns in order to make the garments according to the specified measurements. Although most companies indicated that they develop their own blocks, it was also mentioned that a well-fitting pattern will be re-used and adjusted from season to season. This method saves time and effort, but small problems in the pattern are transferred from season to season and may become enhanced only at a later stage. It might be necessary to check the production patterns against the basic blocks from time to time.

It is advisable to start with new block patterns, specifically when the dimensions of some body measurements are adjusted. However, there seems to be a great amount of uncertainty regarding the adjustment of body measurements, because it is not based on the results of a controlled survey. Any adjustments to the dimensions listed in the size chart seem to be based on guesswork. Again the importance of an accurate body measurement survey of the South African population stands out as a basic requirement to be able to improve the fit of garments. Together with this is the need for clear and detailed descriptions of landmarks and measuring methods of the body measurements to be included in such a survey. The combination of body measurements together with the correct amounts of ease will result in a suitable pattern. It is not possible to create a suitable pattern if the pattern maker is unsure how the measurement was taken; for example, an arm length that was measured over a bent or a straight arm will influence the amount of ease needed to create a pattern of the correct length. A study on the consumers' preference regarding the

amount of ease that needs to be added to certain body measurements might also be useful in the effort to improve garment fit.

#### **5.1.4 Conclusion and recommendations regarding fit and wear testing**

The overall conclusion that can be drawn with regard to fit and wear testing is that the supply of good quality garments to their target customers seemed to be a very important consideration to the retailers and manufacturers. It was however clear that there is some uncertainty about how to go about handling the fit problem because it entails huge financial investments and risks to work with the competition in order to solve a national problem. It seemed clear that fit and wear testing was not done in controlled conditions.

The live fit model has a very important input during fit testing. It seemed that the garment's approval totally depended on the fit model's opinion about the comfort and the fit of the garment. Evaluation of fit is specific to garment types and end use of the garments, and therefore it was difficult to obtain the criteria used when evaluating fit. Respondents were not really willing to share this information. It is recommended that the people involved in the evaluation of the garment fit be trained with regard to the criteria used for the fit testing of different garment types. This will increase the reliability and objectivity of the fit testing, because the people involved will be less biased by their own personal preference.

It was clear that a lot of effort goes into fit testing, and live models as well as dummies are used. The respondents also put a lot of effort into developing the perfect dummy. It is very good to use both methods for fit testing because the dummy is the control for the garment specifications. Fit testing is done before mass-production starts, which is a good practice since any fit problems can be corrected before the garment reaches the consumer (Smit, 1997:64). It also prevents wastage due to garments being manufactured to the wrong size specifications. It is recommended to check the measurements of the fit model, or at least the key dimensions for the specific garment type, before every fitting to ensure reliability and objectivity of the fit testing.

With regard to wear testing it was clear that it is being done rather to evaluate fabric or garment behaviour and performance, as Ashdown (2002) suggests. Again, the respondents were not really willing to share details of exactly how it is done. This is partly due to the fact that the criteria for wearer trials are linked to the garment type and end use of the garment. It is therefore variable with different garment types. In this case it could also be recommended that the personnel involved in the evaluation of the returned product be trained with regard to the criteria. This would increase the objectivity of the results to the wearer trials.

Ashdown (2002) mentions that wearer trials can also be valuable with regard to fit or fit changes over time. It is therefore recommended that some criteria for evaluation by the consumer as well as by the technical staff be incorporated when doing wearer trials.

## **5.2 EVALUATION OF THE STUDY**

It is important to evaluate the study in order to be able to contribute to future and follow-on studies.

### **5.2.1 Evaluation of data-collection and other methods**

The purpose of the study was to investigate and describe how the South African clothing industry ensures well-fitting garments to their target customers. Although this could be interpreted as a qualitative problem, the intent was to establish what the current situation is, which is more suited to a quantitative approach (Leedy & Ormrod, 2005:95). The researcher wanted to get an overview of the situation regarding the supply of well-fitting garments in South Africa, and objective facts were to be measured, which also justifies the quantitative research approach (Neuman 2000:16).

First, a postal survey was done, for which the entire target population was included. This ensured an acceptable response to draw the purposive sample from, for the interviews. Information gathered through the postal survey enhanced the researcher's judgment with regard to the purposive sample. Because the respondents represented only two of the three centres of the clothing industry in South Africa, as identified in the report by Dunne (2000:12), the findings cannot be generalised. The purpose of the study was not to generalise but to investigate and describe how the industry ensures well-fitting garments. It is however doubtful that the type of information gathered for this study, namely the respondents' descriptions of body measurements, their understanding of the sizing system used in South Africa, their use of block patterns, and the way they do fit and wear testing, would be influenced by the geographical location of the manufacturers, or the retailers' head offices.

The postal survey might have been unnecessary and time consuming, although it did give an indication of who would be willing to participate in the interviews. The postal survey also gave important background information to assist the researcher with the purposive sampling. One could argue that the inclusion of body measurements with no international description was unnecessary and that it made the questionnaire too long. However, valuable information was collected regarding the use of measurements where no international description was available. It was clear from the results of the study that the measurements without international descriptions cannot be ignored and that one cannot assume that a measurement is not used simply because no international descriptions are available.

Interviews enhanced the reliability of the study because any ambiguity from the survey questionnaire regarding the use of certain measurements could be clarified. The interviews also gave the respondents the opportunity to demonstrate how a measurement is taken. The interviews took up to two hours and even longer in some cases, which could have been tiring for the respondents and might have influenced their responses in the last part of the interview. Although the respondents were very friendly and helpful, there were instances where they were not willing to share information.

## 5.2.2 Validity and reliability of the data

The researcher rejected questionnaires from the postal survey that were not fully completed. Responses to the postal survey were analysed using descriptive statistics, namely frequency tables. This was suitable for analysis of the data because it gives a complete overview of the collected data.

The transcriptions of the interviews were analysed by using content analysis. Content analysis seemed suitable because it is the systematic analysis of text to identify patterns. Again, frequency tables were suitable for analysing the data and to give a complete overview of the data on sizing systems, block patterns, fit testing and wear testing. Because of the exploratory and descriptive nature of this study, the above methods were appropriate for the analysis of the data.

External validity might have been limited by the low response from certain garment categories which also resulted in such manufacturers not being included in the purposive sample. Inclusion of respondents from only two of the three clothing industry centres might also limit external validity. However, as stated above, it is uncertain whether geographical location would influence the type of data collected for this study.

With regard to internal validity, it was a good strategy to have the questionnaire reviewed by an expert and to include graphic figures to avoid ambiguity. Some misunderstandings were clarified during the interviews, and therefore the interview was a good combination to support the validity of data collected.

Instead of only relying on the cover letter, it might have been a good idea to phone all companies included for the postal survey in order to get the contact details of the correct person to fill in the questionnaire. This could have been more personal and could possibly have increased the response rate. This could have contributed to the accuracy and precision of the information supplied by the respondents, and could have enhanced the reliability of the data collected. The interviews contributed to the



reliability of the data because the researcher was able to explain and ensure that questions were understood and answered correctly.

The timing of the interviews contributed to the reliability of the data, because during July the clothing industry was not too busy. Respondents were willing and able to take time to participate in the interview in a relaxed manner.

### **5.2.3 Achievement of objectives**

After completion of the study it is now possible to compile a list of all the body measurements that the respondents for this study used. The comparison of respondents' descriptions with international descriptions of body measurements made it possible to gain insight in the problems that the manufacturers and retailers experienced with body measurements. The description of the sizing system used in South Africa and the use of block patterns enabled the researcher to form a better understanding about the practices followed in the industry and the difficulties facing manufacturers and retailers with regard to providing well-fitting garments.

The specific criteria for doing fit and wear testing were not obtained, but some insight was gained into the procedures used. The complicated nature of setting criteria for the evaluation of the fit of different types of garments limited the achievement of this objective and a separate study focusing on this area is recommended.

## **5.3 RECOMMENDATIONS FOR FUTURE RESEARCH**

Advice to future studies would be to include respondents from all the clothing industry centres in order to be able to generalise to the overall South African industry. This should be possible for another researcher to achieve, provided there are no time and funding limitations.

To clarify exact measurements and to get industry involved in the establishment of a South African database of population measures, focus groups rather than an

individual interview technique could be considered for future studies. It might be less time consuming and could encourage more debate and discussion about exactly how to take the measurements. However, it would have to be handled very carefully because respondents might not be willing to participate or share information in such a situation.

Because of the complex nature of fit and wear testing with regard to different garment types, it might be worthwhile to undertake a study specifically investigating how fit and wear testing is done on different garment types. More meaningful data could possibly be collected in such a study and the analysis and interpretation of data would also be more simplified.

Another useful study would be to investigate the preferences of the consumer regarding the amount of ease needed in specific garments. This information would assist the pattern maker in creating a pattern that will achieve more satisfactory fit.

#### **5.4 RECOMMENDATIONS TO INDUSTRY**

Retailers have to redefine their focus and take cognisance of customer demands for better prices and quality (Dunne, 2000:23). As a result of more competition in the clothing retail sector and to be competitive with Eastern markets, it is important for retailers and manufacturers to improve fit because better quality is the only way to stay competitive (Dunne, 2000:9,10).

The importance of accurate and current body measurements can no longer be ignored. It is therefore necessary that the local industry address the problem of consensus with regard to landmarking and measuring method. Even if the problem is not addressed on an international level, it is to the advantage of the local industry that they reach consensus on which landmarks are to be used, describe in detail how these landmarks can be identified consistently, and agree on the method for taking body measurements on the human body. These descriptions must be acceptable to everybody involved in the clothing industry.

It is imperative and urgently required that a body measurement survey of the South African population be undertaken. The success of such a project depends heavily on the involvement and support of the retailers and manufacturers. It is therefore recommended that the industry become involved and support the establishment of a database of South African body measurements.