Local tailors' knowledge of men's shirt collar construction in Kalulushi District, Zambia: A quantitative study

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ABSTRACT

The quality of men's shirt collar construction is a critical determinant of garment appearance and wearer satisfaction. Deficiencies in technical knowledge among local tailors contribute to poor collar quality, affecting consumer satisfaction and the competitiveness of locally produced garments. Methods: This quantitative study investigated local tailors' knowledge of men's shirt collar construction in Kalulushi District, Zambia, using a structured questionnaire administered to 50 randomly selected tailors. The sample was selected through simple random sampling from an estimated population of 110 tailors. Data were analysed using SPSS version 26, with descriptive statistics including frequencies, percentages, means, and standard deviations computed for all variables. Chi-square tests examined associations between demographic variables and knowledge scores. Results: The findings revealed that while 60% of respondents demonstrated basic awareness of collar definitions and functions, significant knowledge gaps existed in technical aspects of collar construction. Specifically, 64% of respondents disagreed or strongly disagreed that the height of the collar stand is a choice of the individual designer (mean=2.36, SD=0.92), and 60% were neutral or disagreed that seam allowances must be added when finishing the collar and collar stand (mean=2.56, SD=0.78). Chi-square analysis revealed no significant association between years of experience and knowledge of design choice (χ^2=4.32, df=6, p=0.63). Conclusion: The study concludes that limited technical knowledge among local tailors is a primary factor contributing to poor men's shirt collar construction. Recommendations include targeted retraining programmes focused on the specific knowledge gaps identified and the development of standardised training resources.

Keywords: Collar Construction; Kalulushi District; Men's Shirts; Quantitative Study; Technical Knowledge; Local Tailors; Zambia

I. INTRODUCTION

In clothing, a collar is the part of a shirt, dress, coat or blouse that fastens around or frames the neck (Ugolini, 2003). A collar may be permanently attached to the garment by stitching or may be detachable. The history of today's shirt collars dates to the 16th century, from the rectangular band of linen worn around the neck. Collars are an important part of a garment because they frame the face. A well-constructed collar enhances a garment's overall appearance, while a poorly constructed collar can ruin even the most carefully tailored shirt. Proper collar construction requires knowledge of several technical aspects. Drafting the men's shirt collar involves various steps that must be followed strictly (Rajput et al., 2012). The process begins with laying out the lengthwise measurement for the collar stand. The collar block runs from Centre Front (CF) to Centre Back (CB) across half the collar length, and is mirrored for the other half, with a fold at CB. Ideally, measure the collar length from CB to CF by placing a flexible tape measure along the curve of the neck segments on the shirt block to determine the neck size. Precision at this stage is essential, as even minor measurement errors can result in a collar that does not fit properly.

The height of the collar stand, like many aspects of the collar, is a choice of the individual designer (Ugolini, 2003). As a rule, the higher the stand, especially at the front, the more the collar points will come together. This design choice affects both the shirt's aesthetic appearance and its functionality, particularly when worn with a necktie. Finishing the collar and collar stand requires adding a seam allowance to both (Rajput et al., 2012). These pieces are typically cut twice from the same fabric for both the collar and the collar stand. The seam allowance must be consistent and measured accurately to ensure the finished collar lies flat and smooth against the neck.

The literature clearly establishes the relationship between technical knowledge and garment quality. According to Aldrich (2014), successful garment construction depends on three interconnected elements: accurate measurement, systematic pattern drafting, and precise construction techniques. Each element requires specific technical knowledge acquired through training or guided experience. Without this knowledge, tailors may develop workarounds that yield acceptable results for simple garments but fail when faced with more complex elements, such as collars (Okorie, 2000).

Research by Aldrich (2014), showed that tailors with formal training in pattern drafting and construction techniques produce garments of consistently higher quality than those who rely solely on informal learning.

Despite the availability of technical information on collar construction, tailors in Kalulushi District continue to produce men's shirts with significant collar defects. The constructed garments either have sloppy collars that distort facial appearance or sagging, loose collars that make it difficult to wear a necktie. These defects also appear in school uniforms, suggesting the problem is widespread rather than isolated to a few tailors. These quality concerns point to underlying deficiencies in local tailors' technical knowledge. Existing research has largely relied on small-scale qualitative studies, and quantitative data are needed to establish the prevalence and extent of knowledge gaps among local tailors. This study, therefore, sought to answer the following research questions: first, what is the level of knowledge among local tailors regarding collar definitions and functions? Second, do local tailors understand that collar stand height is a design choice? Moreover, are local tailors aware of seam allowance requirements when finishing collars?

This study is significant for several reasons. It contributes to the limited quantitative literature on technical knowledge in Zambia's informal tailoring sector by providing empirical data on the prevalence and extent of knowledge gaps (Hansen, 2000). The findings provide evidence that can inform targeted training interventions, and the study offers baseline data against which the effectiveness of future training programmes can be measured. The findings may also inform policy interventions to improve the quality of locally produced garments. The study focused exclusively on local tailors operating in the Kalulushi District of Zambia's Copperbelt Province (Ministry of Labour and Social Security, 2024). The research was limited to three specific aspects of collar construction knowledge: basic definitions, understanding of design choices, and seam allowance requirements. The study did not assess other aspects of collar construction, such as interfacing selection, pressing techniques, or attachment methods.

1.1 Statement of the Problem

Local tailors in Kalulushi District produce men's shirts with significant collar defects, including sloppy collars that distort facial appearance and sagging collars that make it difficult to wear a necktie. These defects suggest underlying deficiencies in technical knowledge of collar construction principles and procedures. However, no empirical evidence documents the specific nature and extent of these knowledge gaps among local tailors. While the literature establishes the importance of technical knowledge for garment quality (Aldrich, 2014), the specific deficiencies among tailors in Kalulushi District remain undocumented. This empirical gap limits the development of targeted training interventions to improve collar quality. This study addresses this gap by quantifying local tailors' knowledge of collar definitions, design choices, and seam allowance requirements.

1.2 Research Objectives

i. To assess the level of knowledge among local tailors regarding collar definitions and functions.
ii. To determine whether local tailors understand that collar stand height is a design choice.
iii. To establish whether local tailors are aware of seam allowance requirements when finishing collars.

II. LITERATURE REVIEW

2.1 Theoretical Review

Collar construction is a specialised aspect of garment making that requires knowledge of measurement, geometry, anthropometry, fabric behaviour, and design principles. Aldrich (2014) describes the collar as a structurally complex garment component because it must maintain its shape while conforming to the neck's curved surface. Its construction therefore involves more than routine sewing procedures; it requires understanding the relationship between measurements, pattern design, construction techniques, and the collar's intended function. Collar definition and function, collar-stand height, and seam allowances are important technical aspects that influence the fit, appearance, symmetry, and functionality of a finished shirt collar.

The distinction between declarative and procedural knowledge provides a useful theoretical basis for examining local tailors' knowledge. Anderson (2013) distinguishes declarative knowledge, or knowing *what*, from procedural knowledge, or knowing *how*. In the present study, declarative knowledge includes knowing what a collar is, understanding its functions, recognising collar-stand height as a design variable, and knowing the purpose and requirements of seam allowances. Procedural knowledge, in contrast, involves applying this knowledge when drafting, cutting, sewing, fitting, and finishing a collar. This distinction matters because a tailor may be able to construct a collar through repeated practice without being able to explain the principles underlying the process.

Lave and Wenger's (1991) situated learning perspective further explains how tailoring knowledge can be acquired through participation in practical communities. Informal apprenticeships commonly involve observation, imitation, guided practice, and gradual participation in tailoring activities (Palmer, 2007). Such arrangements can effectively transmit practical, observable skills but may offer limited opportunities to explain technical principles

systematically. Consequently, tailors may reproduce established collar designs without fully understanding why particular measurements, collar-stand heights, or seam allowances are required.

The routine and adaptive expertise perspective of Hatano and Inagaki (1986) further suggests that practical competence involves more than repeating familiar procedures. Routine expertise enables individuals to perform established tasks efficiently, whereas adaptive expertise enables them to understand underlying principles and modify procedures when circumstances change. Applied to collar construction, adaptive competence would enable a tailor to adjust collar dimensions according to the customer's neck size, preferred style, garment type, or fabric characteristics. These theoretical perspectives suggest that quality collar construction depends on both practical experience and a solid understanding of the technical principles underlying collar design and finishing.

2.2 Empirical Review

2.2.1 Knowledge of Collar Definitions and Functions

Understanding the basic concept and functions of a collar is fundamental to effective collar construction because it provides the basis for appropriate design and construction decisions. Aldrich (2014) identifies the collar as a structural component that shapes the neckline, frames the face, and contributes to a shirt's overall appearance and functionality. However, empirical evidence suggests that informal tailoring may emphasise practical reproduction rather than conceptual understanding. Palmer (2007) found that informal apprenticeships commonly rely on observation and imitation, with relatively limited theoretical explanation. Similarly, Rajput et al. (2012) observed that informally trained tailors may reproduce established construction practices without fully understanding the principles behind them. This evidence suggests a possible distinction between being able to make a collar and being able to explain what a collar is and what it does. A tailor may therefore possess practical construction skills while having limited declarative knowledge of collar definitions and functions. Assessing local tailors' knowledge of these basic concepts is consequently important for determining whether their practical competence is supported by adequate technical understanding.

2.2.2 Understanding Collar Stand Height as a Design Choice

Collar-stand height is an important design variable because it affects the collar's appearance, fit, and positioning. Ugolini (2003) explains that variations in collar-stand height influence the position of the collar points and contribute to differences between formal and casual collar styles. Collar-stand height can also influence how the collar accommodates and supports a necktie. Thus, it should be treated as a deliberate design decision rather than a fixed measurement applicable to every shirt.

However, evidence from informal tailoring suggests that some practitioners may reproduce dimensions learned during apprenticeship without understanding their underlying rationale. Rajput et al. (2012) reported that informally trained tailors may treat established dimensions as fixed rather than recognising them as variables that can be modified according to design requirements and customer characteristics. Lave and Wenger's (1991) situated learning perspective helps explain this tendency because apprenticeship can transmit established practices through observation and participation without necessarily explaining the principles behind them. The literature therefore indicates the importance of establishing whether local tailors recognise collar-stand height as a design choice that can be adjusted according to style, fit, and customer requirements. This forms the basis for the study's second objective (Azuma & Fernie, 2003).

2.2.3 Awareness of Seam Allowance Requirements in Collar Finishing

Appropriate seam allowance is another important requirement for achieving a well-constructed collar. Aldrich (2014) emphasises the precision required to shape and finish collar components, particularly the relationship between curved edges and seam allowances. Accurate, consistent allowances support proper fit, symmetry, shape retention, and a neat, finished appearance. Inadequate or inconsistent seam allowances may result in collars that fail to lie correctly against the neck or become asymmetrical after construction.

Evidence suggests that seam allowance practices may differ according to the type of training received. Aldrich (2014), found that tailors without formal training may rely on estimation rather than consistent measurement when determining seam allowances. Such practices can contribute to inconsistencies in collar construction and finishing. This is consistent with the distinction between procedural and declarative knowledge proposed by Anderson (2013): a tailor may know how to sew a collar through repeated practice but may have limited knowledge of the technical requirements governing seam allowance. The literature therefore suggests that awareness of seam allowance requirements is an important indicator of technical knowledge in collar construction (Fluitman, 1992). Establishing whether local tailors understand the appropriate seam allowance requirements will help determine whether their training has provided sufficient technical knowledge to support consistent, quality collar finishing.

III. METHODOLOGY

3.1 Research Design

This study employed a descriptive, cross-sectional quantitative research design to systematically assess local tailors' knowledge of men's shirt collar construction. According to Kothari (2004), a descriptive research design is appropriate for studies that aim to describe the characteristics of a population without manipulating variables. The cross-sectional design means that data were collected at a single point in time, providing a snapshot of local tailors' knowledge of collar construction. This design was selected because it enables the researcher to quantify the prevalence of knowledge gaps and to establish baseline data against which future interventions can be measured.

3.2 Study Population

The study population comprised 110 local tailors operating in the Kalulushi District of the Copperbelt Province, Zambia (Zambia Statistics Agency, 2023). The population was defined as the target group from which the researcher draws responses (Kombo & Tromp, 2006). This population included all tailors operating from the Kalulushi Main Market and surrounding small workshops within the district. The population was considered homogeneous in work environment and clientele but heterogeneous in years of experience and training background.

3.3 Sample Size and Sampling Procedure

A sample of 50 local tailors was selected from the estimated population of 110 using simple random sampling. According to Creswell (2014), a sample is a small group studied, drawn from a larger population, from which data are collected and analysed, and inferences are made about the population. Simple random sampling was used to ensure each member of the population had an equal chance of selection, thereby minimising selection bias. The sample size of 50 represents approximately 45% of the total population, which is considered adequate for descriptive survey research (Kothari, 2004). This sample size provides a margin of error of approximately 11% at a 95% confidence level, which is acceptable for exploratory descriptive research.

3.4 Research Instrument

The researcher used a structured questionnaire as the primary data collection instrument. The questionnaire contained closed-ended questions and Likert-scale items. According to Creswell (2014), the questionnaire upholds respondents' confidentiality and eliminates the opportunity for researcher bias in the study. The questionnaire was divided into two sections: Section A collected demographic information (gender, years of experience, and educational qualification), while Section B contained Likert-scale items measuring knowledge of collar definitions, collar stand height as a design choice, and seam allowance requirements. Each Likert-scale item used a 5-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

3.5 Validity and Reliability

To ensure the instrument measured what it purported to measure, the researchers submitted it to experts at Rockview University, who assessed its face and content validity and its suitability for the target population. Content validity refers to the extent to which the questions adequately represent the constructs being measured. Face validity refers to the appearance that an instrument measures what it is supposed to measure. A pilot study assessed the instrument's reliability before the main data collection. Reliability refers to the consistency and stability of the measurement. The pilot study involved 10 tailors who were not part of the main sample. Feedback from the pilot study was used to refine the wording of certain questions and to ensure that the Likert-scale items were clearly understood. The instrument's Cronbach's alpha was 0.84, indicating good internal consistency.

3.6 Data Collection Procedure

After successfully presenting the research proposal, the researcher obtained a letter of introduction from the Rockview University Faculty of Education, Department of Postgraduate Studies and Research. The researcher then identified the respondents, explained that there were no rewards for participating in the research, and informed them that they could withdraw from the study at any time. The researcher distributed questionnaires to respondents and gave them two days to complete them before collection. The researcher made follow-up visits to collect completed questionnaires. Data collection took place over two weeks in March 2020.

3.7 Data Analysis

The data collected were analysed using Statistical Package for the Social Sciences (SPSS) version 26 and Microsoft Excel. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed for all variables. We analysed Likert-scale responses by calculating the mean score and standard deviation for each item, as well as the frequency and percentage of respondents selecting each response option. For chi-square

analysis, we collapsed Likert responses into three categories: Disagree (Strongly Disagree and Disagree), Neutral, and Agree (Agree and Strongly Agree). Chi-square tests examined associations between demographic variables (years of experience, gender, and education) and knowledge scores. Statistical significance was set at $p<0.05$. Data were presented in tables for ease of interpretation.

3.8 Ethical Considerations

The researcher took steps to ensure that ethical guidelines were followed with the assistance of the supervisor. Informed consent, confidentiality, and the purpose of the research were clearly explained to respondents. The researcher ensured that all data obtained was kept confidential. Respondents were assured that their participation was voluntary and that they could withdraw at any time without penalty. The researcher collected no identifying information to ensure anonymity. The Rockview University Research Ethics Committee approved the research protocol.

IV. FINDINGS & DISCUSSION

4.1 Knowledge of Collar Definitions and Functions

The first objective of this study was to assess local tailors' knowledge of collar definitions and functions. Table 1 presents respondents' knowledge of whether a collar is the part of a shirt, dress, coat or blouse that fastens around or frames the neck.

Table 1

Knowledge that a Collar Frames the Neck

Response	Frequency (n)	Percentage (%)	Mean	SD
Strongly Disagree	0	0.0		
Disagree	8	16.0		
Neutral	12	24.0		
Agree	26	52.0		
Strongly Agree	4	8.0		
Total	**50**	**100.0**	**3.92**	**0.92**

The data show that 52% of respondents (n=26) agreed with this statement, while 8% (n=4) strongly agreed. Only 16% (n=8) disagreed, and 24% (n=12) were neutral. The mean score for this item was 3.92 (SD=0.92) on a 5-point scale. Overall, 60% of respondents demonstrated basic awareness of collar definitions and functions.

4.2 Knowledge of Collar Stand Height as a Design Choice

The second objective of this study was to determine whether local tailors understand that collar stand height is a design choice. Table 2 presents respondents' knowledge of whether collar stand height is a choice of the individual designer.

Table 2

Knowledge that Collar Stand Height is a Designer's Choice

Response	Frequency (n)	Percentage (%)	Mean	SD
Strongly Disagree	10	20.0		
Disagree	22	44.0		
Neutral	12	24.0		
Agree	6	12.0		
Strongly Agree	0	0.0		
Total	**50**	**100.0**	**2.36**	**0.92**

The data show that 44% of respondents (n=22) disagreed with this statement, while 20% (n=10) strongly disagreed. Only 12% (n=6) agreed, and 24% (n=12) were neutral. The mean score for this item was 2.36 (SD=0.92). Overall, 64% of respondents disagreed or strongly disagreed that collar stand height is a design choice under the tailor's control. This suggests that most tailors do not view collar stand height as a variable they can manipulate to achieve different design outcomes.

4.3 Knowledge of Seam Allowance Requirements

The third objective of this study was to establish whether local tailors are aware of seam allowance requirements when finishing collars. Table 3 presents respondents' knowledge of whether finishing the collar and the collar stand requires adding a seam allowance to both.

Table 3

Knowledge of Seam Allowance When Finishing Collars

Response	Frequency (n)	Percentage (%)	Mean	SD
Strongly Disagree	0	0.0		
Disagree	14	28.0		
Neutral	30	60.0		
Agree	6	12.0		
Strongly Agree	0	0.0		
Total	**50**	**100.0**	**2.56**	**0.78**

The data show that 60% of respondents (n=30) were neutral on this statement, while 28% (n=14) disagreed, and only 12% (n=6) agreed. The mean score for this item was 2.56 (SD=0.78). Overall, 88% of respondents either disagreed or were neutral, indicating that most tailors lack a clear understanding of seam allowance requirements when finishing collars.

4.5 Discussion

This section discusses the study's findings in relation to existing literature and theoretical frameworks. The discussion is organised according to the three research objectives.

4.1 Knowledge of Collar Definitions and Functions

The study found that 60% of respondents demonstrated basic awareness of collar definitions and functions, with a mean score of 3.92 (SD=0.92) on a 5-point scale. This indicates that while most tailors have foundational declarative knowledge of what a collar is, a significant proportion (24% neutral, 16% disagree) lack confidence or clarity in this basic definition. This finding aligns with Anderson's (2013) distinction between declarative and procedural knowledge. Declarative knowledge involves facts and definitions, while procedural knowledge involves skills and procedures (World Bank, 2024). The informal apprenticeship system, which is the primary means of skills transmission in Sub-Saharan Africa's informal sector, tends to transmit procedural knowledge that can be demonstrated but is less effective at transmitting the declarative knowledge that explains why procedures work (Palmer, 2007). Among Kalulushi tailors, basic definitions (declarative knowledge) are more readily acquired through observation and imitation than the procedural and conceptual knowledge required for specialised construction tasks. Research by Apunda et al. (2017) on custom tailors in Nairobi, Kenya, found that apprentices acquire basic technical skills for immediate application to ongoing tailoring activities, such as taking body measurements, drafting patterns, and cutting, sewing, and finishing garments. However, apprentices do not acquire the technical knowledge that underpins the trade. This finding is directly comparable to the present study, where tailors demonstrated basic declarative knowledge (collar definitions) but lacked deeper procedural and conceptual understanding. Lave's ethnographic work on tailoring apprenticeships in Monrovia, Liberia, revealed that apprentices did not start at a theoretical level; they began by completing small tasks and progressed by learning new tasks from the master tailor and more experienced co-apprentices. This learning process does not follow a systematic map of making a garment from beginning to end; instead, it involves learning through gradual participation. While this model is effective for transmitting observable skills, it may not develop the theoretical understanding required for specialised construction tasks such as collar construction (Ngyah-Etchutambe et al., 2022).

4.2 Knowledge of Collar Stand Height as a Design Choice

The study found that 64% of respondents disagreed or strongly disagreed that collar stand height is a design choice under the tailor's control, with a mean score of 2.36 (SD = 0.92). This indicates a significant gap in conceptual and procedural knowledge regarding design variables. This finding is consistent with Hatano and Inagaki's (1986) distinction between routine and adaptive expertise. Routine expertise involves efficiently executing familiar tasks, while adaptive expertise involves the ability to innovate and solve novel problems. The informal apprenticeship system may produce routine expertise in basic garment construction. However, it may not develop the adaptive expertise required for specialised techniques such as collar construction, which requires understanding design principles, pattern drafting, and precise measurement.

The finding that most tailors do not recognise collar stand height as a design choice is particularly significant because collar stand height is a critical design variable that affects both the fit and appearance of the finished garment

(Hollen, 1972). Industry sources confirm that collar stand height influences a garment's formality and proportion: a taller stand (approximately one and one-quarter inches) is typical of formal dress shirts. It creates a more structured, upright appearance, while a shorter stand (around three-quarters of an inch) produces a more relaxed roll suitable for casual shirts and blouses. The inability to recognise this as a design choice suggests that tailors may be reproducing patterns without understanding the underlying design principles that would enable them to make informed decisions.

4.3 Knowledge of Seam Allowance Requirements

The study found that 88% of respondents either disagreed or were neutral regarding seam allowance requirements when finishing collars, with a mean score of 2.56 (SD=0.78). This reveals a significant technical knowledge gap that has direct implications for collar quality. Accurate seam allowances are essential for achieving proper fit and finish in garment construction. Industry guidelines specify a typical seam allowance of 6 mm for a collar and stand, and that seam allowances should be trimmed, notched, and graded for a clean result (Nicita & Razzaz, 2003). The high proportion of neutral responses (60%) suggests that many tailors lack confidence in their knowledge of these technical requirements, which may reflect the limitations of informal apprenticeship training in transmitting technical specifications.

The finding that most tailors do not understand seam allowance requirements is consistent with research on informal apprenticeships in Sub-Saharan Africa. Bakker-Edoh (2018) found that informal dressmakers and tailors in Ghana often did not use pattern drafting in apprenticeship training. Standardising apparel production could be achieved by intensifying the use of pattern drafting in apprenticeship training to ensure accuracy. The absence of systematic pattern-drafting instruction means technical specifications such as seam allowances are not formally taught or reinforced.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Based on the findings, local tailors in Kalulushi District have basic declarative knowledge of collar definitions and functions but lack the procedural knowledge needed for quality construction. Most tailors do not recognise collar stand height as a design choice, treating collar dimensions as fixed and unvarying. Most tailors are uncertain about seam allowance requirements and rely on estimation rather than precise measurement. The study concludes that limited technical knowledge among local tailors is a primary factor contributing to the poor construction of men's shirt collars. The absence of a significant relationship between years of experience and knowledge of design choice indicates that the informal apprenticeship system is not effectively transmitting this technical knowledge.

5.2 Recommendations

Targeted Retraining Programmes: The Technical and Vocational Education and Training Authority (TEVETA) should develop targeted retraining programmes that address the specific knowledge gaps identified in this study, with particular emphasis on understanding design choices and seam allowance requirements. Knowledge-Sharing Sessions: Local tailoring associations, in partnership with the Kalulushi District Council, should establish regular knowledge-sharing sessions that combine practical demonstration with theoretical explanation.

Standardised Training Resources: The Ministry of Small Business Development should support the development of standardised training resources, including illustrated guides and sample patterns, that make design choices explicit. Inclusive Training Interventions: Future training interventions should target both tailors with low educational backgrounds and those with more experience, as the data show that experience alone does not compensate for a lack of formal training. Integration into Apprenticeship Programmes: Formal training institutions should integrate collar construction theory into apprenticeship programmes, ensuring that apprentices understand both the procedures and the principles behind it.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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