

# Consumers' knowledge of clothing labels in a developing and developed country context

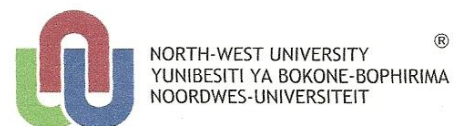
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for the degree *Magister* in Consumer Sciences at the  
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It all starts here <sup>TM</sup>



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## SUMMARY

Clothing labels are considered to be a source of information to consumers in a developing (Potchefstroom, in the North West Province of South Africa) and a developed country (Fayetteville, Arkansas, in the United States of America) context, which serve to promote the standard of consumer decisions by providing information on the intrinsic and extrinsic product properties and care instructions. Once consumers in these two contexts come in contact with clothing labels, the sensory information is registered into buffers that are located in their sensory memory store and the relocation of (clothing label) information to their long-term memories (knowledge) depends on their level of attention and information rehearsal. Although a number of studies have been conducted on clothing labels and the construct of knowledge separately, few studies were found to focus on consumers' knowledge of clothing labels while none have compared the knowledge of consumers from different settings. The aim of this study was to compare the subjective and objective knowledge of the information on clothing labels of consumers in a developing (Potchefstroom, SA) and a developed (Fayetteville, USA) country context in order to determine the differences between these consumers' knowledge of clothing labels. Furthermore, the objectives of this study were to determine the demographic profiles of respondents in a developing and a developed country context; the differences in the subjective knowledge of respondents on clothing labels; the differences in the objective knowledge of respondents with regard to the written and pictorial information on clothing labels; the association between respondents' subjective and objective knowledge of the information on clothing labels and the differences in the subjective and objective knowledge of respondents from different demographic subgroups. The aim and objectives of this study were reached by employing a quantitative, comparative, descriptive approach. Furthermore, purposive sampling was used to recruit respondents in Potchefstroom and Fayetteville who met specific inclusion criteria. Respondents in this study had to be between the ages of 18 and 70 years, participate in clothing shopping, be able to read clothing labels and respondents and their spouses should not have worked in a clothing-related sector. Potential respondents in both cities were approached at predetermined public and private areas, such as universities, municipal offices, retirement facilities, parking areas and shopping centres which existed within both cities at the time. Data were collected simultaneously in Potchefstroom (N=445) and Fayetteville (N=336) by employing an interviewer-administered questionnaire. Male and female respondents and the Black/African and White/Caucasian population group in Potchefstroom were well distributed; however, female respondents were more and the White/Caucasian population group was the largest in Fayetteville. Furthermore, respondents of the different age groups were well

distributed in Potchefstroom while there were more respondents in Fayetteville who were between 18 to 24 years of age and less respondents who were 25 to 34 years of age. The largest percentage of respondents in Potchefstroom completed a secondary education while the largest percentage of respondents in Fayetteville completed a tertiary education. In addition, in both Potchefstroom and in Fayetteville, the largest number of respondents did not have any children under the age of 18 years residing with them. Some demographic subgroups of respondents in a developing country context indicated that they did not use clothing labels because it is confusing, difficult to locate information and too detailed. In contrast, some demographic subgroups of respondents in a developed country context experienced problems with the small size of the label content and the trustworthiness of clothing labels. The results indicated that objective knowledge regarding “symbols” of respondents from Potchefstroom and Fayetteville differed practically significantly while only a tendency was evident for the difference in their objective knowledge regarding the written information on clothing labels. No practically significant differences were found for their subjective knowledge and objective knowledge of “do not symbols”. Results further indicated a negative association between respondents’ subjective and objective knowledge of the written information on labels, implying that the higher respondents’ perceived knowledge, the lower their actual knowledge of the written information was. Subjective knowledge among respondents in these two cities and countries were found to differ regarding age and education, while objective knowledge of “symbols” and “do not symbols” were found to differ regarding age, education and amount of time spent shopping for clothing products. Some differences with regard to gender were also evident for “symbols”. The results of this study clearly indicated a lack of clothing label knowledge, predominantly among consumers in a developing country context with regard to “symbols” as well as a lack of objective knowledge concerning “do not symbols” among respondents in Potchefstroom and Fayetteville. It is therefore suggested that the results of this study should be used for the development of educational programmes and/or extension services in Potchefstroom. Such programmes and services should primarily be aimed to promote consumers’ knowledge of clothing labels, more predominantly within SA. Manufacturers, clothing retailers and marketers within both contexts can also contribute to improve the lack of objective knowledge regarding all the information on clothing labels among respondents in Potchefstroom as well as Fayetteville respondents’ knowledge of “do not symbols”. This can be done by employing information provision techniques aimed to provide consumers with more information on how to read and interpret the written information and care symbols on clothing labels that may positively influence consumers in both contexts to use labels to a greater extent, also having a positive influence on their current lack of objective knowledge regarding some label aspects.

## **KEYWORDS**

America, clothing labels, consumers, knowledge, South Africa

## OPSOMMING

Etiket op klere word as 'n inligtingsbron vir verbruikers in die konteks van 'n ontwikkelende (Potchefstroom in die Noordwesprovinsie van Suid-Afrika) en 'n ontwikkelde land (Fayetteville, Arkansas, in die Verenigde State van Amerika) beskou. Dit bevorder die standaard van verbruikersbesluite deur inligting oor die insintrieke en eksintrieke produk eienskappe en versorgingsinstruksies te verskaf. Sodra verbruikers in hierdie twee kontekste met klere-etiket in aanraking kom, word die sensoriese inligting in buffers gerigistree wat in hul sensoriese geheuestoor geleë is. Die herplasing van (klere-etiket) inligting na hul langtermyngeheues (kennis) hang af van hulle aandagsvlak en vermoë om inligting op te roep. Alhoewel 'n aantal studies oor klere-etiket en die konstruk van kennis afsonderlik uitgevoer is, het min studies op verbruikers se kennis van klere-etiket gefokus, terwyl geeneen verbruikers se kennis vanuit verskillende opsette met mekaar vergelyk het nie. Die doelstelling van hierdie studie was om die subjektiewe en objektiewe kennis van die inligting op verbruikers se klere-etiket in die konteks van 'n ontwikkelende (Potchefstroom, SA) en 'n ontwikkelde (Fayetteville, VSA) land te vergelyk ten einde die verskille tussen hierdie verbruikers se kennis van klere-etiket te bepaal. Hierbenewens was die doelwitte van hierdie studie om die demografiese profile van respondente in Potchefstroom en Fayetteville, die verskille in respondente se subjektiewe kennis van klere-etiket, die verskille in respondente se objektiewe kennis met betrekking tot die geskrewe en piktorale inligting op klere-etiket, die assosiasie tussen respondente se subjektiewe en objektiewe kennis en die verskille in respondente se subjektiewe en objektiewe kennis uit verskillende demografiese subgroepe te bepaal. Die doelstelling en doelwitte van hierdie studie is bereik deur 'n kwantitatiewe, vergelykende en beskrywende benadering toe te pas. Voorts is doelerigte steekproefneming gebruik om respondente in Potchefstroom en Fayetteville te werf wat aan spesifieke insluitingskriteria voldoen het. Respondente in hierdie studie moes tussen die ouderdomme van 18 en 70 jaar wees, moes klere aankoop, moes in staat wees om klere-etiket te lees en respondente en hul gades moes nie in kledingverwante sektore gewerk het nie. Potensiële respondente in beide stede is op voorafbepaalde openbare- en privaatplekke, soos universiteite, munisipale kantore, bejaarde versorgingsfasiliteite, parkeerareas en winkelsentrums genader wat op daardie tyd in albei stede voorgekom het. Data is gelyktydig in Potchefstroom (N=445) en Fayetteville (N=336) deur middel van 'n onderhoudvoerder geadministreerde vraelys ingesamel. Manlike en vroulike respondente van die Swart/Afrika en Blanke/Koukasiëse bevolkingsgroep in Potchefstroom was goed versprei; daar was egter meer vroulike respondente en die Blanke/Koukasiëse bevolkingsgroep was die grootste in Fayetteville. Verder was respondente van verskillende ouderdomsgroepe goed

versprei in Potchefstroom terwyl daar meer respondente in Fayetteville was wat tussen 18 tot 24 jaar oud was en minder respondente wat 25 tot 34 jaar oud was. Die grootste persentasie respondente in Potchefstroom het 'n sekondêre opleiding voltooi terwyl die grootste persentasie respondente in Fayetteville 'n tersiêre opleiding voltooi het. Daarbenewens het die grootste getal respondente in Potchefstroom en Fayetteville nie kinders jonger as 18 gehad wat by hulle gewoon het nie. Sommige demografiese subgroepe van die respondente in die konteks van 'n ontwikkelende land het aangedui dat hulle nie klere-etikette gebruik nie omdat dit verwarrend is, moeilik is om inligting te vind en te gedetailleerd is. In teenstelling, sommige demografiese subgroepe van die respondente in die konteks van 'n ontwikkelde land het probleme ervaar met die klein skrif asook die betroubaarheid van klere-etikette. Die resultate het aangedui dat respondente in Potchefstroom en Fayetteville se objektiewe kennis rakende “simbole” prakties betekenisvol verskil het terwyl daar slegs 'n tendens rakende die verskille in respondente se objektiewe kennis van die geskrewe informasie op klere-etikette was. Geen prakties betekenisvolle verskille is gevind vir respondente se subjektiewe kennis en objektiewe kennis van “moenie simbole” nie. Die resultate het ook aangedui dat daar 'n negatiewe verwantskap tussen respondente se subjektiewe en objektiewe kennis van die geskrewe inligting op etikette was, wat impliseer dat hoe hoër respondente se waarnemende kennis was, hoe laer hul werklike kennis van die geskrewe informasie was. Respondente se subjektiewe kennis in hierdie twee stede en lande het verskil op grond van ouderdom en opleiding terwyl objektiewe kennis van “simbole” en “moenie simbole” op grond van ouderdom, opleiding en die hoeveelheid tyd wat daaraan bestee is om klerasieprodukte te koop, verskil het. Sekere verskille met betrekking tot geslag ten opsigte van “simbole” is ook gevind. Die resultate van hierdie studie het duidelik 'n gebrek aan kennis aangaande klere-etikette, hoofsaaklik onder verbruikers in die konteks van 'n ontwikkelende land met betrekking tot “simbole” asook 'n gebrek aan objektiewe kennis van “moenie simbole” onder respondente in beide Potchefstroom en Fayetteville uitgewys. Dit word derhalwe voorgestel dat hierdie studie se resultate vir die ontwikkeling van opvoedkundige programme en/of uitbreidingsdienste in Potchefstroom aangewend moet word. Sodanige programme en dienste behoort meestal daarop gemik te wees om verbruikers se kennis van klere-etikette, veral in SA, te verbeter. Vervaardigers, kledinghandelaars en bemarkers in beide kontekste kan ook 'n bydrae lewer tot die verbetering van respondente in Potchefstroom se gebrek aan objektiewe kennis met betrekking tot alle inligting op klere-etikette, asook respondente in Fayetteville se kennis met betrekking tot “moenie simbole”. Die bogenoemde kan uitvoer word deur inligtingverskaffende tegnieke toe te pas wat daarop gemik moet wees om meer inligting aan verbruikers te verskaf rakende die lees en interpretasie van die geskrewe inligting en versorgingssimbole op klere-etikette. Hierdie tegnieke kan verbruikers in albei

kontekste positief beïnvloed om klere-etikette tot 'n groter mate te gebruik wat sodoende ook 'n positiewe invloed sal hê op hulle huidige gebrek aan objektiewe kennis rakende sekere aspekte van klere-etikette.

## **SLEUTELTERME**

Amerika, kennis, klere-etikette, Suid-Afrika, verbruikers



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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 BACKGROUND AND MOTIVATION**

#### **1.1.1 Introduction**

Clothing labels as a source of information to consumers, serve to promote the overall standard of consumer decisions by providing information on the intrinsic and extrinsic product properties and care instructions (Abraham-Murali & Littrell, 1995:72; Iowa State University, 2003; Rahman *et al.*, 2009:83, 84; Shin, 2000a:28, 2000b:20). Clothing labelling in South Africa (SA) and the United States of America (USA) proves to be relatively consistent regarding the written information on labels (Nadiger, 2007:15, 17). However, differences are evident in the care symbols that are used by these two countries (Federal Trade Commission, 2001:13; Intertek, 2012; SANS, 2007:8-11). Once consumers, such as those in SA and the USA, are exposed to clothing labels, the sensory information is registered into some of the three buffers that are located within the sensory store in memory (Baddeley, 1997:26). Depending on consumers' level of attention, the label information will be relocated to the short-term memory store (Karakas, 1997:357), where a process of pattern recognition occurs in accordance with consumers' existing knowledge, which is located in their long-term memory store (Atkinson & Shiffrin, 1977:10; Matlin, 2009:33). Although the long-term memory store is composed of two sub-categorical memory types called declarative and non-declarative or procedural memory (Robinson-Riegler & Robinson-Riegler, 2008:242; Squire, 2004:173), the emphasis of this study was placed on declarative memory as it refers to consumers' retrieval of past experiences such as experiences obtained by using clothing labels and general information and specific facts (Friedenberg & Silverman, 2012:117).

Consumers' knowledge (of clothing labels) is associated with four variables: familiarity, subjective knowledge, objective knowledge and objective product category information (Aurier & Ngobo, 1999:574). However, only the first three variables were emphasised in the present

study, as objective product category information does not directly refer to clothing labels but more to the product itself. Furthermore, demographic variables such as income, age and education, along with geographical setting, are found to have an impact on consumers' formation of knowledge (House *et al.*, 2004:118, 119). As a result, as found in the present study, consumers from two cities in the developing country of SA and the developed country of the USA, which have different demographic characteristics, are also likely to differ with regard to their knowledge of clothing labels.

### **1.1.2 Consumers in Potchefstroom, North West Province of South Africa**

South Africa is described as a developing country with an emerging economy as it contains components that are characteristic of both first and third-world countries (Casale & Posel, 2011:385; Gothan & Erasmus, 2008:639; Molawa, 2009:6). The first-world component in SA refers to the urban settings that are equipped with resources, such as infrastructure, public services and educational institutions. The third-world component refers to the insufficiency of such resources in rural areas (Molawa, 2009:6). As a result of the third-world component in SA, poverty has long existed. Before 1994, poverty among black South Africans was chronic; however, after the first South African democratic elections held in 1994, new programmes and laws, such as the Growth, Employment and Redistribution (GEAR) programme and Black Economic Empowerment (BEE) legislation, were employed by the South African government in an attempt to decrease poverty among black citizens (Aliber, 2003:473; Mpehle, 2011:150; Streak, 2004:286; Van Eck *et al.*, 2004:5). Such implementations were intended to give South African citizens the opportunity to better their educational qualifications and to participate in a professional business environment. Furthermore, SA and the USA have developed a well-grounded relationship subsequent to the 1994 democratic elections and share similar development objectives, especially improving the educational standards in SA (US Department of State, 2012). The per capita income levels of citizens in SA increased drastically from 2000 to 2005/2006 (Statistics South Africa, 2008b:1), implying that South African consumers have become more empowered, especially with regard to the consumption process (Van Eck *et al.*, 2004:5), which is also associated with clothing products. It is the researcher's opinion that South African consumers have become more familiar with the purchasing of clothing products, which may have had a positive effect on their objective knowledge of the labels on these products.

Potchefstroom, which is located in the North West Province of SA, is regarded as a historically academic city (North-West University, 2011a) which hosts an internationally recognised South African university, namely the North-West University, Potchefstroom Campus (North-West University, 2011b). According to the latest available census information, Potchefstroom has 162 762 residents who belong to one of four population groups: Black/African (71.3%), White/Caucasian (20.6%), Coloured/Mixed origin (6.8%) and Indian/Asian (0.9%). Furthermore, 49.1% of the residents are male and 50.9% are female. A total of 81.1% of the households in Potchefstroom are formal dwellings, 17.8% are informal dwellings, and 0.3% are traditional. Furthermore, 21.6% of the residents in Potchefstroom are unemployed. The most frequently spoken languages in Potchefstroom are Setswana (41.0%), followed by Afrikaans (31.8%), Sesotho (11.5%), IsiXhosa (10.2%) and English (2.5%). Regarding the educational attainment of adult residents in Potchefstroom, it was found that 19.7% had completed the National Senior Certificate (NSC) or Grade 12, while 9.3% had completed a tertiary education qualification. Furthermore, 4.5% had not received any formal education (Statistics South Africa, 2001; 2008a:45; 2009:7, 10; 2012:43-75; Tlokwe City Council, 2009:9; 2012:44), which might be due to the lack of educational resources and development, especially in rural areas (Samuel, 2005:viii).

Regardless of the low levels of educational attainment and high poverty levels among some citizens in SA and residents in Potchefstroom, the country is regarded as an emerging market due to the availability of potential consumers who were found to spend the same percentage of their monthly income on products, including clothing, when compared to the expenditure of consumers resident in other countries (Selvanathan & Selvanathan, 2004:2328), which in this study is Fayetteville, Arkansas, USA. Therefore the researcher suggests that consumers in Potchefstroom and Fayetteville may be equally exposed to clothing labels due to possible similar patterns of clothing consumption.

### **1.1.3 Consumers in Fayetteville, Arkansas, USA**

The USA is considered to be a first-world or industrialised country due to its high level of participation in world trade (Appleyard *et al.*, 2010:3; Molawa, 2009:5). As a result of the USA's well-developed economy, consumers in the USA possess high levels of purchasing power

(Nicholls *et al.*, 1996:17). Nevertheless, poverty affects about 13% of the total of 308.7 million citizens (Bishaw, 2011:2; Mackun & Wilson, 2011:2). Fayetteville, which is located in the state of Arkansas in the USA, is described as a small academic city (Anon., 2012), which hosts one of the top universities nationwide, namely the University of Arkansas (University of Arkansas, 2012). Fayetteville has a population of 73 580 residents who belong to one of five identified population groups: White/Caucasian (83.3%), Black/African American (6.0%), Asian (3.1%), American Indian and Alaska Native (1.1%), and Native Hawaiian and other Pacific Islanders (0.2%), while 3.1% of the population belong to more than one of the identified population groups (mixed origin). Additionally, the population comprises 50.3% male and 49.7% female residents, 3% of whom are unemployed. The majority (91.1%) of the population in Fayetteville speak English, while 8.9% speak other languages, including Spanish (4.8%), other Indo-European languages (1.7%), Asian and Pacific Island languages (2.0%) and unspecified languages (0.5%). Of the above 8.9% who speak other languages, 3.4% speak English fluently. Regarding educational attainment, 3% of the population who are 25 years of age and older have not completed formal education beyond the ninth grade, 20.3% have completed secondary education, and 43.3% have completed a tertiary or post-graduate qualification (United States Census Bureau, 2007:752; 2010a; 2010b).

According to the above discussion, it is evident that Potchefstroom (SA) and Fayetteville (USA) share similar characteristics as both cities are regarded as academic cities which host internationally recognised universities. Apart from these similarities, the demographic profiles of consumers in Potchefstroom and Fayetteville had to be considered in the present comparative study since these two cities differ regarding predominant population groups, language use and the educational attainment of their residents; some of these variables are also associated with the concept of knowledge (House *et al.*, 2004:118, 119). First and foremost among the differences, the African/Black group is the largest in Potchefstroom, whereas the Caucasian/White group is the largest in Fayetteville. Since culture is dependent on a specific geographical setting or country (Banerjee, 2008:367), it is argued that similar strategies for an information search can be employed, although inconsistencies may arise regarding consumers' perceived importance of the process itself (Matsumoto & Juang, 2004:111) and the different product-related information sources, such as clothing labels (Brewer Doran, 2002:826). Next, English is the most widely used language in Fayetteville, whereas it ranks as the fifth most spoken language in Potchefstroom. Nevertheless, English still remains the national mutual communication medium

(Casale & Posel, 2011:385) in a South African context and the language in which clothing labels are presented. With regard to education, US consumers have considerably higher levels of educational attainment, specifically tertiary education, compared to South African consumers. The level of consumer knowledge is found to be dependent on variables such as education, income and geographical location. Furthermore, education, which is considered to be a crucial element in consumers' development of knowledge, is arguably dependent on other variables such as income and geographical location (House *et al.*, 2004:118, 119). People with an educational background tend to display greater memory capabilities due to better reading and comprehension skills than people who have had no formal education (Lewellen *et al.*, 1993:327; Matsumoto & Juang, 2004:106). This may also be the case with residents of Potchefstroom and Fayetteville regarding their knowledge of clothing labels. The knowledge of consumers in both cities may be dependent on education and financial resources, as the opportunity for greater knowledge of clothing labels will be dependent on such factors. To open the discussion on the memory and knowledge of consumers in Potchefstroom and Fayetteville, the process of consumer cognitive learning is first dealt with.

#### **1.1.4 Cognitive learning**

Although the concept of consumer learning is defined differently according to two learning perspectives, namely behaviourist and cognitive (Rathus, 2005:232), the emphasis in this study is placed on the cognitive tradition as it refers to the mental processes that are associated with information processing, human memory and knowledge (Ormrod, 2004:154; Swartz *et al.*, 2008:228, 234). Cognitive learning is regarded as a mental process that contributes towards consumers' existing knowledge structures resulting from previous interactive experiences and the acquisition of new information (Schiffman & Kanuk, 2007:198, 201; Weiten, 2007:215). Cognitive learning therefore signifies that consumers' knowledge of clothing labels will improve based on previous experience of using label information and due to the acquisition of new label-related information that is not present within their existing knowledge of clothing labels. By following the cognitive perspective, researchers in future will be able to determine and compare consumers' knowledge of clothing labels in a South Africa and American context by applying the theory of information processing and consumers' memory of clothing labels.

The learning process occurs when consumers acknowledge a problem. As a result, internal sources, such as their existing knowledge of label information, are taken into consideration before searching their external settings for situation-specific information (Cant *et al.*, 2006:197; Schiffman & Kanuk, 2007:533; Van Staden & Van Aardt, 2010:46). In this case, information on the intrinsic and extrinsic garment properties and care instructions as indicated on the label will provide assistance in making a satisfactory decision. In the following section, the internal and external consumer information search is described, leading to a discussion on the cognitive processing of newly acquired information and existing knowledge by applying the information processing approach (IP).

### **1.1.5 Consumer information search and processing**

According to various authors (Schiffman & Kanuk, 2007:531; Solomon & Rabolt, 2004:353, 2009:382; Sproles & Burns, 1994:75), the consumer information search is categorised as the second stage of the traditional decision making model. Once consumers have identified a specific goal, such as acquiring information on the garment attributes as indicated on the label before making a decision, they will first engage in cognitive tasks, also termed the process of internal information search (Park & Stoel, 2005:149). The accumulation of knowledge from past learned experiences (Schiffman & Kanuk, 2007:533) can either be declarative or procedural in nature; the knowledge is situated in the long-term memory store of the consumer (Wyer & Xu, 2010:108). Consumers refer to these internal sources to locate relevant information that can be applied to the specific situation (Park & Stoel, 2005:149). In instances where consumers are unable to retrieve information from their long-term memories or would like to improve on the information obtained by means of internal search efforts, the emphasis is placed on the consumer's external environment as a source of information, a process which is termed external information search (Guo, 2011:139; Van Staden & Van Aardt, 2010:37). For the purpose of this study regarding consumers in Potchefstroom and Fayetteville, the emphasis has been placed on the acquisition of information from clothing labels, which is identified as an external source of information, and from consumers' internal information search as it involves their memories of past experiences (Shin, 2000b:20).



### **1.1.6 Clothing labels as a source of information**

Clothing labels convey a variety of information to the apparel consumer regarding the intrinsic and extrinsic attributes of the garment itself and care instructions (Koester, 1993:1, 2; Sonneberg & Erasmus, 2005:15, 16). Intrinsic product properties refer to aspects such as the fabric used and its composition, while extrinsic attributes refer to aspects such as the brand name (Abraham-Murali & Littrell, 1995:71; Rahman *et al.*, 2009:83, 84). A study by Yan *et al.* (2008), which focused on clothing labels, was found to incorporate the personality characteristic of need for cognition with consumers' use of care labels, whereas research by Shin (2000a) focused on the use of care labels by consumers during garment care. Although these studies appear to provide a brief indication of consumers' knowledge of care labels by referring to consumers' use of them (which leads to higher levels of familiarity), no empirical evidence exists that supports the notion that consumers' knowledge is influenced by the usage of clothing labels. As these studies did not consider all the information on clothing labels and were not comparative, no clear indication exists as to the familiarity with clothing labels of consumers who are located in different geographical areas.

In both SA and the USA, clothing labels convey mandatory and optional information. Both countries are required to provide information on the fabric used, the fabric composition, country of origin and care instructions in English (Nadiger, 2007:15, 17; South Africa, 2011:16). Clothing labelling provided in SA and the USA is relatively consistent regarding the written information given on labels (Nadiger, 2007:15, 17). However, attention needs to be directed towards the care symbols used by the two countries as significant differences are evident (Kidmose Rytz *et al.*, 2010:10, 11; SANS, 2007:8-11). In order to ensure consistency in this study, the researcher only measured consumers' knowledge of the care symbols that are used similarly in SA and the USA. Next, the information processing theory that can be described by referring to the concept of human memory is examined (Schiffman & Kanuk, 2007:216; Swartz *et al.*, 2008:256).

### **1.1.7 Consumers' memory**

Once a consumer comes into contact with information, such as those on clothing labels, the sensory information is registered into some of the three buffer stores where fragmentation of the

data occurs (Baddeley, 1997:26; Lurie & Mason, 2007:173). Depending on consumers' level of attention, the label information is relocated to the short-term memory store (Karakas, 1997:357) where a process of pattern recognition occurs in accordance with the knowledge that the consumer already possesses in his or her long-term memory store (Atkinson & Shiffrin, 1977:10; Matlin, 2009:33). Information rehearsal is required in order for the information to be transferred to the long-term memory store. If the transfer does not occur, the information will be lost (Karakas, 1997:357; Schiffman & Kanuk, 2007:217). The long-term memory store of the consumer includes two primary types of memory, declarative and non-declarative. Declarative memory involves the conscious retrieval of general information and past experiences (Squire, 2004:173). This study emphasises this memory type, because it enables consumers to retrieve any label-related information from their long-term memories, which resulted from past experiences using label information or from the acquisition of new information regarding clothing labels.

### **1.1.8 Consumers' knowledge**

The concept of consumer knowledge is described as the presence of generic information, comprehension of the information, the skills which are acquired by means of formal and informal education and interactive experiences within human memory systems (Oxford Advanced Learner's Dictionary, 2005:821). Furthermore, Kitayama *et al.* (2003:204) found that individuals' cognition is highly dependent on the cultural group setting. It is therefore the researcher's opinion that consumers from different cultural backgrounds and nationalities in Fayetteville and Potchefstroom, may differ in terms of their cognition. As cognition is associated with memory and knowledge (Hertzog *et al.*, 2003:766), the researcher further argues that consumers in Potchefstroom and Fayetteville may also differ in terms of their knowledge of clothing labels.

Consumer knowledge is associated with four variables, which include familiarity, subjective and objective knowledge, and objective product category information (Aurier & Ngobo, 1999:574). For the purpose of this study, the three variables, namely familiarity and subjective and objective knowledge, are emphasised. As objective product category information does not directly refer to clothing labels but to the garment itself, this variable was therefore not studied. Firstly,

familiarity is considered to be a principle variable of knowledge that stems from consumers' acquisition of prior knowledge (Johnson & Russo, 1984:543; Mitchell, 1982:45). In this case, consumers' knowledge of clothing labels becomes important. This suggests that South African and US consumers' familiarity with clothing labels will increase with the extent of prior experience of using label information and the attainment of additional label information which is not present in their memories. A study by Guo and Meng (2008:266), which focused on the construct of knowledge among consumers in different countries, indicated consistencies in the constructs of familiarity and objective knowledge among Chinese and French consumers. The researcher suggests that higher levels of familiarity with clothing labels will result in greater objective knowledge of the label as a source of information. Thus consumers who are more familiar with labels might prove to have more objective knowledge than consumers who are not familiar with this source of information.

Secondly, the concept of subjective knowledge can be described in terms of consumers' confidence in what they think they know (Alba & Hutchinson, 2000:123) about clothing labels. A study by House *et al.* (2004:118), which focused on genetically modified foodstuffs, reported differences in consumers' subjective knowledge based on demographic characteristics such as income, age, education and geographical location. It is the researcher's opinion that consumers' subjective knowledge of clothing labels may also differ as the demographic variables in the study by House *et al.* (2004:123) proved to be similar to these variables in this study. Furthermore, consumers with high levels of subjective knowledge are likely to search for information both internally by referring to their long-term memory (of clothing labels) and externally by means of personal sources, such as verbal communication with other individuals and consumers (Mattila & Wirtz, 2002:224). The researcher argues that the more subjective knowledge held by consumers, the less likely they are to search for and consult impersonal sources of information, such as clothing labels. Therefore these consumers might find it difficult to retrieve such information from their long-term memory store due to their lower level of familiarity with labels.

Lastly, objective knowledge is described as consumers' abilities or expertise to accurately retrieve (label-related) information from their long-term memory store (Alba & Hutchinson, 2000:123). Similar to subjective knowledge, objective knowledge is also dependent on such

variables as income, education and geographical location. Furthermore, the educational attainment of consumers is considered to be a crucial element in the overall formation of knowledge, and therefore has an impact on consumers' objective knowledge (House *et al.*, 2004:118, 119). As previously stated, the educational attainment of Potchefstroom residents are lower than those of Fayetteville and therefore, the researcher suggests that consumers in the USA may have higher levels of objective knowledge regarding clothing labels than South African consumers. Higher levels of educational attainment among citizens may result in better knowledge formation. Previous studies by Mason *et al.* (2008) and Dew and Kwon (2010) incorporated the concept of knowledge with other constructs such as size and brand that are also present on clothing labels. Although this information may prove to be useful, these studies are not holistic in terms of all the written information present on clothing labels or within care instructions.

## **1.2 PROBLEM STATEMENT**

Clothing labels are considered to be a valuable source of information which is aimed at assisting consumers during the decision making process before a purchase has been made. This subject area has yet to reach its full research potential with regard to consumers' knowledge of clothing labels, taking into consideration consumers in a developing country (SA) and a developed country (USA). Considering the USA's well-developed economy, consumers in this country have high levels of purchasing power. On the contrary, South African (Potchefstroom) consumers have become more empowered regarding the consumption process (associated with clothing products), thus implying that these consumers might have become increasingly familiar with making (clothing) purchases, which possibly has a positive effect on their objective knowledge. Sufficient literature exists on the technical aspects of clothing labels, as well as the rules and regulations for use within different geographical settings, in this case SA and the USA. A number of prior studies which focused on labels emphasised single concepts such as the personal characteristic of need for cognition and the use of care instructions on labels. The construct of knowledge has been thoroughly investigated; however, more recent studies merely focus on the construct of knowledge with single concepts such as size and brand, also related to the information provided on clothing labels. Regardless of the sources of information consulted, few studies have been conducted on consumers' knowledge of clothing labels. No study has yet compared the knowledge of consumers from the different settings of a developing and developed country such as Potchefstroom in the North West province of SA and Fayetteville in the state of

Arkansas in the USA. Such research is necessary to establish differences, if any, in consumers' knowledge of clothing labels between consumers in different cities in a developing and developed country, who are from different demographic groups. Although South Africa is a developing country, its emerging economy and consequent better access of all consumers to marketing environments such as clothing retail might prove the expectation that consumers in this developing country are less knowledgeable about clothing labels than consumers in a developed country such as the USA, to be wrong.

### **1.3 AIM AND OBJECTIVES OF THE STUDY**

#### **1.3.1 Aim**

The aim of this study was to compare the subjective and objective knowledge of the information provided on clothing labels of consumers in a developing country (Potchefstroom, in the North West province of SA) and a developed country (Fayetteville, Arkansas, in the USA) context in order to determine the differences between these consumers' knowledge of clothing labels.

#### **1.3.2 Objectives**

The objectives of this study are described by referring to two subcategories, namely literature and empirically-related objectives.

##### **1.3.2.1 Literature-related objectives**

Numerous sources in the literature on this specific topic were consulted in order to comprehend all the aspects that are associated with this study as well as comparing different sources in the literature to develop an argument that would be suitable for this study. Additionally, information from the literature proved to be of assistance in addressing the identified problem as well as for the compilation of a conceptual framework. In this study, information from the literature was used to adapt an existing measurement instrument that was employed in previous research by

Van der Merwe *et al.* (2013), which served as a pilot study for the present study. Literature was consulted to investigate:

- The demographic characteristics of consumers in Potchefstroom, in the North West province of SA and in Fayetteville, Arkansas, in the USA with regard to gender, population group, home language, age, education, number of dependents and income;
- The process of consumer learning with focus on the cognitive learning perspective;
- The process of information search among consumers with focus on external sources of information (clothing labels);
- Clothing labels as a source of external information to consumers with regard to intrinsic and extrinsic product properties;
- The usage of clothing labels with regard to labelling requirements in SA and the USA;
- The procedures associated with consumer information processing and memory with focus on the different memory stores and memory types;
- The processes associated with the formation and retrieval of information from long-term declarative memory (also known as knowledge).

#### **1.3.2.2 Empirically related objectives**

The operational objectives of the empirical research phase involved the acquisition of primary data by means of a survey conducted among two sample population groups, namely South African consumers whom reside in Potchefstroom and US consumers who reside in Fayetteville. Information from the literature was then used to draw comparisons between the findings of this study and the findings of similar research that has already been conducted in the identified focus field. The researcher conducted the empirical research in order to determine the:

- Demographic profile of respondents in Potchefstroom and Fayetteville;
- Differences in the subjective and objective knowledge of respondents in a developing and developed country with regard to the written information provided on clothing labels;
- Differences in the objective knowledge of respondents in a developing and developed country with regard to the pictorial information provided on clothing labels;
- Association between the respondents' subjective and objective knowledge of the information on clothing labels;

- Differences in the subjective and objective knowledge of respondents from different demographic subgroups.

## **1.4 CONCEPTUAL FRAMEWORK**

For the purpose of this study, the researcher proposed a conceptual framework (Figure 1) that serves as a guideline to compare the knowledge of consumers in Potchefstroom (SA) and Fayetteville (USA) of the written and pictorial information provided on clothing labels. Furthermore, the conceptual framework for this study was compiled in accordance with the measurement instrument, which was an interviewer-administered questionnaire. The questionnaire was administered to consumers residing in Potchefstroom in North West province of SA and in Fayetteville, Arkansas, USA. These consumers' demographic profiles of gender, race, language, age, education and income were determined. The researcher then attempted to determine the extent to which these consumers use clothing label information, after which consumers' subjective and objective knowledge of clothing labels was measured. When the results had been obtained, they were compared to determine the differences in the knowledge of clothing labels between the two groups of respondents in Potchefstroom and Fayetteville.

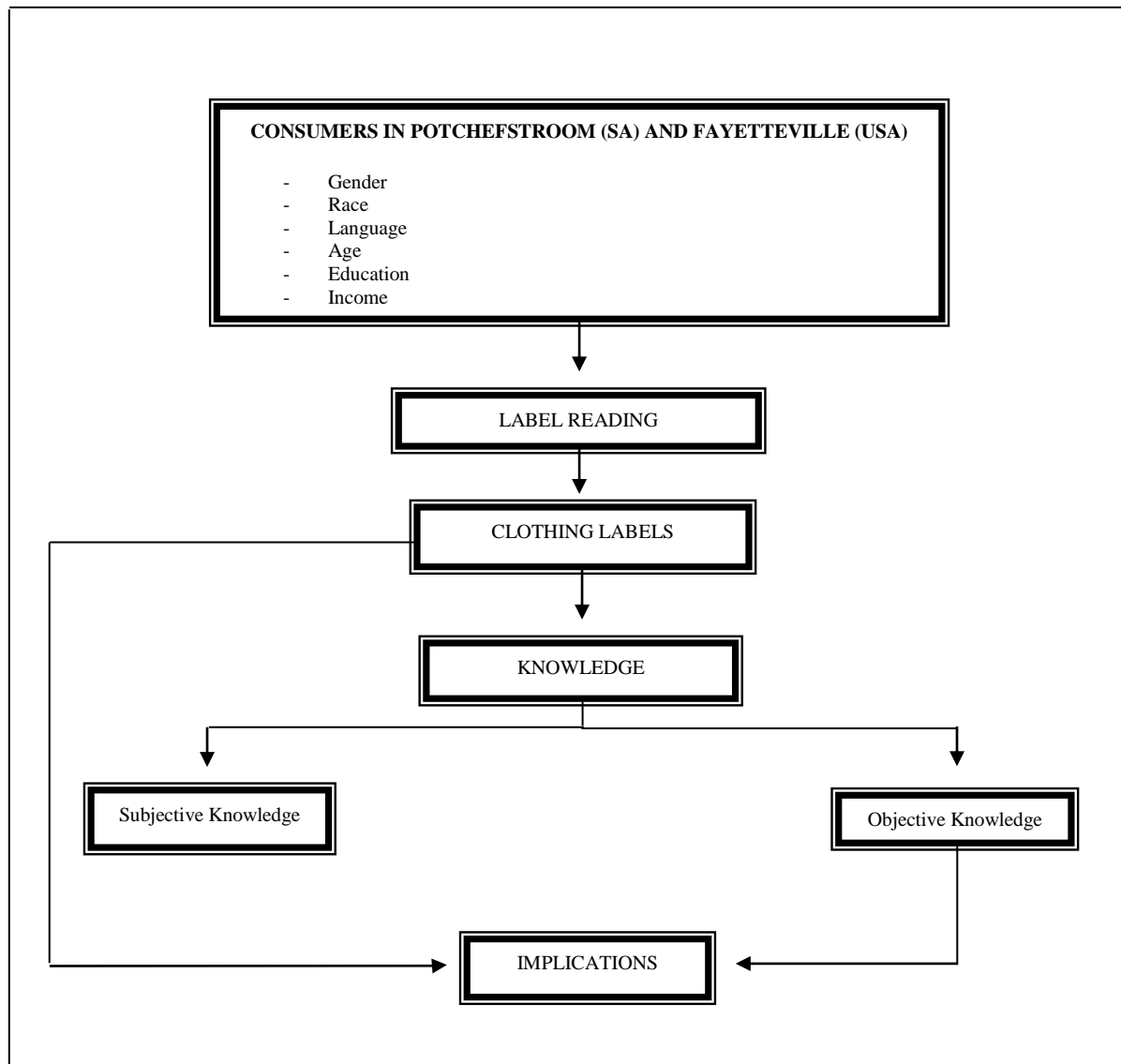
## **1.5 STRUCTURE OF THE DISSERTATION**

The format of this study/dissertation comprises four chapters, namely the introduction, the literature review, the research manuscript and the concluding discussion. Furthermore, a more comprehensive version of the research methodology, as well as the measurement instruments, covering letters and letters of consent, authors' guidelines of the journal and additional supporting documentation are included as appendices.

### **1.5.1 Chapter 1: Introduction**

The first chapter of this dissertation is the introductory chapter, which presents a contextualisation of the research and an overview of the topic (Henning *et al.*, 2005:13), which is consumers' knowledge of clothing labels in a developing and developed country. Based on the overview and previous research performed in the subject field, the research problem, relevance

of the study and possible contributions to the existing literature are discussed (Mouton, 2001:122). The aim and objectives of the study and the conceptual framework are then discussed. The layout and the various sections of the study/dissertation are stipulated and the author's and co-authors' contributions are provided.



**FIGURE 1.1:** Conceptual framework

### 1.5.2 Chapter 2: Literature review

The second chapter comprises a review of existing literature on the topic and presents a theoretical framework for the research manuscript. All the constructs and concepts included in the theoretical framework are addressed and discussed. This chapter concludes with a discussion of the most significant findings of prior research on the topic (Mouton, 2001:123).



### **1.5.3 Chapter 3: Research manuscript**

The research manuscript focuses on a research article for this study, including the statistical results of the study. First the demographic characteristics of both groups of respondents are discussed. The results are then discussed in terms of the objectives of the study as indicated above in this chapter and interpreted by referring to similar research already done in the specific field of study. The discussion of results is followed by a conclusion and recommendations for future research.

### **1.5.4 Chapter 4: Concluding discussion**

The final chapter of this study/dissertation comprises a summary and conclusion of the most significant findings, limitations, recommendations and implications for consumers, manufacturers and clothing retailers.

## **1.6 AUTHORS' CONTRIBUTIONS**

During the conduction of this study a total of five authors made a contribution towards the research being conducted, namely Miss C. van Schalkwyk, Prof. M. van der Merwe, Prof. M.J.C. Bosman, Prof. M. Warnock and Dr. S.E. Ellis. The following table (Table 1.1) lists the authors involved and summarises their roles in this study.

**TABLE 1.1: AUTHORS' CONTRIBUTIONS TOWARDS THE STUDY**

AUTHOR	CONTRIBUTION
Miss C. van Schalkwyk	First author. Duties: Literature research, questionnaire alteration, data collection in Potchefstroom, participation in statistical analysis, data interpretation and the final preparation of the dissertation.
Prof. M. van der Merwe	Supervisor and co-author of the research manuscript. Supervisor of all activities of the first author. Obtained ethical clearance for the study. Provided funding for data collection and statistical analysis.
Prof. M.J.C. Bosman	Co-supervisor and co-author of the research manuscript. Co-supervised activities of the first author.
Prof. M. Warnock	Co-supervisor from the University of Arkansas and co-author of the research manuscript. Executed data collection and capturing in Fayetteville and co-supervised all activities of the first author.
Dr. S.E. Ellis	Head of Statistical Consultation Services at the Potchefstroom Campus of the North-West University and co-author of the research manuscript. Provided consultation and assistance with the statistical analysis and interpretation of the data as well as the documentation of the results.

The following signed declaration of the co-authors of this dissertation serves to confirm their role in this study. This declaration also signifies that permission was granted by the co-authors for the inclusion of the research article in the dissertation.

*I declare that I have approved the above-mentioned article and that my role in the study, as stated above, is representative of my actual contribution. I hereby give my consent that it may be published as part of the Masters' dissertation of Ms C. van Schalkwyk.*



Ms C. van Schalkwyk




Prof. M. van der Merwe



Prof. M.J.C. Bosman



Prof. M. Warnock



Dr. S.E. Ellis

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## CHAPTER TWO

### LITERATURE REVIEW

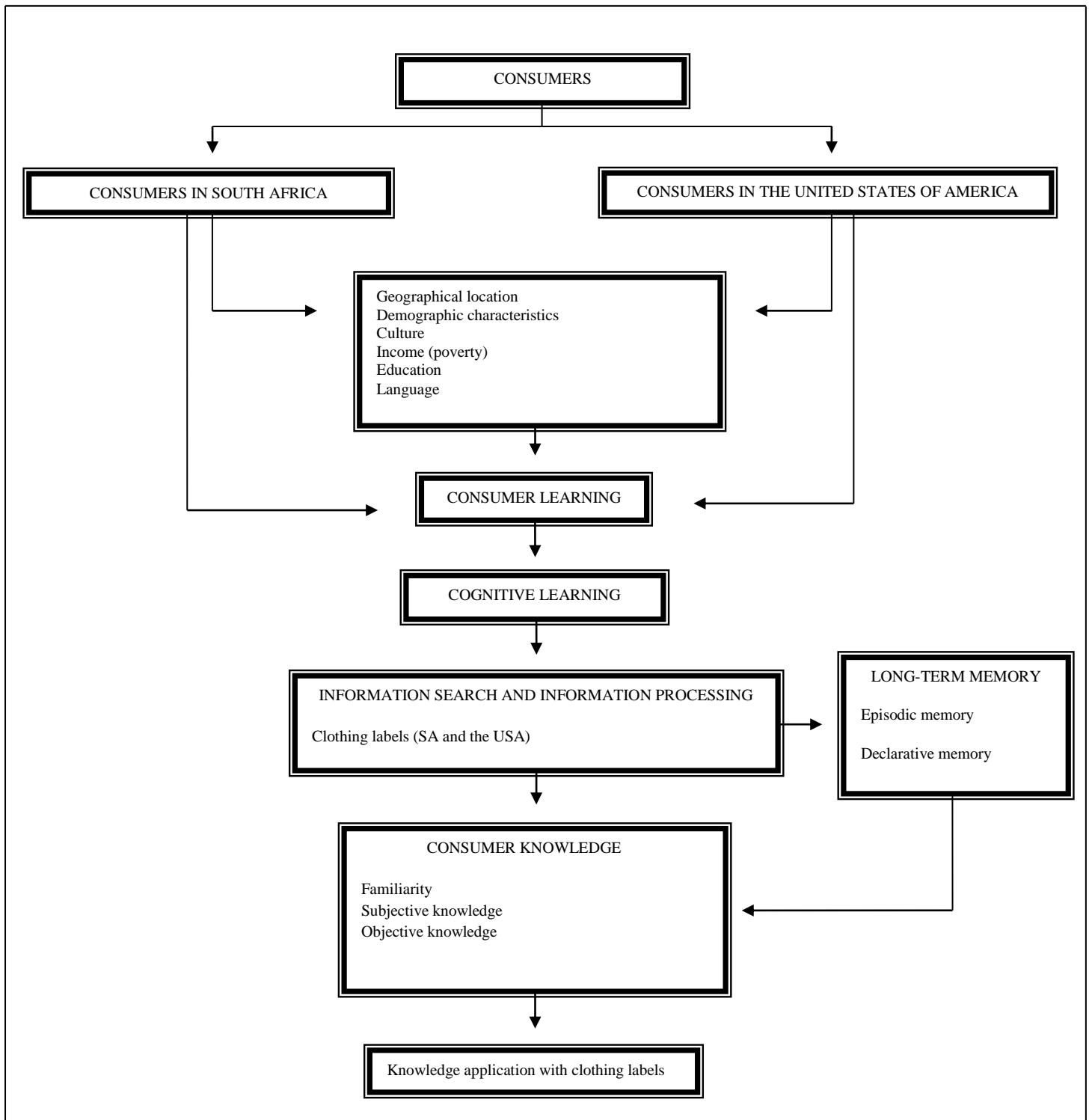
#### 2.1 INTRODUCTION

Consumers who are located in different geographical areas tend to differ with regard to demographic characteristics, cultural contexts and individual characteristics such as needs, goals and values (Banerjee, 2008:367; Kim *et al.*, 2002:481; Workman & Lee, 2011:53). The learning process, specifically consumer cognitive learning, is dependent on the above-mentioned variables because learning will occur within different settings and will be driven by different motivational factors (Cant *et al.*, 2006:122; Jansen *et al.*, 2009:657). This process is initiated through the consumer information search, which refers to both internal and external search methods (Cant *et al.*, 2006:197; Du Plessis & Rousseau, 2003:254; Van Staden & Van Aardt, 2010:46). During the process of internal information search, consumers will refer to accumulated knowledge which is already present in their long-term memory store as a result of prior experiences and the acquisition of new information (Schiffman & Kanuk, 2007:533; Wyer & Xu, 2010:108). An external information search, on the other hand, refers to the additional search for information from consumers' external setting (Guo, 2011:139; Van Staden & Van Aardt, 2010:41). Although there are numerous sources of information available to consumers, this review emphasises clothing labels as an external source of information (Shin, 2000a:28, 2000b:20).

Clothing labels convey a variety of information to the apparel consumer regarding the intrinsic and extrinsic attributes of the garment itself and care instructions (Koester, 1993; Sonneberg & Erasmus, 2005:15, 16). Intrinsic product properties include aspects such as the fabric used and its composition, whereas extrinsic attributes refer to aspects such as the brand name (Abraham-Murali & Littrell, 1995:71; Rahman *et al.*, 2009:83, 84). The information given by clothing labelling in South Africa (SA) and the United States of America (USA) has proven to be relatively consistent (Nadiger, 2007:15, 17); however, attention needs to be directed towards the care symbols used by the two countries because vast differences are evident (Kidmose Rytz *et al.*, 2010:10, 11; SANS, 2007a:8-11). In order to understand consumers' knowledge of clothing labels, the emphasis is placed on the information processing approach that can be described in

connection with the concept of human memory (Schiffman & Kanuk, 2007:216; Swartz *et al.*, 2008:256). The human memory system, memory stores, fragmentation, pattern recognition and information rehearsal is fully discussed later in this chapter. Also, more recent studies with regard to consumers' memory and knowledge were consulted, but the original studies in which these theories were developed were used in this literature study.

The objectives of this literature review are to provide an overview of the existing literature on South African and US consumers' knowledge of clothing labels; to identify limitations indicated by previous research; and to identify and to apply relevant underlying concepts in the fields of consumer knowledge and clothing labels. To comply with the objectives of this literature review, a theoretical framework (Figure 2.1) is proposed, which serves as a theoretical guideline for the comparison of South African and American consumers' knowledge of clothing labels. All the concepts and subsidiary elements are indicated, starting with a broad overview of consumers in an international context, with the emphasis on consumers in SA and the USA. The two populations are discussed separately, thus leading to the identification of consumer variables within both contexts. Subsequently, the consumer learning process is discussed in terms of the cognitive perspective with reference to the consumer information search. Clothing labels are identified as an external source of information and comparisons are made between the clothing labels used in SA and the USA. The processing of such information among consumers is discussed as it relates to the information processing approach. This opens the discussion on human memory and the formation of knowledge related to clothing labels in SA and the USA.



**FIGURE 2.1:** Theoretical framework of South African and US consumers' knowledge of clothing labels

## **2.2 CONSUMERS**

A consumer is described as an individual involved in the act of purchasing goods and/or making use of available services (Oxford Advanced Learner's Dictionary, 2005, 7:313). To a certain extent, all humans can be considered to be consumers as a result of individual needs that are physiological and psychological in nature, which is the motivation for individuals to participate in the process of consumption (Kim *et al.*, 2002:481; Solomon & Rabolt, 2009:120, 124-125). In cases where individuals, such as children, are considered unfit for sole participation in the consumption process, consumer socialisation will serve to develop the knowledge structures of such individuals, enabling them to efficiently participate in future consumption scenarios (Schiffman & Kanuk, 2007:333-334). On the contrary, limited levels of, or the absence of, consumer socialisation will have a negative impact on individuals' knowledge, which in turn influences consumption decisions (Erasmus *et al.*, 2005:90). Thus consumer socialisation might also serve to develop or inhibit individuals' knowledge of the information on clothing labels and its usage. For the purpose of this review, the emphasis is placed on two separate consumer groups located in SA and the USA.

### **2.2.1 Consumers in South Africa**

A thorough background concerning South Africa as a developing country is provided in the Introductory Chapter of this dissertation. As previously mentioned, new programmes and laws were implemented by the South African government with the goal to decrease poverty among black citizens and to provide them with more opportunities to participate in a professional business environment (Aliber, 2003:473; Klemz *et al.*, 2006:592-593; Van Eck *et al.*, 2005:5). When the percentages of citizens residing in rural areas are compared, a decrease of 3.2% from 1996 to 2010 is found (Statistics South Africa, 2005:130; 2011:21), thus suggesting that these programmes have yet to succeed in the creation of the required number of formal occupations for African citizens, and that poverty is still an issue that needs to be directly addressed (Aliber, 2003:487).

The South African population is estimated to consist of 51.7 million individuals who belong to one of the four identified population groups: Black/African (79.2%), White/Caucasian (8.9%), Coloured (8.9%) and Indian/Asian (2.5%) (Statistics South Africa, 2012a:14, 17). In SA, a total

of 11 official languages are spoken and according to the 2011 census results, the most predominantly spoken languages are IsiZulu (22.7%), IsiXhosa (16%), Afrikaans (13.5%), English (9.6%) and Sepedi (9.1%) (Statistics South Africa, 2012b:6). With regard to educational attainment, 11.8% of the South African population who are aged 20 years and older completed a tertiary education while 28.9% completed the National Senior Certificate (NSC) or Grade 12 certificate. Furthermore, 8.6% indicated that they had no educational background (Statistics South Africa, 2012a:33).

Regardless of the low levels of educational attainment and high poverty levels among some South African citizens, the country is regarded as an emerging market. This is due to the availability of potential consumers who were found to spend the same percentage of their monthly income on products, more specifically clothing, compared to the expenditure of consumers located in other countries (Selvanathan & Selvanathan, 2004:2328). It was found that the total households in SA spend an average of 4.5% of their total income on clothing and footwear. Furthermore, African households were found to spend the largest portion (6.8%) of their income on clothing and footwear while white households spent the smallest percentage (2.1%) of their income on such products (Statistics South Africa, 2012c:14-15). It could be argued that consumers in SA and the USA may be equally exposed to clothing labels due to similar consumption patterns of clothing. This implies that these consumers' knowledge of clothing labels is not necessarily associated with their level of label exposure, which would prove to be of less importance for this literature review.

## **2.2.2 Consumers in the United States of America**

The USA is considered to be a first-world or industrialised country due to its high level of participation in world trade (Appleyard, 2010:3; Molawa, 2009:5). Regardless of the USA's economic position, poverty affects about 13% of the total of the country's 308.7 million citizens (Bishaw, 2011:2; Mackun & Wilson, 2011:2) who belong to one of the five identified population groups: White/Caucasian (72.4%), African American (12.6%), Asian (4.8%), American Indian and Alaska Native (0.9%), as well as Native Hawaiian and Pacific Islanders (0.2%). Furthermore, a total of 9.1% of American citizens belong to two or more racial groups or to other races not named in the above groups (Humes *et al.*, 2012:4). Among all the population groups,



English is the most spoken language (80.3%) by citizens above the age of five years, while a total of 19.8% use languages that are divided into the following four groups: Spanish or Spanish Creole (12.3%), Indo-European languages (3.7%), Asian and Pacific Island languages (3%), and other languages (0.8%) (Shin & Kominski, 2010:7). According to the United States Census Bureau (2012:50), the most spoken languages in the USA, excluding English and Spanish, include Chinese (0.9%), French and Tagalog (0.5%), as well as Vietnamese (0.4%). With reference to the educational attainment of US citizens, the 2009 census results concluded that 85.3% of citizens aged 25 years and older completed secondary education, while 27.9% completed tertiary education. Furthermore, a mere 1.3% had no educational attainments at all (Ryan & Siebens, 2012:6).

From the above discussions it is evident that consumers in SA as a developing country, and the USA as a first-world or industrialised country, differ in terms of income levels of both countries and economic predicaments (Appleyard, 2010:419). Further differences between consumers in the two countries include predominant population groups, languages and educational attainment. Most importantly, the Black/African group is the largest in SA, while the White/Caucasian group is the largest in the USA. Since culture is dependent on a specific geographical setting or country (Banerjee, 2008:367), it is argued that similar strategies for information search can be employed. Inconsistencies may arise regarding consumers' perceived importance of the process (Matsumoto & Juang, 2004:111) and the different information sources (Brewer Doran, 2002:826), in this case clothing labels. In addition, English is the most widely used language in the USA and ranks as the fifth most spoken language in SA. Nevertheless, English still remains dominant in economic, public, and labour-related spheres in the South African context (Casale & Posel, 2011:385).

Lastly, as mentioned, 85.3% of citizens in the USA (25 years and older) completed secondary education, while only 28.9% of South African citizens (20 years and older) attained the same level of education. Although the age groups differ slightly, educational levels among citizens in SA and the USA differ vastly. It appears that the main reason for low educational attainment among South African citizens tends to be financial in nature, with 34.6% of citizens indicating that they were not able to afford the costs of education (Statistics South Africa, 2011:11). The level of consumer knowledge is found to be associated with the variables of education and

geographical location. Education, which is considered to be a crucial element in consumers' knowledge formation, is arguably associated with other variables such as income and geographical location (House *et al.*, 2004:118, 119). People with an educational background such as those in SA and USA, tend to display greater memory capabilities due to their better reading and comprehension skills (Lewellen *et al.*, 1993:327; Matsumoto & Juang, 2004:106). For this reason, consumers' knowledge in both countries may be associated with education and financial resources, thus influencing their knowledge of clothing labels.

## **2.3 CONSUMER LEARNING**

The concept of consumer learning is defined differently by two learning perspectives, namely the behaviourist and the cognitive perspective (Rathus, 2005:232). This literature review focuses solely on the cognitive perspective as it emphasises the mental processes that are associated with information processing, human memory and knowledge (Swartz *et al.*, 2008:228, 234). By following the cognitive perspective, future researchers will be able to determine and compare South African and US consumers' knowledge of clothing labels by referring to the theory of information processing and consumers' memory of clothing labels. As a result of previous interactive experiences and the acquisition of new information (Schiffman & Kanuk, 2007:198, 201; Weiten, 2007:215), cognitive learning is addressed as a mental process that contributes towards consumers' existing knowledge structures. This suggests that consumers' knowledge of clothing labels will improve due to previous experience of using label information and the acquisition of new label information that does not exist within their knowledge base.

Cognitive learning as a perspective within the broader concept of learning concerns consumers who are involved in the thinking process for the purpose of solving predicaments (Du Plessis & Rousseau, 2003:254). Therefore it is suggested that consumers will engage in this process regarding clothing labels during the evaluation phase of decision making (Iowa State University, 2003) by referring to intrinsic and extrinsic product properties. The process may also occur after a decision has been reached concerning the correct procedures for garment care (Nadiger, 2007:14, 15). The cognitive process has an effect on consumers' means of searching for information as a result of situational and mental influential factors (Jansen *et al.*, 2009:657). These situational factors include consumers' cultural background, education, income and

demographic characteristics. The mental influential factors include perception, motivation and the need for cognition (Schiffman & Kanuk, 2007:531; Yan *et al.*, 2008:540). This suggests that the learning process may differ between consumers from SA and the USA.

The learning process will occur once a consumer acknowledges a problem. As a result, consumers will refer to internal sources, such as their existing knowledge of label information, before searching their external setting for situation-specific information. In this case, information will be obtained on the intrinsic and extrinsic garment properties and care instructions as indicated on the label, which will provide assistance in making a satisfactory decision (Cant *et al.*, 2006:197; Schiffman & Kanuk, 2007:533; Van Staden & Van Aardt, 2010:46). Following the search for information and the decision, the consumer will use the consumption experience as a reference guide in future decision making scenarios of a similar nature (Du Plessis & Rousseau, 2003:254). In the following section the internal and external consumer information search will be described, leading to a discussion of the cognitive processing of newly acquired information and existent knowledge by utilising the theory of information processing (IP).

## **2.4 CONSUMER INFORMATION SEARCH AND PROCESSING**

According to various authors (Schiffman & Kanuk, 2007:531; Solomon & Rabolt, 2004:353, 2009:382; Sproles & Burns, 1994:75), the consumer information search is categorised as the second stage of the traditional decision making model. This process is characterised by its selective nature (Du Plessis & Rousseau, 2003:118) of involving consumers who are actively participating in related cognitive (internal) and physical (external) tasks for the purpose of acquiring the necessary information relevant to their identified needs (Cant *et al.*, 2006:197).

Once consumers have identified the goal, such as acquiring information on the garment attributes as indicated on the label before making a decision, they will first engage in cognitive tasks, also termed the process of internal information search (Cant *et al.*, 2006:197; Park & Stoel, 2005:149). The accumulation of knowledge, as a result of past learned experiences (Schiffman & Kanuk, 2007:533), can either be declarative or procedural in nature and is situated within the long-term memory store (Wyer & Xu, 2010:108) of the consumer. These declarative or

procedural memories will be searched in order to locate relevant information that can be applied to the specific situation (Park & Stoel, 2005:149). In instances where consumers are unable to retrieve information from their long-term memories or would like to improve on the information obtained by means of internal search efforts, the emphasis will be placed on consumers' external environment as a source of information, which is termed external information search (Guo, 2011:139; Van Staden & Van Aardt, 2010:37).

Consumers can obtain information from the external environment by making use of three identified sources: marketer-controlled, consumer-controlled and neutral sources (Blodgett & Hill, 1991:775; Chowdhary, 1989:53, 54; Van Staden & Van Aardt, 2010:42-44). Marketer-controlled sources refer to aspects such as product packaging, store promotions, labels and advertisements in the form of print or broadcast (Saunders, 2010:474). These are fundamental to the marketer's promotional mix (Kinley *et al.*, 2000:68). Consumer-controlled sources include verbal communication between consumers and their friends and family members (Chowdhary, 1989:52; Van Staden & Van Aardt, 2010:44). This literature review focuses solely on clothing labels as an external source of information to the consumer prior to investigating consumers' knowledge of the information that is provided on the label.

## **2.5 CLOTHING LABELS AS A SOURCE OF INFORMATION**

The label is a vital component of clothing items, which serves to promote the overall standard of consumer decisions. Information is provided on size, style and style number, manufacturer or brand name, fabric composition, country of origin, and whether or not the fabric used or the item was imported (Iowa State University, 2003; Koester, 1993). Furthermore, the information on the label is categorised into the two groups of intrinsic and extrinsic product properties (Sonneberg & Erasmus, 2005:12). Also, care instructions are positioned on clothing labels to serve as a reference guide for consumers during the decision making process and after a purchase has been made (Iowa State University, 2003; Nadiger, 2007:15). In the following section, clothing labels will be described in terms of the types of intrinsic and extrinsic attributes conveyed. Additionally, discussions will follow regarding the use of clothing labels in SA and the USA.

### **2.5.1 Intrinsic and extrinsic product properties**

Intrinsic product properties are tangible aspects, such as item style, fabric name and composition (Abraham-Murali & Littrell, 1995:72). Extrinsic product properties include the country of origin, the brand or manufacturer's name and the allocated cost (Rahman *et al.*, 2009:83, 84). In this literature review, price is not discussed as it is not likely to be indicated on the clothing label itself, but rather on a hang tag attached to clothing items. A study by Smith *et al.* (2011:41, 43) found that female consumers in SA regard intrinsic product properties as the most important indicators of apparel quality when trying to make a purchase decision. In addition, Jin *et al.* (2010:189) established that consumers from different geographical areas do not consider the same product properties to be of equal importance due to varying cultures and the standard of the retail environment within a specific country. The sources and specific types of information that consumers deem to be of utmost importance will vary according to culture, personal values and the retail setting. Therefore, consumers in SA and the USA might not regard clothing labels to be of equal importance. As a result, the levels of search for label information will vary among consumers, due to their familiarity with labels and their existing label knowledge.

From a conventional perspective, clothing labels are available on all clothing products that are sold in retail establishments such as chain stores, specialty stores and discount stores (North *et al.*, 2003:42). E-tailors or Internet apparel websites of companies or merchants in the USA were also found to provide product-related information regarding garment size, fabric and composition, care instructions and country of origin (Park & Stoel, 2002:172). On the contrary, online apparel retailing by South African companies is considered to be in an early developmental phase as they have to deal with a number of practical constraints (Moodley, 2002:93, 94). Although there are numerous online South African retailers, there is a lack in scientific research focusing on the usage of clothing labels by online retailers. Regardless of the divergence between South African and US online apparel retailing, this review focuses solely on clothing labels as a source of information obtained from an in-store environment.

### **2.5.2 Clothing labels in South Africa and the United States of America**

Consumers are entitled to search for and use comprehensive label information that allows them to use the information to the fullest extent before making a purchase and during the post-

purchase care stage of decision making (Mason *et al.*, 2008:276). In both SA and the USA, clothing labels can convey mandatory and optional information. Both countries are required to provide information on the fabric used, the fabric composition and care instructions in English (Nadiger, 2007:15, 17). Additionally, information on the country of origin is mandatory in the USA, but is optional in SA. The previous statement seems to in contrast with the South African Consumer Protection Act 68 of 2008, which states that information on the country of origin must be indicated on the label of textile products, clothing, footwear and leather goods (South Africa, 2011:16).

South African textile and care labelling requirements are enforced by the South African Bureau of Standards (SABS), an independent governmental agency (Office of Textiles and Apparel, 2011). As a result, South Africa is one of the countries in the South African Customs Union (SACU) that is not obliged to employ common technical regulations and policies with reference to the labelling of textiles and textile products. Although SA is categorised as a SACU country, two South African standards that are of importance to this literature review, namely the National Standard for the fibre-content labelling of textiles and textile products (SABS no. 10235) and the National Standard for the care-labelling of textile piece-goods, textile articles and clothing (10011), have both been compiled to meet the requirements as prescribed by the World Trade Organisation (WTO) and the Technical Barriers to Trade (TBT) (Jiang, 2008:91; SANS, 2007a:2, 2007b:2). On the contrary, textile labelling regulations in the USA are regulated by the Federal Trade Commission (FTC) and comply with the minimum requirements prescribed by the WTO and TBT (Norman, 2008:1). In both countries, which is relevant to this study, the label appearing on clothing products must be visible at all times and the information must not being obscured (Kidmose Rytz *et al.*, 2010:10; SANS, 2007b:8). Furthermore, the different types of fibres that are present in the fabric structure must be indicated by means of a generically acceptable name (Federal Trade Commission, 2002:3; SANS, 2007b:4).







### **2.5.3 Care labelling in South Africa and the United States of America**

Some divergence exists between the clothing care labelling symbols and their use in SA and the USA (Federal Trade Commission, 2001:13; Intertek, 2012; SANS, 2007a:8-11). South Africa employs labelling rules that are analogous to the standards of the European Union (OTEXA,

2011) (Office of Textiles and Apparel), implying that the care symbols are approved by the WTO as well as TBT (SANS, 2007a:2). The care labelling of clothing is considered to be mandatory as a result of the ISO requirements (International Organization for Standardization) (Kidmose Rytz *et al.*, 2010:10). Furthermore, the care symbols used by ISO were designed and implemented by the International Association for Textile Care Labelling (GINETEX) (Nadiger, 2007:11). Conversely, the care symbols designed and developed by the American Society for Testing and Materials (ASTM) have been adopted by the FTC (Intertek, 2012), and are permitted to be used solely for the care labelling of textiles and textile products (such as clothing) within the USA (Federal Trade Commission, 2001:13; Kidmose Rytz *et al.*, 2010:10).

It is important to consider that although SA uses ISO symbols (Kidmose Rytz *et al.*, 2010:10), the SABS is the only agency that prescribes the use of care symbols within a South African context (OTEXA, 2011). As a result, it has been suggested that care symbols in SA might prove to be a reflection, but not a complete duplication, of ISO symbols. Thus SA is also permitted to use some symbols that are associated with the ASTM standard. Comparisons will subsequently be made between ASTM symbols used in the USA, care symbols used in SA, and the symbols developed by GINETEX in order to determine the relationship among the symbols of the identified associations and the two countries under consideration. Because ASTM symbols are considered to be more comprehensive (Nadiger, 2007:11), the symbols that are used in SA and by GINETEX will be compared to the care symbols used in the USA. Tables 2.1 to 2.6 present the five basic symbols, auxiliary symbols and symbols for specific processes which are used in the care labelling of clothing (Intertek, 2012; SANS, 2007a:7-8, 12). It should be noted that auxiliary symbols are indicated by a cross or a single or double bar, while symbols for specific processes are indicated by numbers, letters and dots, all contained within the diagram of the basic symbol (SANS, 2007a:7-8). With reference to Table 2.1, it is evident that SA and GINETEX use four symbols that are identical to ASTM washing symbols. Differences exist between the care symbol numbers two and three with respect to the verbal information that accompanies the symbols in SA and the USA. Furthermore, regarding the sixth symbol, it is apparent that it is not used in SA and is not included among the GINETEX symbols.

**TABLE 2.1: CARE LABEL SYMBOLS: WASHING INSTRUCTIONS OF AMERICAN AND SOUTH AFRICAN CARE SYMBOLS AND SYMBOLS DEVELOPED BY GINETEX**




CARE LABEL: WASH																									
	1	2	3	4	5	6	7																		
USA (ASTM)	 Normal	 Permanent Press	 Delicate/ Gentle	 Hand Wash	 Do Not Wash	 Do Not Wring	<table><tr><td>(200F)</td><td>(160F)</td><td>(140F)</td><td>(120F)</td><td>(105F)</td><td>(65F-85F)</td></tr><tr><td>95C</td><td>70C</td><td>60C</td><td>50C</td><td>40C</td><td>30C</td></tr><tr><td>•••</td><td>•••</td><td>••</td><td>••</td><td>••</td><td>•</td></tr></table>	(200F)	(160F)	(140F)	(120F)	(105F)	(65F-85F)	95C	70C	60C	50C	40C	30C	•••	•••	••	••	••	•
(200F)	(160F)	(140F)	(120F)	(105F)	(65F-85F)																				
95C	70C	60C	50C	40C	30C																				
•••	•••	••	••	••	•																				
SA	√	Coloured wash	Very mild	√	√	—	√																		
GINETEX	√	Coloured wash	Very mild	√	√	—	√																		

The presence (√) or absence (-) of ASTM symbols among South African care symbols and the symbols developed by GINETEX are indicated. In the presence (√) of a symbol that does not include a similar verbal description, variations are verbally indicated.

Table 2.2 shows the care symbols for garment bleaching which are consistent in terms of their usage in SA, the USA and among the GINETEX symbols. Drying symbols that appear among the ASTM set of symbols are the most extensive when compared to washing, bleaching, ironing, and dry-cleaning symbols. Table 2.3 shows that SA and GINETEX use two symbols that are identical to ASTM symbols, namely numbers seven and fourteen. Furthermore, the first ASTM symbol differs from SA and GINETEX symbols. South Africa uses four ASTM symbols, as seen in symbols nine to twelve, which are not present among GINETEX symbols. This confirms the previously mentioned suggestion that care symbols in SA might merely be a reflection, but not a complete duplication, of the ISO symbols. With reference to ironing symbols as depicted in Table 2.4, similarities are evident in symbol numbers one to four, whereas SA and GINETEX do not make use of the fifth symbol.



















**TABLE 2.2: CARE LABEL SYMBOLS:  
BLEACHING INSTRUCTIONS OF  
AMERICAN AND SOUTH AFRICAN  
CARE SYMBOLS AND SYMBOLS  
DEVELOPED BY GINETEX**

CARE LABEL: BLEACH			
	1	2	3
USA (ASTM)			
SA	√	√	√
GINETEX	√	√	√






The presence (√) or absence (-) of ASTM symbols among South African care symbols and symbols developed by GINETEX are indicated.

**TABLE 2.3: CARE LABEL SYMBOLS: DRYING INSTRUCTIONS OF AMERICAN AND SOUTH AFRICAN CARE SYMBOLS AND SYMBOLS DEVELOPED BY GINETEX**

CARE LABEL: DRY														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
USA (ASTM)	 Normal	 Permanent Press	 Delicate/ Gentle	 Any Heat	 High	 Medium	 Low	 No Heat/ Air	 Line Dry / Hang to Dry	 Drip Dry	 Dry Flat	 In the shade (added to line dry, drip dry or dry flat)	 Do Not Dry (used with Do Not Wash)	 Do Not Tumble Dry
SA	 Normal	—	—	—	—	—	√	—	√	√	√	√	—	√
GINETEX	 Normal	—	—	—	—	—	√	—	—	—	—	—	—	√

The presence (√) or absence (-) of ASTM symbols among South African care symbols and symbols developed by GINETEX are indicated. In the presence (√) of a symbol that does not include a similar image or verbal description, variations are indicated.

**TABLE 2.4: CARE LABEL SYMBOLS: IRONING INSTRUCTIONS OF AMERICAN AND SOUTH AFRICAN CARE SYMBOLS AND SYMBOLS DEVELOPED BY GINETEX**









CARE LABEL: IRON					
	1	2	3	4	5
USA (ASTM)	 200C (390F) High	 150C (300F) Medium	 110C (230F) Low	 Do Not Iron	 No Steam (added to iron)
SA	√	√	√	√	—
GINETEX	√	√	√	√	—

The presence (√) or absence (-) of ASTM symbols among South African care symbols and symbols developed by GINETEX are indicated.

With reference to Table 2.5, the terminology that is associated with dry-cleaning symbols differs in SA and the USA, as is evident for symbol numbers two and three. Furthermore, it is evident that SA and GINETEX do not use five of the ASTM symbols, as can be seen in symbol numbers one and four to seven. The only true similarity between dry-cleaning symbols in SA and the USA is seen in the eighth symbol.





In the last section of care symbols, Table 2.6 shows wet-cleaning symbols. In comparison to Tables 2.1 to 2.5, SA and GINETEX use wet-cleaning symbols on clothing labels, while these are not applicable in the USA.

**TABLE 2.5: CARE LABEL SYMBOLS: DRY-CLEANING INSTRUCTIONS OF AMERICAN AND SOUTH AFRICAN CARE SYMBOLS AND SYMBOLS DEVELOPED BY GINETEX**

CARE LABEL: DRY-CLEANING								
	1	2	3	4	5	6	7	8
USA (ASTM)	 Any Solvent	 Any Solvent Except Trichloroethylene	 Petroleum Solvent Only	 Short Cycle	 Reduced Moisture	 Low Heat	 No Steam Finishing	 Do Not Dryclean
SA	—	Professional dry-cleaning	Hydrocarbons	—	—	—	—	√
GINETEX	—	Professional dry-cleaning	Hydrocarbons	—	—	—	—	√

The presence (√) or absence (-) of ASTM symbols among South African care symbols and symbols developed by GINETEX are indicated. In the presence (√) of a symbol that does not include a similar verbal description, variations are verbally indicated.

**TABLE 2.6: CARE LABEL SYMBOLS: WET-CLEANING INSTRUCTIONS OF AMERICAN AND SOUTH AFRICAN CARE SYMBOLS AND SYMBOLS DEVELOPED BY GINETEX**

CARE LABEL: WET-CLEANING				
	1	2	3	4
SA & GINETEX				
USA (ASTM)	—	—	—	—

The presence (√) or absence (-) of South African and GINETEX symbols among ASTM symbols are indicated.

The above comparisons confirm that the care symbols used in SA and the USA differ to some extent. The establishment of a relationship among these symbols is of high importance in order to focus solely on the symbols that are used in both countries and to compare consumers' knowledge of these symbols. Consumers' cognitive processing of clothing labels will subsequently be discussed with the emphasis on the concept of human memory.

## **2.6 CONSUMER INFORMATION PROCESSING**

The concept of information processing mainly refers to a specific approach aimed to provide a deeper comprehension of human memory and the processes involved (Swartz *et al.*, 2008:256), by emphasising the methods consumers employ during the interpretation, grouping and amendment of (external) information, such as clothing labels. Since two different geographical areas are discussed in this literature review, it is suggested that the processing of information will differ between the two groups due to possible differences in consumers' subjective knowledge and factual objective knowledge (Guo & Meng, 2008:266). The information processing approach is further described by referring to the concept of human memory, such as consumers' memory of clothing labels. The Modal Model of Memory as developed by Atkinson and Shiffrin (1977:11, 31) provides a basic foundation for memory functions, but memory subtypes and processing operations are absent from this memory model (Friedenberg & Silverman, 2012:121). In this literature review, Atkinson and Shiffrin's Modal Model of Memory is used as a guideline to compare consumers' knowledge of clothing labels within a South African and US context. The focus will also be placed on memory subgroups such as declarative and non-declarative memory types and processing operations that are not present in the Modal Model of Memory.

### **2.6.1 The human memory system**

Human memory involves a series of sequential stages, each belonging to a specific memory system that functions according to its own set of principles. The first of these stages includes information encoding (Halpern, 2003:43). Label information might be encoded according to such visual elements as verbal information and care symbols that are present on labels. Consequently, the information will be recoded according to consumers' existing knowledge (of clothing labels) which is present in their long-term memory. The amount of (label-related) information stored within consumers' long-term memory will depend on the rehearsal of (label-related) information

(Atkinson & Shiffrin, 1977:10, 21). In the following section the human memory system will be discussed according to the three memory stores of the sensory register, the short-term or working memory store, and the long-term memory store.

#### **2.6.1.1 Sensory register**

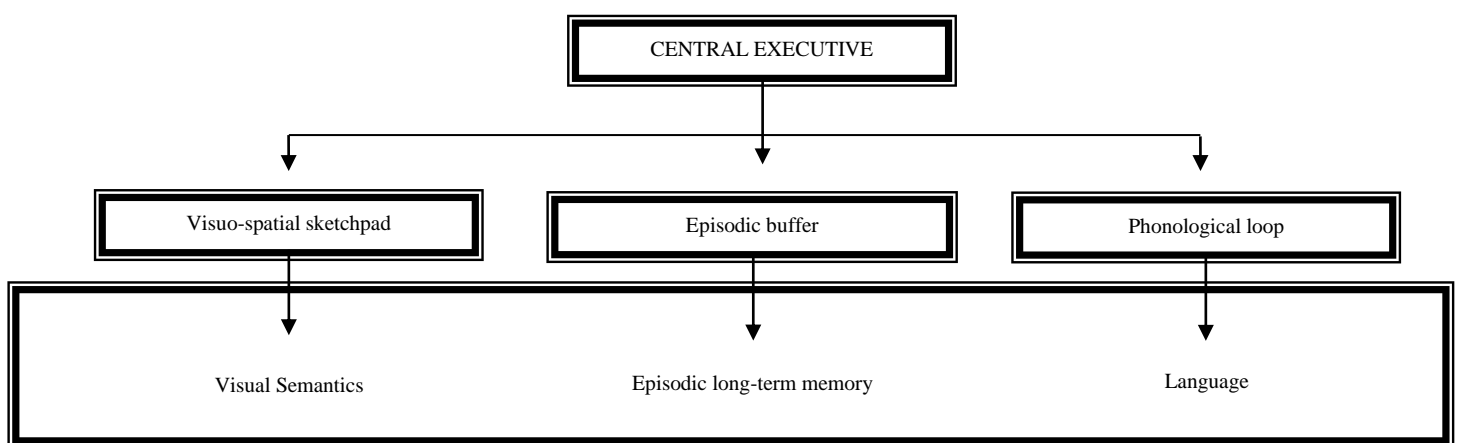
Encoding of information is associated with the sensory register and the sensory store (Atkinson & Shiffrin, 1977:8), which involves the acquisition of numerous forms of information from the external environment (Rathus, 2005:271) through the use of human sensors (Schiffman & Kanuk, 2007:216). Once a consumer receives sensory input, such as information on clothing labels, from an external setting, the information will first be registered into some of the three sensory buffer stores, namely iconic (visual), echoic (auditory), and/or haptic (touch). Following this, the information is fragmented into elements such as shape, colour, sound or touch (Baddeley, 1997:26, 44; Lurie & Mason, 2007:173). Sensory label information will probably be registered into the iconic and echoic buffer stores because the care symbols on clothing labels are of a visual nature and the verbal information on labels can be associated with speech-based information that could be stored within the echoic store. Furthermore, the level of attention consumers bestow on the sensory information will determine whether or not the information will be relocated to the short-term memory store (Robinson-Riegler & Robinson-Riegler, 2008:211). If relocation occurs, the sensory information (such as from clothing labels) will be further processed in the short-term memory store of the consumer (Baddeley, 1997:44).

#### **2.6.1.2 Short-term store**

The short-term store is also referred to as consumers' working memory, which receives information from the sensory buffer stores and the long-term memory store, initiating a process of pattern recognition that allows the organisation and coding of the data based on knowledge which is already present in the individual's long-term memory store (Atkinson & Shiffrin, 1977:10; Matlin, 2009:33). The above-mentioned process is also referred to as the processing phase. Here consumers (such as those in SA and the USA) amend the acquired raw data (such as clothing label data) by means of two processing procedures: ordinary processing and mining. Ordinary processing does not allow the formation of new knowledge, whereas the second processing type of mining does allow the consumer to form new knowledge as a result of the acquisition. During the short-term phase, consumers can immediately make use of the newly

acquired information (such as clothing label information), or they can choose to store the information in memory for later retrieval (Robinson-Riegler & Robinson-Riegler, 2008:138). It should be noted that (label-related) information can only be relocated to the long-term memory store by means of a control process called rehearsal. If consumers do not consciously rehearse information, it will slowly deteriorate from the short-term memory (Atkinson & Shiffrin, 1977:21).

Although the terms short-term memory and working memory are used interchangeably, the concept of working memory focuses more on the control processes and the temporary storage of information (Baddeley & Hitch, 1977:228). Consumers' working memory has the function of maintaining information (on the label) as well as the manipulation and transformation of such information within consumers' short-term memory store (Friedenberg & Silverman, 2012:112). To comprehend the concept of working memory among consumers in a South African and US context, this literature review refers to a model of working memory (Figure 2.2) as developed by Baddeley and Hitch (1977). The model is comprised of one primary element called the central executive. There are two dependent systems, the phonological loop and the visuo-spatial sketchpad (Baddeley & Hitch, 1977:238), where information is temporarily stored. An additional component, the Episodic buffer (Baddeley, 2000:421), has recently been included in this traditional working memory model.



**FIGURE 2.2:** The working memory model. Adapted from Baddeley (2000:421) and Baddeley *et al.* (2011:1394)

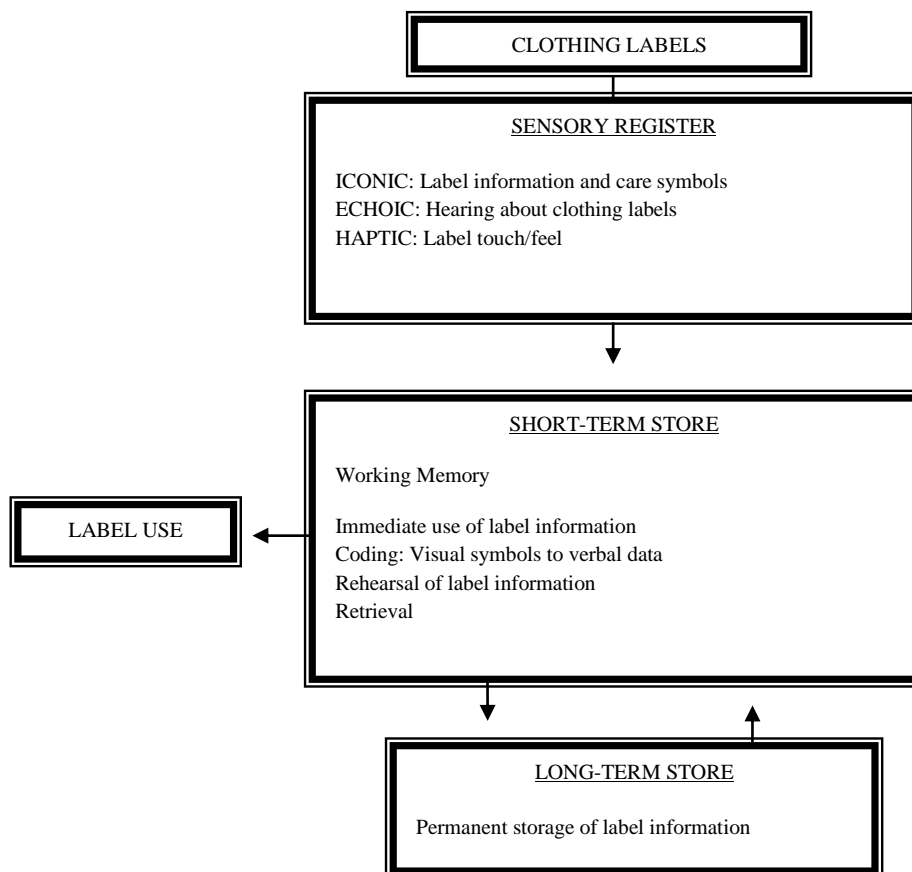
The primary element of the working memory model, the central executive, serves a number of functions, such as focusing attention and selecting strategies for the purpose of solving problems. This is accomplished by operating on the data which is stored within all the subsystems, including the long-term memory (Matlin, 2009:111). One of the subsystems of the central executive is the phonological loop. This loop is mainly concerned with the temporary storage of auditory and speech-based information, which is divided into two sections: the phonological store and articulatory rehearsal (Baddeley, 1997:52). Assuming that consumers come to hear of – or read the verbal information provided on clothing labels – the information needs to be rehearsed (articulatory rehearsal) in order for it to be kept within the phonological store and then transferred to consumers’ long-term memory store. The visuo-spatial sketchpad is concerned with the storage of both visual and spatial data (such as care symbols on clothing labels). Furthermore, the sketchpad is divided into two subsections: the visual cache and the inner scribe, which allow manipulation of the data, present (Baddeley, 1997:79, 82-84; Eysenck & Keane, 2010:216). In accordance with the focus of this literature review, it is argued that the verbal information on clothing labels will be temporarily stored within the phonological store, while information on the care symbols will be temporarily stored within consumers’ visual cache. Similar to the phonological loop, if the visual information does not undergo rehearsal within the inner scribe, it will deteriorate and will not form part of consumers’ long-term memory. Thus consumers’ knowledge of clothing labels will vary in accordance with the amount of information rehearsal and the acquisition of new information regarding clothing labels. The episodic buffer of working memory is considered to be a temporary store that facilitates data from the phonological loop and the sketchpad for the purpose of information modification. This buffer also assists the process of episodic learning (Baddeley, 2000:421; Baddeley *et al.*, 2011:1399), such as consumers’ learning experiences that result from previous accounts using clothing labels.

### **2.6.1.3 Long-term store**

The long-term human memory store is composed of the two sub-category memory types called declarative and non-declarative or procedural memory. The first is categorised into episodic and semantic memory, while the second includes procedural memory, priming, classical conditioning and habituation (Robinson-Riegler & Robinson-Riegler, 2008:242; Squire, 2004:173). Episodic memory is a function of semantic memory and refers to consumers’ retrieval of past experiences, such as experiences obtained from using clothing labels, while semantic memory primarily refers to consumers’ ability to retrieve general information and specific facts (Friedenberg &



Silverman, 2012:117). Semantic memory will be addressed by emphasising (consumers') schemata, which is described as a distinct cluster, representing (consumers') knowledge of a specific concept such as knowledge of clothing labels. Furthermore, schemata facilitates the organisation of acquired information and experiences that are similar in nature (Marshall, 1995:39; Reed, 2000:391); thus implying that consumers' acquisition of label-related information and experiences with labels will be organised into a schema, representing consumers' knowledge of clothing labels. In this literature review, the focus is solely on consumers' declarative memories of clothing labels as they address consumers' existing knowledge resulting from previous experiences using clothing labels or merely general facts related to the label itself. Based on the above discussion of the human memory system, a model (adapted from Atkinson and Shiffrin, 1977:11; Baddeley, 1997:44) is proposed that illustrates the working of consumers' memory of clothing labels. This opens the discussion of consumers' knowledge of clothing labels by referring to their long-term memory.

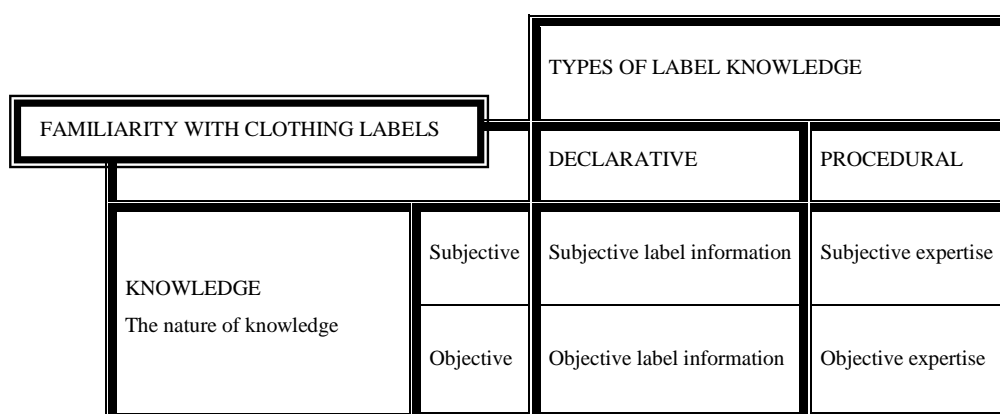


**FIGURE 2.3:** A proposed model for consumers' memory of clothing labels. Adapted from Atkinson and Shiffrin (1977:11); Baddeley (1997:44)

## 2.7 CONSUMER KNOWLEDGE

The concept of (consumer) knowledge is described as the presence of generic information and comprehension of the information and skills which are acquired by means of formal and informal education and interactive experiences within human memory systems (Oxford Advanced Learner's Dictionary, 2005, 7:821). Consumer knowledge consists of four variables, which include familiarity, subjective and objective knowledge, and objective product category information (Aurier & Ngobo, 1999:574). In this literature review, the three variables of familiarity and subjective and objective knowledge are emphasised. Objective product category information does not directly refer to clothing labels, but to the garment itself. Furthermore, a model is proposed to illustrate the types and the nature of consumers' knowledge of clothing labels. All identified concepts will be discussed.

The proposed model (Figure 2.4) illustrates familiarity with clothing labels, leading to consumers' knowledge of labels. Label knowledge is divided into the nature of knowledge (subjective and objective) and the types of knowledge, which are declarative and procedural. These two types of knowledge refer to the two types of memory within consumers' long-term memory store (2.6.1). As previously described, the focus of this literature review is solely on consumers' declarative memories (knowledge). This will enable an exploration of consumers' knowledge of clothing labels within a South African and US context which results from past learned experiences and/or the acquisition of general information regarding labels.



**FIGURE 2.4:** The components of consumer knowledge about clothing labels. Adapted from Aurier and Ngobo (1999:570)

### **2.7.1 Familiarity**

According to studies by Johnson and Russo (1984:543) and Mitchell (1982:45), the construct of familiarity, such as familiarity with clothing labels, is considered to be a principle variable of (consumer) knowledge. Familiarity among consumers stems from their acquisition of prior knowledge (Johnson & Russo, 1984:543), suggesting that consumers' familiarity with clothing labels will increase with the number of prior experiences of using label information and the acquisition of additional label information that is not present within their memory. A study by Guo and Meng (2008:266), which focused on the construct of knowledge among consumers in different countries, indicated consistencies in the constructs of familiarity and objective knowledge among Chinese and French consumers. It is suggested that higher levels of familiarity with clothing labels will result in greater objective knowledge of labels as a source of information. Consumers who are more familiar with labels might prove to have more knowledge than consumers who are not familiar with this source of information.

### **2.7.2 Subjective knowledge**

The concept of subjective knowledge can be described in terms of consumers' confidence in what they know (Alba & Hutchinson, 2000:123) about clothing labels. A study by House *et al.* (2004:118), which focused on genetically modified foodstuffs, reported differences in consumers' subjective knowledge based on demographic characteristics, such as income, age, education and geographical location. The subjective knowledge of clothing labels of consumers within a South African and US context might also differ due to demographic differences. Furthermore, consumers with high levels of subjective knowledge are likely to search for information both internally, by referring to their long-term memory (of clothing labels), and externally, by means of personal sources, such as verbal communication with other individuals and consumers (Mattila & Wirtz, 2002:224). It is argued that the greater consumers' subjective knowledge, the less likely they are to search for and consult impersonal sources of information, such as clothing labels; therefore, due to their level of familiarity with labels, they might find it difficult to retrieve such information from their long-term memory.

### **2.7.3 Objective knowledge**

Objective knowledge is described as consumers' abilities or expertise to accurately retrieve (label-related) information from their long-term memory store (Alba & Hutchinson, 2000:123). Similar to subjective knowledge, objective knowledge is also dependent on variables such as income, education and geographical location. Furthermore, educational attainment among consumers is considered to be a crucial element in the overall formation of knowledge, and thus it has an impact on their objective knowledge (House *et al.*, 2004:118, 119). As previously discussed in this literature review, 11.8% of South African citizens completed tertiary education, while 28.9% completed secondary education. In the USA, 27.9% of citizens completed tertiary education, while 85.3% completed secondary education. As a result of the low levels of educational attainment among South African citizens and the higher completion levels of US citizens, it is suggested by the researcher that consumers in a US context might display higher levels of objective knowledge of clothing labels than their South African counterparts.

## **2.8 CONSUMERS' KNOWLEDGE OF CLOTHING LABELS**

Clothing labels convey information on the clothing size, manufacturer or brand name, fabric composition, country of origin and care instructions (Chun-Yoon & Jasper, 1995:440; Iowa State University, 2003). To comprehend consumers' knowledge of clothing labels in SA and the USA, each of these elements will be discussed separately.

### **2.8.1 Clothing size**

Clothing labels communicate information on the size of the items in order for consumers to make appropriate purchase decisions regarding fit (Mason *et al.*, 2008:279). Stating the size on clothing labels in SA and the USA are considered to be optional (Nadiger, 2007:15, 17); however, manufacturers and retailers (such as those in SA and the USA) provide consumers with information on clothing sizes in a number of formats. These formats include one-size-fits-all; Small (S), Medium (M), Large (L); 6, 8, 10 and 12; 32, 34, 36 and 38; and a measurement code, with or without a pictogram (Faust & Carrier, 2010:91; Mason *et al.*, 2008:279). A study by Mason *et al.* (2008:279) reported that female Kenyan clothing consumers have adequate knowledge regarding numerical (32, 34, 36 and 6, 8, 10) and verbal (Small, Medium, Large)

sizing information. However, fewer consumers (35.3%) were knowledgeable about a measurement guide as a size indicator, which might be a result of consumers' lack of knowledge of their own body measurements (Faust & Carrier, 2010:119). Results of the Labour Force Survey (1998:2) (Republic of Kenya, 2003) indicate that 16.4% of the population in Kenya who are 5 years of age and older have never had any formal education, which might possibly explain their lack of size indicator knowledge. On the contrary, only 8.6% of citizens in SA and 1.3% of citizens in the USA have no educational backgrounds (Ryan & Siebens, 2012:6; Statistics South Africa, 2012a:33). Since education is considered an important variable regarding consumers' formation of knowledge (House *et al.*, 2004:118, 119), it is argued that South African and US consumers might be more knowledgeable about the numerical and verbal size indicators along with the measurement guide provided on clothing labels.

### **2.8.2 Clothing manufacturer or brand name**

Brand-related information (such as on clothing labels) provides consumers with information on the manufacturer and, in some cases, visual images in the form of logos which might influence consumers' purchase decisions (Radder & Huang, 2008:241; Salzer-Mörling & Strannegård, 2004a:237; 2004b:224). Brand knowledge can be described by referring to two constructs, namely brand awareness and brand image. Furthermore, these two constructs are associated with consumers' familiarity with a particular brand (Esch *et al.*, 2006:102, 103). A study by Radder and Huang (2008:239) reported that students in SA regard brand name of high importance when selecting sportswear, and Hustvedt and Bernard (2010:625) reported similar findings about Hispanic consumers in the USA. Therefore consumers in a South African and US context might be knowledgeable about brand-related information, and the perceived importance of brands might motivate them to consciously search for information on the clothing brand. Due to the acquisition of brand-related information and experience with a brand, familiarity could have a positive influence on brand knowledge. Additionally, it should be considered that all consumers might not have equal knowledge of different brands that are available in a South African and American context.

### **2.8.3 Fabric composition**

Mandatory stipulations of the fabric type and composition on clothing labels in SA and the USA provide consumers with information regarding fibre types above 5% or with a functional contribution (Iowa State University, 2003; Nadiger, 2007:15, 17). A study by Sneddon *et al.* (2012:42-46) on US and Australian consumers' beliefs regarding wool in apparel, reported that US consumers found it difficult to distinguish between wool and other natural fibres such as cotton. This result implies that US consumers might have limited knowledge of natural fibre types. Furthermore, the US consumers regarded natural fibres as an indicator of clothing quality and preferred natural fibres when selecting apparel products. Therefore these consumers might have more knowledge of natural fibres than synthetic fibres and thus tend to search for information on natural fibre types. Due to their attainment of higher educational levels, consumers in a US context might be more knowledgeable about fibre types in comparison to consumers in a South African context.

### **2.8.4 Country of origin**

Information on the country of origin is considered to be of vital importance to consumers' evaluation of such products as clothing as it is known to influence the consumers' decision making process (Liefeld, 2004:93; Lin & Chen, 2006:260). It is suggested that the more familiar consumers are with a specific country in which a product, such as clothing, was manufactured, the more conscious is their evaluation of a product. During the evaluation phase they will refer to their knowledge of other aspects of that country, such as the level of specialisation and personal values of the country. Conversely, consumers' value structures play an active role in the formation of negative inferences. Consumers might perceive the clothing product to be of low quality, based solely on the country of origin (Giraldi & Ikeda, 2009:314), which is also related to consumer ethnocentrism. It is suggested that consumers whose cultural backgrounds are consistent with that of the country in which they reside, such as SA and the USA, are more likely to display higher levels of ethnocentrism in comparison to individuals who migrate to comparable countries (Poon *et al.*, 2010:39). Demographic characteristics of gender, age and level of education are also associated with consumers' attitudes towards domestic and imported clothing products (Wang & Heitmeyer, 2006:70). It could be suggested that consumers' knowledge of the country of origin in a South African and US context, may be correlated with

the familiarity of a specific country in which the clothing was manufactured and the consumers' demographic characteristics.

### **2.8.5 Care instructions**

Clothing labels convey information on appropriate care procedures for clothing products (Iowa State University, 2003). A study by Shin (2000b:20-28), which focused on Korean women's use of care label information during garment care, reported a positive relationship between participants' use and comprehension of care labels. Furthermore, 40.7% of Korean women indicated that they experienced difficulties in comprehending care labels due to the inappropriate specification of label contents, while 17.1% were not able to derive the correct meanings from the labels. Since familiarity stems from the acquisition of prior knowledge (Johnson & Russo, 1984:534), consumers' use of labelling can therefore be associated with their familiarity (with clothing labels), which also influences their objective knowledge.

## **2.9 CONCLUSION**

Consumers situated in different geographical areas, such as SA and the USA, probably differ as to variables such as demographics, culture, education, income and language. It is suggested that cognitive learning may differ among consumers in a South African and US context because the process is also associated with demographic characteristics, cultural setting and individual characteristics such as needs, goals and values. Of these consumer variables, education and income seem to be the two most significant variables that would have the greatest impact on consumers' learning process and their formation of (clothing label) knowledge. Furthermore, consumers in these two contexts may not regard external sources of information to be of equal importance. All consumers may not regard clothing labels as an equally important source of information when searching for product-related information before and after the purchase. Since limited research exists on clothing labels, it is suggested that consumers' knowledge of labels should be addressed by referring to their knowledge of the different types of information present on clothing labels in SA and the USA, including clothing size, brand name, fabric composition, country of origin and care instructions.

Although there has been limited research on clothing labels, and although several studies have been carried out on the construct of human memory and knowledge formation, no research has yet been conducted that incorporates clothing labels with the construct of knowledge. The present study on consumers' knowledge of clothing labels in the South African and US contexts had to consider consumer variables, such as demographic characteristics, culture, income, education and language. In order to ensure consistency in this study, consideration had to be given to the measurement of consumers' brand knowledge, and emphasised the care symbols that are used consistently in SA and the USA. Regarding the construct of knowledge, this study also focused on consumers' objective declarative memory of clothing labels.



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## **CHAPTER 3**

### **RESEARCH ARTICLE**

#### **Consumers' knowledge of clothing labels in a developing and developed country context**

(Research manuscript to be submitted for publication in the *Journal of Consumer Culture* and is prepared according to the editorial prescriptions, including referencing style, of this journal – Appendices I and J)

(A detailed section on all Methodological procedures can be found in Appendix A.)

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## **Abstract**

Clothing labels are considered to be an international source of information to consumers which serve to promote the overall standard of consumer decisions by providing information on the intrinsic and extrinsic product properties and care instructions. Few studies have been conducted to determine consumers' knowledge of clothing labels, while none have compared the knowledge of consumers from different geographical settings in terms of a developing country (Potchefstroom, in the North West Province of South Africa) and a developed country (Fayetteville, Arkansas, in the United States of America). A quantitative, comparative, descriptive approach was employed and the purposive sampling technique was used to recruit respondents in both locations, who adhered to specific inclusion criteria. Respondents were approached at predetermined public and private areas within both locations. Data were collected simultaneously in Potchefstroom (N=445) and Fayetteville (N=336) by employing an interviewer-administered questionnaire. The results indicated that respondents in Potchefstroom read clothing labels less frequently compared to respondents in Fayetteville. The objective knowledge regarding "symbols" of respondents in Potchefstroom and Fayetteville differed practically significantly while only a tendency was evident for the difference in their objective knowledge regarding the written information on clothing labels. No practical significant differences were found for their subjective knowledge and objective knowledge of "do not symbols". Practical significant correlations indicated a negative association between respondents' subjective knowledge and objective knowledge of some of the written information on clothing labels. The results clearly indicated a lack of knowledge concerning "symbols" among respondents in Potchefstroom and "do not symbols" among both groups of respondents. It is recommended that the results of this study should be used for future research to develop educational programmes especially in Potchefstroom, aimed at promoting consumers' knowledge. Manufacturers, clothing retailers and marketers in an international context can contribute to consumers' knowledge by employing informational techniques aimed to provide consumers with more information on how to read and interpret the written information and care symbols on clothing labels, thus enabling them to make more informed purchase decisions and to follow the correct procedures for garment care, which will also lead to an increased product lifespan.

## **Keywords**

America, clothing labels, consumers, knowledge, South Africa

## **Introduction**

Clothing labels as a source of information to consumers serve to promote the overall standard of consumer decisions by providing information on the intrinsic and extrinsic product properties and care instructions (Iowa State University, 2003; Rahman et al., 2009:83, 84). In both South Africa (SA) and the United States of America (USA), clothing labels are required to provide information on the fabric used, fabric composition, country of origin and care instructions in English (Nadiger, 2007:15, 17; South Africa, 2011:16). When consumers, such as those in SA and the USA, are exposed to clothing labels the sensory information is registered into some of the three buffers that are located within the sensory store in the memory (Baddeley, 1997:26). Depending on consumers' level of attention, the label information will be relocated to the short-term memory store (Karakas, 1997:357) where a process of pattern recognition occurs in accordance with consumers' existing knowledge, which is located in their long-term memory store (Atkinson and Shiffrin, 1977:10; Matlin, 2009:33). Consumers can immediately make use of the newly acquired information (such as clothing label information), or they can choose to store the information in memory for later retrieval (Robinson-Riegler and Robinson-Riegler, 2008:138). It should be noted that information can only be relocated to the long-term memory store by means of a control process called rehearsal. If consumers do not consciously rehearse information, it will slowly deteriorate from the short-term memory and will not be available in the long-term memory store (Atkinson and Shiffrin, 1977:21). As a result, consumers will not be able to retrieve label-related information from their declarative long-term memory (knowledge).

Sufficient literature exists on the technical aspects of clothing labels as well as the rules and regulations for use within different geographical settings, in this case SA and the USA. A number of prior studies which focused on labels were found to emphasise single concepts such as the personal characteristic of need for cognition and the use of care instructions on labels (Shin, 2000a; Yan et al., 2008). The construct of knowledge has also been thoroughly investigated; however more recent studies have merely focused on the construct of knowledge with single concepts, such as size and brand (Dew and Kwon, 2010; Mason et al., 2008), also related to the information on clothing labels. Only a few studies have been conducted on consumers' knowledge of clothing labels, none of which have compared the knowledge of consumers from different settings in terms of a developing and developed country. The objectives of this study were to determine the demographic profiles of respondents in a developing (Potchefstroom, in the North West Province of SA) and a developed (Fayetteville, Arkansas, in the USA) country

context; the differences in the subjective knowledge of respondents about clothing labels; the differences in the objective knowledge of respondents with regard to the written and pictorial information on clothing labels; the association between respondents' subjective and objective knowledge of the information on clothing labels and the differences in the subjective and objective knowledge of respondents from different demographic subgroups.

## **Background**

### **Consumers in Potchefstroom, South Africa and Fayetteville, Arkansas, USA**

Potchefstroom, which is located in the North West Province of SA, is regarded as a historical academic town (North-West University, 2011a) which hosts an internationally recognised South African university, the North-West University, Potchefstroom Campus (North-West University, 2011b). Potchefstroom has 162 762 residents who belong to one of four population groups: Black/African (71.3%), White/Caucasian (20.6%), Coloured/Mixed Origin (6.8%) and Indian/Asian (0.9%). Furthermore, 49.1% of residents are male and 50.9% are female, and 21.6% are unemployed. The most frequently spoken language in Potchefstroom is Setswana (41%), followed by Afrikaans (31.8%), Sesotho (11.5%), IsiXhosa (10.2%) and English (2.5%). With reference to the educational attainments of the residents, 19.7% completed the National Senior Certificate (NSC) or Grade 12 Certificate, 9.3% completed a tertiary education qualification, while 4.5% had not received any formal education (Statistics South Africa, 2001; 2008:45; 2009:7, 10; 2012:43-75; Tlokwe City Council, 2009:9; 2012:44), which might be due to the lack of educational resources and development, especially in rural areas (Samuel, 2005).

Fayetteville, situated in Arkansas in the USA, is described as a small academic town (Experience Fayetteville, 2012), which hosts one of the top universities nationwide, the University of Arkansas (University of Arkansas, 2012). Fayetteville has 73 580 residents who belong to one of five identified population groups: White/Caucasian (83.3%), Black/African American (6.0%), Asian (3.1%), American Indian and Alaska Native (1.1%), and Native Hawaiian and other Pacific Islanders (0.2%), and 3.1% of the population belong to more than one of the identified population groups (Mixed Origin). Additionally, the population is comprised of 50.3% male and 49.7% female residents, of whom 3% are unemployed. The majority (91.1%) of the population in Fayetteville speak English, while 8.9% speak other languages, including Spanish (4.8%), other

Indo-European languages (1.7%), Asian and Pacific Islander languages (2.0%), and unspecified languages (0.5%). Of the above-mentioned 8.9% who speak other languages, 3.4% speak English fluently. Regarding educational attainment, 3% of the population who are 25 years and older did not complete formal education beyond the ninth grade, 20.3% completed secondary education, and 43.3% completed a tertiary or post-graduate qualification (United States Census Bureau, 2007; 2010a; 2010b).

If the above figures are considered, it is evident that Potchefstroom (SA) and Fayetteville (USA) share similar characteristics as both cities are regarded as academic towns and host internationally recognised universities. However, the demographic profiles of consumers in Potchefstroom and Fayetteville need to be considered in the present comparative study since these two cities differ regarding the predominant population groups, language use and educational attainment of their residents, and some of these variables are also associated with the concept of knowledge (House et al., 2004:118, 119). Firstly, the African group is the largest in Potchefstroom while the Caucasian group is the largest in Fayetteville. Since culture is dependent on a specific geographical setting or country (Banerjee, 2008:367), it is argued that similar strategies for an information search can be employed, although inconsistencies may arise regarding consumers' perceived importance of the process itself (Matsumoto and Juang, 2004:111) and the different information sources, such as clothing labels (Brewer Doran, 2002:826). English is the most widely used language in Fayetteville, but ranks as the fifth most spoken language in Potchefstroom. Nevertheless, English still remains the national communication medium (Casale and Posel, 2011:385) in the South African context. With regard to education, American consumers have considerably higher levels of educational attainment, specifically tertiary education, compared to South African consumers. The level of consumer knowledge is found to be dependent on variables such as education, income and geographical location. Furthermore, education, which is considered to be a crucial element in consumers' development of knowledge, is arguably dependent on other variables such as income and geographical location (House et al., 2004:118, 119). Citizens with an educational background tend to display greater memory capabilities due to better reading and comprehension skills compared to citizens who have had no formal education (Lewellen et al., 1993:327; Matsumoto and Juang, 2004:106). This may also be the case with residents of Potchefstroom and Fayetteville regarding their knowledge of clothing labels. Consumers' knowledge in both cities may depend on education and financial resources, as the opportunity for acquiring greater

knowledge of clothing labels will depend on such factors. As an opening of the discussion of the memory and knowledge of consumers in Potchefstroom and Fayetteville, the researcher will first refer to the process of consumer cognitive learning.

### **Cognitive learning**

Although the concept of consumer learning is defined differently according to two learning perspectives, namely behaviourist and cognitive (Rathus, 2005:232), this study focused on the cognitive tradition as it refers to the mental processes that are associated with information processing, human memory and knowledge (Ormrod, 2004:154; Swartz et al., 2008:228). Cognitive learning is regarded as a mental process that contributes towards consumers' existing knowledge structures resulting from previous interactive experiences and the acquisition of new information (Schiffman and Kanuk, 2007:198, 201; Weiten, 2007:215). Cognitive learning therefore signifies that consumers' knowledge of clothing labels will improve based on previous experience of using label information and due to the acquisition of new label-related information that is not present within their existing knowledge of clothing labels. By following the cognitive perspective, researchers will in future be able to determine and compare consumers' knowledge of clothing labels in a South African and American context by applying to the theory of information processing and consumers' memory of clothing labels. The learning process occurs when consumers acknowledge a problem. As a result, internal sources, such as their existing knowledge of label information, are taken into consideration before searching their external setting for situation-specific information (Schiffman and Kanuk, 2007:533; Van Staden and Van Aardt, 2010:46). In this case, information on the intrinsic and extrinsic garment properties and care instructions as indicated on the label will provide assistance in making a satisfactory decision.

### **Clothing labels as a source of information**

Clothing labelling in SA and the USA is relatively consistent regarding the written information on labels; however, some divergence exists between the clothing care labelling symbols in SA and the USA (Federal Trade Commission, 2001:13; SANS, 2007a:8-11). South Africa employs labelling rules that are analogous to the standards of the European Union (Office of Textiles and Apparel, 2011), implying that the care symbols are approved by the World Trade Organization



(WTO) as well as Technical Barriers to Trade (TBT) (SANS, 2007a:2). The care labelling of clothing is considered to be mandatory as a result of the requirements imposed by the International Organization for Standardization (ISO) (Kidmose Rytz et al., 2010:10). Furthermore, the care symbols used by ISO were designed and implemented by the International Association for Textile Care Labelling (GINETEX) (Nadiger, 2007:11). Conversely, the care symbols designed and developed by the American Society for Testing and Materials (ASTM) have been adopted by the Federal Trade Commission (FTC) (Intertek, 2012), and are solely permitted to be used for the care labelling of textiles and textile products (such as clothing) in the USA (Federal Trade Commission, 2001:13; Kidmose Rytz et al., 2010:10).

It is important to consider that although SA utilises symbols of the ISO (Kidmose Rytz et al., 2010:10), the South African Bureau of Standards (SABS) is the only agency that prescribes the use of care symbols within a South African context (Office of Textiles and Apparel, 2011). As a result, it is suggested that care symbols in SA might prove to be a reflection, but not a complete duplication, of the ISO symbols. Thus SA is also permitted to utilise some symbols that are associated with the ASTM standard. In order to ensure consistency, this study only measured consumers' knowledge of the care symbols that are used similarly in SA and the USA.

### **Consumers' memory and knowledge**

Human memory involves a series of sequential stages, each belonging to a specific memory system that functions according to its own set of principles. Furthermore, human memory involves three memory stores, namely the short-term memory store, working memory and the long-term memory store (Atkinson and Shiffrin, 1977:10, 21-24; Baddeley, 1997:52). For the purpose of this study the focus was placed on the long-term memory store. This store is comprised of two sub-categorical memory types called declarative and non-declarative or procedural memory. Declarative memory is categorised into episodic and semantic memory, while non-declarative memory includes procedural memory, priming, classical conditioning and habituation (Robinson-Riegler and Robinson-Riegler, 2008:242; Squire, 2004:173). For this study, the emphasis was further placed on declarative memory as it refers to the retrieval of past experiences such as experiences gained by using clothing labels and general information and specific facts (Friedenberg and Silverman, 2012:117), which is known as knowledge. Consumer

knowledge consists of four variables, namely familiarity, subjective and objective knowledge and objective product category information (Aurier and Ngobo, 1999:574). In this study the two variables of subjective and objective knowledge were emphasised.

## **Methodology**

### **Study design**

In this quantitative study, a comparative, descriptive design was employed. The chosen design was suitable as variables were measured in order to comprehend the behavioural patterns (Babbie and Mouton, 2001:49) of consumers in Potchefstroom and in Fayetteville and is also characterised by high levels of reliability depending on the standard of the measurement instrument (Babbie and Mouton, 2001:153).

### **Sampling**

As this study was comparative in nature, the researchers focused on two separate population groups, namely consumers which were situated in Potchefstroom in the North West Province of SA and in Fayetteville, Arkansas, in the USA. A non-probability sampling technique, namely purposive sampling was employed. Due to the chosen sampling technique, all respondents who participated in this study were required to adhere to specific inclusion criteria:

- Respondents had to be between the ages of 18 and 70 years;
- Respondents had to participate in clothing shopping;
- Respondents had to be able to read clothing labels;
- The respondent and his/her spouse were not to work in a clothing-related sector.

### **Data collection and measurement instrument**

Data were collected simultaneously in Potchefstroom (SA) and Fayetteville (USA). All respondents were approached at predetermined public and private areas in both cities at the time. These areas included universities, municipal offices, elder-care facilities, parking areas, shopping centres and various retail outlets (excluding clothing retailers), which hosted individuals who

represented both genders, different ages and different population groups. During the data collection process care was taken to purposively select a predetermined number of respondents from each population group in Potchefstroom and Fayetteville to ensure better distribution of the population groups. This, however, could not be achieved in Fayetteville due to the limited number of respondents who belonged to specific population groups. Furthermore, the study aimed to obtain an equal number of valid responses from each city. This could not be achieved due to the non-availability of potential respondents in Fayetteville. A total of 445 and 336 usable questionnaires were obtained in Potchefstroom and Fayetteville respectively (N=781). For the purpose of this study, a face-to-face questionnaire also known as an interviewer-administered questionnaire (Maree and Pietersen, 2007a:158) was used in both locations. The measuring instrument was employed in previous research by Van der Merwe et al. (2013) which served as a pilot study for this study. Changes were made to the existing instrument with regard to different age cohorts and educational attainment, and a number of questions were added to address respondents' subjective knowledge of clothing labels. The questionnaires were divided into six sections, namely:

- Section A: Opening
- Section B: Demographic and general information
- Section C: Clothing label subjective knowledge
- Section D: Care instruction beliefs
- Section E: Label reading
- Section F: Clothing label objective knowledge

During data collection in Potchefstroom and Fayetteville, attention was paid to the ethical issues regarding the study of human beings (Babbie and Mouton, 2001:520). Firstly, all respondents in this study had the right to decide whether they were willing to participate. The researchers and fieldworkers informed all the respondents of the purpose of the research and clearly explained that participation in this study was voluntary and that confidentiality was ensured. Next, all the respondents were asked to provide written consent for participation. This study was approved by and registered with the Ethical Committee of the North-West University (NWU) (Reference code: NWU-00024-09-A1) and the University of Arkansas (Reference code: IRB#12-09-086).

## **Statistical analysis of data**

Descriptive statistics was applied to the data obtained in both cities and presented as frequencies and percentages of respondents' demographic characteristics (Ha and Ha, 2012:12). The results were weighed according to the latest census information (Statistics South Africa, 2001; 2012; United States Census Bureau, 2007; 2010a; 2010b) available for both cities, to ensure a proportional distribution of the population groups. A two-way analysis of variance (ANOVA) was used to separately determine the differences between Potchefstroom and Fayetteville respondents' demographic characteristics with one dependent variable such as subjective knowledge, as explained by Howell (2011:407). Cohen's  $d$ -values were used as effect sizes to determine whether the differences between the means were important in practice. According to Cohen (1988) as cited in Walker and Almond (2010:8), a large effect size is greater or equal to  $d=0.8$ , while a medium effect size is  $d=0.5$  to  $d=0.8$ . For the purpose of this study, Cohen's  $d$ -values that were greater than  $d=0.75$  were used as these values indicate practical significance (Ellis and Steyn, 2003:52). Furthermore, cross-tabulations were used to determine whether an association existed between two categorical variables (Salkind, 2011:344, 345). Cramer's  $V$  was used to determine the strength of the association in practice (Healey, 2012:320) and values that were higher or equal to Cramer's  $V=0.5$  represented large effect sizes (Zaiontz, 2013). For the purpose of this study, values larger than 0.4 were regarded to be of practical significance. Lastly, Spearman's rank-order correlations were used to determine whether any practical significant associations existed between the ordinal variables in this study (Salkind, 2011:77). In this study, correlations that were larger than 0.5 were considered to be of practical importance.

## **Validity and reliability**

In this study, the researchers ensured face, content (Neuman, 2011:192, 193) and construct validity (Pietersen and Maree, 2007:219). Exploratory factor analysis (EFA) was done on Section C, D, E and F of the questionnaire respectively with the aim of determining the construct validity of the measuring instrument (Pietersen and Maree, 2007:217, 219). The EFA ensured the correct categorisation of items belonging to specific factors by employing Kaiser's Criterion. Additionally, only factors which displayed eigenvalues of more than one were retained (Field, 2005:197, 652). For consumers' subjective knowledge, label reading and objective knowledge of care symbols (Sections C, D & F of the questionnaire) of the combined data of Potchefstroom and Fayetteville, the EFA yielded one factor each, except for care symbols, which had two

factors. Similar factors were identified for the data from Potchefstroom (SA) and Fayetteville (USA). The Keiser-Meyer-Olkin's (KMO) measure of sampling adequacy was employed to determine whether factor analysis would be useful (IBM, 2013). All four factor analyses ("subjective knowledge", "label reading", "objective knowledge of symbols" and "objective knowledge of do not symbols") presented KMO values that varied between KMO=0.7 and KMO=0.9 for the data from Potchefstroom and Fayetteville respectively, as well as the combined data. Objective knowledge of the written information on labels did not form a valid factor and therefore no KMO values are available.

With regard to the items in the factors identified from the scales within the Potchefstroom data, four communalities were below 0.3, with the lowest being 0.17. These low communalities were indicated within the factor "subjective knowledge". The same factor ("subjective knowledge") identified within the Fayetteville data, showed no communalities that were below 0.3 with the highest being 0.73. The joint data for "subjective knowledge" indicated four communalities that were below 0.3, with the lowest being 0.24. With emphasis on the "label reading" factor identified within both sets of data, all communalities were higher than 0.3, with the highest for Potchefstroom and Fayetteville data being 0.78. The joint data for "label reading" displayed no communalities that were below 0.3, with the highest being 0.81. The last factor analysis with factors "objective knowledge of symbols" and "objective knowledge of do not symbols" for the Potchefstroom data, indicated three communalities that were lower than 0.3, with the lowest being 0.16. No communalities were below 0.3 for this factor analysis for the Fayetteville data. The joint data for these two factors ("objective knowledge of symbols" and "objective knowledge of do not symbols") displayed two communalities that were below 0.3, with the lowest being 0.24.

Furthermore, with regard to the Potchefstroom data, the factor "subjective knowledge" explained a total variance of 40.1%, while the same factor within the Fayetteville data explained a total variance of 60.8%. The joint data for "subjective knowledge" explained 46.5% of the variance. The total variance for "label reading" was 72.9% and 70.5% for Potchefstroom and Fayetteville data respectively, while the joint data for "label reading" explained a total variance of 75.5%. The factors "objective knowledge of symbols" and "objective knowledge of do not symbols" for the Potchefstroom data explained a total variance of 45.2%, while the same two factors explained

a total variance of 59.6% for the Fayetteville data. A total variance of 50.9% was further explained for the joint data of “objective knowledge of symbols” and “objective knowledge of do not symbols”. Although the percentage variation explained for the factor analyses were somewhat low in some instances of Potchefstroom, and some communalities were below the value of 0.3, the inclusion of these low communality items within these factors made sense from a theoretical standpoint. The combined factor analyses for the combination of both sets of data indicated that acceptable construct validity was obtained for all factors.

The reliability of the instrument for this comparative study was determined by employing Cronbach’s alpha reliability coefficient to measure internal consistency of the constructs present within both questionnaires (Pietersen and Maree, 2007:215). The Cronbach’s alpha coefficients for all four factors identified within the Potchefstroom and Fayetteville data, as well as the joint Cronbach’s alpha coefficients, varied between 0.7 and 0.9, which, according to Field (2005:668), indicates acceptable reliability. With regard to the mean inter-item correlations, five values out of all the factors for Potchefstroom and Fayetteville as well as joint, were higher than the recommended value of 0.15 to 0.55, with the highest being 0.9 for “objective knowledge of do not symbols”. The reason for the high inter-item correlations might be that respondents experienced a high degree of similarity between all the questions in this section, since it only included pictorial information.

## **Results and discussion**

### **Demographic characteristics of the samples**

The demographic profiles of respondents in Potchefstroom and Fayetteville are provided in Table 1. Male and female respondents and the Black/African and White/Caucasian population group in Potchefstroom were well distributed; however, there were more female respondents and the White/Caucasian population group was the largest in Fayetteville due to the availability of such respondents. Furthermore, respondents of the different age groups were well distributed in Potchefstroom, whereas there were more respondents in Fayetteville who were between 18 and 24 years of age and fewer respondents who were 25 to 34 years of age. The two groups of respondents differed vastly regarding education level, since the largest percentage of respondents in Potchefstroom had completed only a secondary education, whereas most of the respondents in

Fayetteville had completed a tertiary education and none had less than matric. Furthermore, in both Potchefstroom and in Fayetteville, the largest number of respondents did not have any children under the age of 18 years residing with them.

**Table 3.1: Frequencies and distributions of the demographic characteristics of respondents in Potchefstroom and Fayetteville**

Demographic characteristics	Potchefstroom Frequency (n)	Potchefstroom Distribution (%)	Fayetteville Frequency (n)	Fayetteville Distribution (%)
<b>Gender</b>				
Male	224	50.3	67	19.6
Female	221	49.7	275	80.4
<b>Population group</b>				
Black/African/African American	162	36.4	23	6.7
White/Caucasian	159	35.7	276	80.7
Coloured/Mixed Origin	84	18.9		
Indian/Asian	40	9.0		
Asian			5	1.5
American Indian and Alaska Native			6	1.8
Native Hawaiian and other Pacific -Islanders			1	0.3
Other			31	9.1
<b>Age</b>				
18-24	117	26.3	150	43.9
25-34	110	24.7	39	11.4
35-54	110	24.7	81	23.7
55+	108	24.3	72	21.1
<b>Educational background</b>				
Less than matric (Grade 12)	109	24.5		
Matric (Grade 12)/High school Diploma/GED	240	53.9	136	39.7
Tertiary education (completed)	96	21.6	206	60.2

**Table 3.1 (continued): Frequencies and distributions of the demographic characteristics of respondents in Potchefstroom and Fayetteville**

Demographic characteristics	Potchefstroom Frequency (n)	Potchefstroom Distribution (%)	Fayetteville Frequency (n)	Fayetteville Distribution (%)
<b>Number of children under age of 18 living with respondent</b>				
0	244	54.8	262	76.6
1	83	18.7	38	11.1
2	75	16.9	22	6.4
3	35	7.9	12	3.5
4	7	1.6	6	1.8
5+	1	0.2	2	0.6
<b>Monthly household income after deductions</b>				
ZAR 0 – 4000	110	24.7		
ZAR 4000 – 8000	123	27.6		
ZAR 8000 – 20000	105	23.6		
ZAR 20000 – 50000	85	19.1		
ZAR 50000 – 100000	15	3.4		
More than ZAR 100000	7	1.6		
US\$ 0 – 10000			86	25.3
US\$ 10000 – 20000			26	7.6
US\$ 20000 – 40000			67	19.7
US\$ 40000 – 80000			70	20.6
US\$ 80000 – 100000			37	10.9
More than US\$ 100000			52	15.3

### **Differences in the label reading of respondents in Potchefstroom and Fayetteville**

The results of this study indicated that respondents in Potchefstroom tended to read clothing labels less frequently (Cramer's  $V=0.31$ ) (mean=2.3; rarely/once in a while) upon comparison to respondents in Fayetteville (mean=2.9; sometimes), with only a medium effect size. Furthermore, a practical significant difference ( $d=0.8$ ) was found, indicating that female respondents in Fayetteville “sometimes” read clothing labels (mean=3.2), thus reporting that they read labels more frequently than respondents of the same gender in Potchefstroom who read clothing labels “rarely/once in a while” (mean=2.4). A study by Govindasamy and Italia



(1999:63) found that consumers in the USA made frequent use of (food) labels; however, female consumers in that context used labels to a greater extent. On the contrary, Van der Merwe et al. (2013:3) found that consumers in South Africa read textile-related labels “sometimes/always”, which is still more frequent than the label reading of respondents in Potchefstroom found in the present study.

Six practically significant differences ( $d=0.7$  to  $d=1.7$ ) were also found between the label reading of respondents in Potchefstroom and Fayetteville based on demographic subgroups, namely: age (35-54 years), education (completed tertiary education), number of children under the age of 18 living with them (no children), frequency of clothing purchases (purchase once in two weeks), and the amount of time shopping for clothes (1-2 hours and more than 2 hours) which also indicated more frequent label reading among respondents in Fayetteville (means=2.9 to 3.2; sometimes) compared to respondents in Potchefstroom (means=2.0 to 2.4; rarely/once in a while). A practically significant difference ( $d=0.7$ ) revealed that female respondents read clothing labels more regularly (mean=3.2) than male respondents (mean=2.6) in Fayetteville, although both groups read labels “sometimes”. This finding corresponds to research conducted by Dickson (2001:113) which focused on “no sweat” labels for consumers in the USA, who found that female consumers were more likely to make use of labels. This might be due to female consumers’ greater familiarity with clothing purchases (Bhatnagar et al., 2000:103). Such differences were, however, not evident for respondents from Potchefstroom.

The one-way ANOVA yielded a practically significant difference ( $d=1.0$ ) in the label reading of respondents in Fayetteville who received a total monthly household income of between US\$10 000 to US\$20 000 and more than US\$100 000 after deductions. Respondents with the highest levels of income read clothing labels more frequently (mean=3.2) compared to respondents with lower income levels (mean=2.5), although both read labels often. This result corresponds to the findings of a study by Kim et al. (2001:353) who found that American consumers with higher levels of income read food labels more frequently, which might also be the case with clothing purchases. However, once again similar differences were not found between respondents from different income groups in Potchefstroom.

## **Differences in the reasons why respondents in Potchefstroom and Fayetteville did not use clothing labels**

Table 2 indicates the differences in the reasons why respondents from Potchefstroom and Fayetteville did not use clothing labels as often as they would have liked. One practically significant difference (Cramer's  $V=0.43$ ) was found, indicating that more respondents in Potchefstroom did not use clothing labels because it takes too much time to read (61%), while only 18% of respondents in Fayetteville agreed with this statement. It appears that these respondents were not willing to spend time reading clothing labels as they may not consider label reading to be a priority. For these reasons, respondents from Potchefstroom may be less informed about clothing labels. Furthermore, results revealed two tendencies indicating that more respondents in Potchefstroom did not trust/believe the information on clothing labels (Cramer's  $V=0.35$ ) and reckoned that the information was unnecessary to know (Cramer's  $V=0.39$ ) than respondents in Fayetteville respectively, with only a medium effect size. No further practically significant differences were found between respondents in Potchefstroom and Fayetteville for any of the other reasons for not using clothing labels.

A practically significant association (Cramer's  $V=0.5$ ) was found between respondents in Potchefstroom who were 35-54 years of age and 55 years or older who indicated that clothing labels were a confusing source of information (results not shown in a table). Respondents who were 55 years or older mostly agreed with this statement (59%), followed by respondents who were 35-54 years (52%). On the contrary, 94% of respondents who were 18-24 years old did not find clothing labels to be confusing. This result corresponds to research by Van der Merwe et al. (2013:4) who also found that consumers in Potchefstroom found clothing labels to be confusing, although no ages were specified. It is argued that younger respondents from Potchefstroom might have had better educational backgrounds than older respondents as the educational levels among residents in Potchefstroom increased by 45.5% and 50.7% for the completion of a National Senior Certificate (Grade 12 Certificate) and a tertiary education qualification respectively, from 1996 to 2011 (Statistics South Africa, 2012:66). Furthermore, higher levels of education are associated with better reasoning skills (Perkins, 1985:566), which might explain why the youngest respondent group in Potchefstroom did not find clothing labels to be confusing. This argument is strengthened by results indicating that 100% and 80 % of respondents in Potchefstroom who completed a tertiary and secondary education respectively, did not find clothing labels to be confusing (Cramer's  $V=0.6$ ) and that they understood the content thereof,

while 73% of respondents who did not complete a secondary education, found labels to be a confusing source of information.

**Table 3.2: Differences in the reasons why respondents did not use clothing labels**

Items	Potchefstroom (N=445)		Fayetteville (N=336)		*Cramer's V
	Number of correct responses	%	Number of correct responses	%	
Takes too much time to read	76	60.8	19	18.4	0.43
Too much information/Too detailed	46	37.1	23	22.5	0.16
Confusing/I don't understand	43	34.4	34	33.3	0.01
Print is too small for me to read	49	39.5	40	39.2	0.01
Too little information	40	32.0	28	27.5	0.05
Do not trust/believe the information	53	42.7	11	10.8	0.35
Unnecessary to know	65	52.0	15	14.7	0.39
Difficult to find information	43	34.4	34	33.3	0.01

\*Cramer's V calculated between respondents in Potchefstroom and Fayetteville.

Subsequently, results indicated (Cramer's  $V=0.5$ ) that 68% of respondents in Potchefstroom who did not complete a secondary education found it difficult to locate information on clothing labels. This was not the case for respondents who had higher levels of educational attainment, as 100% and 77% of respondents who completed a tertiary and secondary education respectively, did not find it difficult to locate label information. Ninety five percent of respondents who completed a tertiary education and 74%, who completed a secondary education in Potchefstroom, indicated that clothing labels did not have too much detailed information while 71% of respondents who did not complete secondary education disagreed with this statement (Cramer's  $V=0.5$ ). As

knowledge is associated with formal and informal education (Oxford Advanced Learner's Dictionary, 2005, 7:821) it is argued that respondents with lower levels of educational attainment possessed less knowledge, which explains why some respondents (with lower educational attainment) found clothing labels to be confusing, found it difficult to locate information on labels and indicated that there was too much detailed information on clothing labels. These associations were, however, not prevalent in Fayetteville, probably since educational levels did not vary as much and were rather high in general.

With regard to Fayetteville, it was found (Cramer's  $V=0.5$ ) that respondents aged 18-24 and 25-34 did not indicate that the size of the print on clothing labels was too small (86% and 70% respectively), while 78% of respondents 35-54 years old indicated that the print on clothing labels was too small for them to read. Older respondents probably experienced more eyesight problems that made it difficult to read the print on clothing labels. This result corresponds to a study by Van der Merwe et al. (2013:4) who found that consumers within a developing country also regarded the print on textile labels to be too small, but no distinctions were made between consumers of different ages. It was also found (Cramer's  $V=0.5$ ) that 16% and 19% of respondents in Fayetteville aged 25 to 34 and 55 years and older respectively, did not trust/believe the information on clothing labels. By contrast, 91% of respondents 35 to 54 years old considered clothing labels to be a trustworthy source of information. The reason why respondents from some age groups in Fayetteville questioned the trustworthiness of the information on clothing labels might be due to the high educational attainment found among respondents from Fayetteville in this study, in particular tertiary education, among these respondents (United States Census Bureau, 2007), especially since these associations were not prevalent among respondents from Potchefstroom. As previously mentioned, high educational attainment results in better cognitive reasoning skills (Perkins, 1985:566), which explains why some respondents might question the credibility of clothing labels.

### **Differences in the subjective knowledge of respondents in Potchefstroom and Fayetteville**

It was found (Cramer's  $V=0.20$ ) that respondents in Potchefstroom displayed no practically significant difference in subjective knowledge (mean=2.95) compared to respondents in Fayetteville (mean=2.85), thus implying that both groups of respondents had similar levels of

perceived knowledge regarding the information on clothing labels. The two-way ANOVA indicated three practically significant differences between respondents from Potchefstroom and Fayetteville for respondents' subjective knowledge of clothing labels with only two demographic characteristics, namely age and education. A practically significant difference ( $d=0.82$ ) revealed that respondents in Potchefstroom who were between the ages of 25-34 years had higher levels of subjective knowledge of clothing labels (mean=3.09) than respondents of the same ages in Fayetteville (mean=2.56), although both groups regarded themselves to be somewhat informed. Furthermore, it was found that the subjective knowledge (of clothing labels) of respondents in Potchefstroom who completed secondary education (matric/grade 12) (mean=2.98), was practically significantly better ( $d=0.83$ ) than that of respondents in Fayetteville with a similar educational background (completed high school diploma/GED) (mean=2.65), even though both rated themselves as somewhat informed. A study by Van der Merwe et al. (2013:3, 4) also found high levels of subjective knowledge concerning textile labels among consumers in Potchefstroom and that these consumers obtained information on labels by referring to their relatives and friends. Mattila and Wirtz (2002:224) state that consumers with high levels of subjective knowledge are not likely to search for information by means of impersonal sources such as clothing labels. As respondents in Potchefstroom in the present study were not willing to spend time reading labels and they did not consider label reading to be a priority, it might serve to explain why these respondents reckoned that they had sufficient knowledge regarding the information on clothing labels.

Practical significant differences were evident from the one-way ANOVA with regard to gender, ethnicity and income among respondents from Fayetteville. Female respondents in Fayetteville displayed practically significantly ( $d=0.7$ ) higher levels of subjective knowledge (mean=3.1) about the information on clothing labels, than male respondents (mean=2.6) although both groups were somewhat informed. Aertsens et al. (2011:1369) found that consumers who frequently used information on organic food displayed higher levels of subjective knowledge. The present study indicated that female respondents read clothing labels more frequently than male respondents in Fayetteville, therefore explaining why females in this study had higher levels of subjective knowledge. Furthermore, Black/African American respondents displayed practically significantly ( $d=0.79$ ) higher levels of subjective knowledge by being somewhat informed (mean=3.0) compared to American Indian and Alaska Native respondents in Fayetteville who perceived themselves as somewhat uninformed (mean=2.3). A study by Klohe-

Lehman et al. (2006:70) found that Black/African American consumers had the least objective knowledge of food labels which may also be the case with clothing labels. As lower levels of objective knowledge is associated with higher levels of subjective knowledge (Mattila and Wirtz, 2002:224), it may serve to explain why Black/African American respondents in this study had the most subjective knowledge of the information on clothing labels. Finally, respondents with the highest levels of monthly household income (more than US\$100 000) displayed practically significantly ( $d=0.96$ ) higher levels of subjective knowledge (mean=3.2) compared to respondents with lower income levels (US\$10 000 to US\$20 000) (mean=2.6) in Fayetteville, although both rated themselves as somewhat informed. This result differs from the results of a study by House *et al.* (2004:118), who found that respondents with lower income displayed higher subjective knowledge compared to respondents with high income levels. On the contrary, Ludwigson (2004:48) found that high levels of confidence among consumers are associated with high levels of income. It is therefore argued that respondents in Fayetteville with higher income levels might also have displayed higher confidence regarding their knowledge of the information on clothing labels. No practically significant differences were found between subjective knowledge and gender, ethnicity or total monthly household income of respondents in Potchefstroom.

### **Differences in the objective knowledge of the written information on clothing labels of respondents in Potchefstroom and Fayetteville**

It was found that respondents in Potchefstroom displayed only a tendency (Cramer's  $V=0.37$ ) of less objective knowledge (48% correct) than respondents in Fayetteville (83% correct) with regard to the written information on clothing labels, with a medium effect size. Due to the inclusion criteria used in this study, all respondents must have been able to read clothing labels. Although respondents in Potchefstroom were able to read, they may have found it difficult to interpret the written information due to lower levels of educational attainment, which may explain the tendency of less objective knowledge among these respondents. Furthermore, four practically significant differences in the individual items were found in the objective knowledge between respondents in Potchefstroom and Fayetteville with regard to the fibres the clothing item was made of (Cramer's  $V=0.56$ ), the identification of the manufacturer (Cramer's  $V=0.59$ ), synthetic fibres (Cramer's  $V=0.62$ ) and natural fibres (Cramer's  $V=0.57$ ) (Table 3). Foremost, respondents in Fayetteville displayed practically significantly better objective knowledge of fibres and the identification of the manufacturer upon comparison to respondents in

Potchefstroom. Although clothing labels in SA and the USA are required to provide information on different fibre types and the manufacturer (Federal Trade Commission, 2002:3; SANS, 2007b:4), respondents in Fayetteville may have displayed better objective knowledge of these items due to higher levels of familiarity (Guo and Meng, 2008:266) which may be a result of frequent label reading. Furthermore, respondents in Fayetteville also displayed practically significantly better objective knowledge with regard to synthetic and natural fibres than respondents in Potchefstroom. A study by Sneddon et al. (2012:42-46) found that American consumers regarded fibres as an indicator of clothing quality and preferred natural fibres when selecting apparel products. This may also serve to explain the high levels of objective knowledge regarding synthetic and natural fibres among respondents in Fayetteville.

A practically significant association (Cramer's  $V=0.5$ ) was found in the objective knowledge of different fibres between respondents of the three ethnic groups in Potchefstroom. The White/Caucasian population group (57%) as well as the Coloured/Mixed Origin population group (50%) displayed more objective knowledge of fibres as compared to the Black/African population group (9%). Furthermore, a practically significant association (Cramer's  $V=0.45$ ) was found with regard to the objective knowledge of synthetic fibres between White/Caucasian, Coloured/Mixed Origin and Black/African respondents in Potchefstroom. The Coloured/Mixed Origin (50%) and the White/Caucasian (44%) group displayed more objective knowledge of synthetic fibres than Black/African respondents (6%). The lack of knowledge among Black/African respondents in this study regarding fibres may be a result of the contributions of The Growth, Employment and Redistribution (GEAR) programme implemented in SA after the first democratic elections. The GEAR programme has yet to succeed in the creation of the required number of formal occupation for Black/African citizens (Aliber, 2003:473, 487; Statistics South Africa, 2005:130; 2011:21), thus implying that these citizens may not have the financial ability to purchase new clothing products, which will also have a negative impact on their objective knowledge of clothing labels as a result of familiarity.

**Table 3.3: Differences in the objective knowledge of the written information on clothing labels between respondents in Potchefstroom and Fayetteville**

Items	Potchefstroom (N=445)		Fayetteville (N=336)		*Cramer's V
	Number of correct responses	%	Number of correct responses	%	
What fibres/fibers is this clothing item made of	103	23.1	267	79.5	0.56
What percentage of spandex does this clothing item contain	332	74.6	322	95.8	0.29
Name the brand of this clothing item	106	23.8	195	58.0	0.35
Name the manufacturer of this clothing item	130	29.2	301	89.6	0.59
What is the main fibre/fiber of this clothing item	328	73.7	317	94.3	0.29
What is the country of origin of this clothing item	385	86.5	319	94.9	0.14
What is the size of this clothing item	307	69.0	269	80.1	0.13
At what temperature should this clothing item be washed	214	48.1	202	60.1	0.12
Does this clothing item contain any synthetic fibres/fibers	78	17.5	268	79.8	0.62
Does this clothing item contain any natural fibres/fibers	169	37.9	314	93.5	0.57

\*Cramer's V calculated between respondents in Potchefstroom and Fayetteville



## **Differences in the objective knowledge of “symbols” of respondents in Potchefstroom and Fayetteville**

The objective knowledge of respondents from Fayetteville regarding the factor “symbols” was practically significantly better ( $d=0.98$ ; mean=83% correct) than those from Potchefstroom (mean=56% correct) which may be a result of more frequent label reading among respondents in Fayetteville. Furthermore, respondents in Potchefstroom displayed the highest objective knowledge of the individual items correctly identified, namely hand wash (89%), iron (88%) and leather (78%) symbols, which are regarded as basic care symbols (Intertek, 2012; SANS, 2007a:7-8), while respondents in Fayetteville displayed the most objective knowledge of the iron (94%), hand wash (92%) and cotton (88%) symbols.

Objective knowledge of the factor “symbols” differed practically significantly between respondents from Potchefstroom and Fayetteville with regard to gender, age, education and the amount of time spent shopping for clothing products. A practically significant difference ( $d=0.70$ ) revealed that female respondents’ objective knowledge of “symbols” in Fayetteville were higher (87% correctly identified symbols) than the objective knowledge of female respondents in Potchefstroom (71% correctly identified). This might be due to more frequent label reading and a higher educational attainment of female respondents from Fayetteville. Practically significant differences were found in the objective knowledge regarding “symbols” between respondents in Potchefstroom and Fayetteville aged 35-54 years ( $d=0.8$ ) and 55 years or older ( $d=1.1$ ). In both cases, respondents in Fayetteville displayed higher levels of objective knowledge of “symbols” as 91% (35-54 years) and 86% (55 years or older) correctly identified symbols, while only 69% (35-54 years) and 56% (55 years or older) of respondents in Potchefstroom were able to do so. The results further indicated that respondents in Fayetteville who spent more than two hours shopping performed practically significantly better ( $d=0.92$ ) with regard to their objective knowledge of “symbols” (89% correct) than respondents in Potchefstroom (69% correct). A study by Brewer Doran (2002) found that North American consumers searched for and used more sources of information (such as clothing labels) and therefore possessed higher levels of internal knowledge compared to Chinese consumers. This might serve to explain the better objective knowledge of clothing labels of respondents from Fayetteville in the present study as this source of information was used to a greater extent by them, which also has a positive impact on their familiarity with and objective knowledge of clothing labels.

## **Differences in the objective knowledge of “do not symbols” of respondents in Potchefstroom and Fayetteville**

Foremost, results indicated no practically significant differences (Cramer's  $V=0.22$ ) in the objective knowledge of “do not symbols” factor between respondents from Potchefstroom (26% correct) and Fayetteville (47% correct). It is of interest that both groups performed particularly poor with regard to these symbols aimed in particular at protecting the quality of clothing during care taking. Results of the individual items within this factor showed that respondents in Potchefstroom had the best objective knowledge of the “do not dry clean” symbol (27% correct) while respondents in Fayetteville displayed the best objective knowledge of the “do not bleach” symbol (47% correct).

Results further revealed differences in respondents' objective knowledge of the factor “do not symbols” based on age, education and amount of time spent shopping for clothing products. A practically significant difference ( $d=0.74$ ) indicated that respondents who were 55 years of age or older from Fayetteville possessed higher levels of objective knowledge of “do not symbols” (58% correct) than respondents of the same age group in Potchefstroom (22% correct). Similar results were found indicating that older respondents (55 years and older) in Fayetteville also displayed more objective knowledge of “symbols”. In these cases, older respondents in Fayetteville proved to be more knowledgeable, which might be due to frequent label reading over a number of years, whereas respondents in Potchefstroom displayed less interest in reading clothing labels, regardless of their age.

Firstly, respondents from Potchefstroom who possessed a grade 12 qualification had less objective knowledge ( $d=0.98$ ) of the “do not symbols” factor (27% correct) compared to respondents in Fayetteville who possessed a similar educational qualification (completed high school diploma/GED) (53% correct). This corresponds to the findings by House et al. (2004:118, 119) who state that objective knowledge is influenced by geographical location. It should be noted that the syllabus for secondary education in Potchefstroom and Fayetteville may differ to some extent and that secondary school learners in Fayetteville may have been more exposed to clothing labels as a source of information in the educational environment, which might also explain their higher levels of objective knowledge.

As previously indicated for respondents' label reading and their objective knowledge regarding symbols, it was found that respondents in Fayetteville who spent more than two hours shopping for clothing displayed practically significantly higher levels ( $d=0.7$ ) of objective knowledge of the "do not symbols" factor (58% correct) than respondents in Potchefstroom (26% correct) who spent the same amount of time shopping for clothes. Although these two groups spent the same amount of time shopping for clothes, results revealed that respondents in Potchefstroom did not read labels as frequently as those in Fayetteville, which also includes label reading in the in-store environment. Therefore respondents in Potchefstroom might have been less familiar with "symbols" and "do not symbols", with a consequent negative impact on their objective knowledge of both.

Lastly, the results of the one-way ANOVA yielded seven significant differences ( $d$  values=0.85 to 1.97) in the objective knowledge of "do not" symbols factor of respondents in Potchefstroom based on the different total monthly household income (after deductions) subgroups. In all cases it was found that respondents with higher amounts of monthly household income had higher levels of objective knowledge of "do not" symbols. These results correspond to the research findings by House et al. (2004:119), who found that objective knowledge is dependent on variables such as income.

### **Association between subjective and objective knowledge of respondents in Potchefstroom and Fayetteville**

Five practically significant negative correlations (varying between  $r=-0.56$  and  $r=-0.85$ ) were found between the subjective knowledge and different individual items for objective knowledge of the written information, namely fibres, brand, manufacturer, size and the temperature at which the clothing item should be washed, of respondents in Potchefstroom and Fayetteville. This result suggests that higher levels of subjective knowledge among respondents in Potchefstroom and Fayetteville are associated with less objective knowledge concerning the written information on labels. This result differs from the research findings of House et al. (2004:117), who found a positive relationship between the variables of subjective and objective knowledge concerning genetically modified food, thus indicating that contradictory research findings exist regarding the relationship between subjective and objective knowledge. These associations between subjective

and objective knowledge were however only found with regard to some individual items for objective knowledge of written information on labels as no other practically significant associations were found between the factors of subjective knowledge and objective knowledge of “symbols” and “do not symbols”.

## **Conclusion**

Consumers in a developing and developed country are bound to differ with regard to demographic characteristics but clothing labels are an available source of information present within the context of both. Few studies have been conducted on consumers’ knowledge of clothing labels and none have compared this knowledge of consumers from different settings in terms of a developing and developed country. Therefore, the purpose of this study was to compare consumers in a developing country (Potchefstroom, in the North West Province of SA) and a developed country (Fayetteville, Arkansas, in the USA) context with regard to their subjective and objective knowledge of clothing label information.

Results indicated that the objective knowledge regarding “symbols” of respondents from Potchefstroom and Fayetteville differed practically significantly while only a tendency was evident for the differences in their objective knowledge regarding the written information on clothing labels. No practically significant differences were found for their subjective knowledge and objective knowledge of “do not symbols”. Practically significant correlations indicated a negative association between respondents’ subjective and objective knowledge of the written information on clothing labels, thus suggesting that the higher the respondents’ perceived knowledge, the lower their actual knowledge of the written information. Subjective knowledge of respondents in Potchefstroom and Fayetteville were found to differ with regard to age and education. No differences in the objective knowledge of the written information on clothing labels were found between respondents in both locations based on demographic characteristics. Objective knowledge of “symbols” and “do not symbols” were found to differ between respondents in Potchefstroom and Fayetteville based on age, education and amount of time spent shopping for clothing products, while differences with regard to gender were also evident for “symbols”.

The results of this study clearly indicate consumers' lack of objective clothing label knowledge, which is more predominant within the developing country context. Respondents in this context in particular, had a lack of knowledge regarding the "symbols" that are present on clothing labels, while potential problems with regard to the written information were also indicated. Furthermore, results also revealed that both respondents in Potchefstroom and Fayetteville performed particularly poor with regard to "do not symbols". It is recommended that the results of this study should be used as a basis for future research to develop educational programmes, especially in Potchefstroom (SA). These programmes can be employed in primary and secondary schools with the goal of educating younger citizens, while the use of extension services may ensure that older consumers also receive information on the existence and use of clothing labels. Furthermore, manufacturers, clothing retailers and marketers in SA and the USA can also contribute to Potchefstroom respondents' objective knowledge of all information on clothing labels and Fayetteville respondents' objective knowledge of "do not symbols". This can be done by employing techniques which should be aimed at increasing consumers' awareness and to motivate consumers, especially those in SA, to use clothing labels to a greater extent. Within an international context, these techniques can include in-store label-related advertisements, the inclusion of label information on hangtags and free pamphlets or brochures to give to retail clients. These proposed techniques should provide consumers with more information on how to read and interpret the written information and care symbols on clothing labels that may positively influence consumers in both contexts to use labels to a greater extent, which will also have a positive influence on their current lack of objective knowledge on some label aspects. Greater usage of clothing labels before and after a purchase has been made by consumers in both contexts may result in an increased lifespan of clothing products, also resulting in greater consumer satisfaction with the manufacturer and/or the clothing retailer.

Furthermore, it is suggested that independent and government-owned organisations such as the WTO, TBT as well as the SABS and FTC within a developing (SA) and developed country (USA) context should consider research conducted regarding clothing labels. Such organisations should consider consumers' needs and preferences regarding the information and symbols that are present on labels and should also address the difficulties consumers experience with clothing labels. Some demographic subgroups of respondents in a developing country context indicated that they did not use clothing labels because it is confusing, difficult to locate information and too detailed. In contrast, some demographic subgroups of respondents in a developed country

context experienced problems with the small size of the label content and the trustworthiness of clothing labels. Such organisations could alter existing labelling regulations in terms of the amount of information and size of the print presented on clothing labels. Such implementations might enable manufacturers in a developing and developed country to provide consumers with clothing labels that better suit their needs, which may result in more frequent label reading and increased levels of objective knowledge concerning clothing labels.

Although SA is a developing country that has urban and rural areas, this study was not conducted in rural areas in and around Potchefstroom. Regardless of this, the results clearly indicate a lack of educational attainment among some respondents in Potchefstroom, which may be related to the lack of educational opportunities and their lower objective knowledge of some aspects of clothing labels. On the contrary, the USA as a first-world developed country has a strong economic system and hosts citizens with high levels of educational attainment and income, which was also confirmed in this study. Respondents in Fayetteville had the most objective knowledge of the “symbols” on clothing labels which, according to literature, is also associated with education and income. Although respondents in Fayetteville did not have sufficient knowledge of “do not symbols”, it is evident that respondents from this developed country context do not face the same predicaments associated with developing countries. Due to the methodology of this study, the results are not representative of the entire population of consumers in Potchefstroom and Fayetteville, nor of all consumers in SA and the USA. Regardless of this limitation, these results still provide an indication of consumers’ subjective and objective knowledge of the information on clothing labels, which can be used as a guideline for future research concerning this topic within a developing and developed country context.

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## **CHAPTER 4**

### **CONCLUDING DISCUSSION**

#### **4.1 INTRODUCTION**

Clothing labels are an available source of information to consumers in both a developing (SA) and developed country (USA) context. Although a number of studies have been conducted separately on clothing labels and on the construct of consumer knowledge, limited research exists on consumers' subjective and objective knowledge of clothing labels. Furthermore, no studies have yet been done that compare the subjective and objective knowledge of clothing labels of consumers in different country contexts. The aim of the present study was to compare the subjective and objective knowledge of the information on clothing labels of consumers in a developing country (Potchefstroom, SA) and a developed country (Fayetteville, USA), in order to differentiate between these consumers' knowledge of clothing labels. The aim of this study was achieved by utilising the construct of consumer cognitive learning, human memory and knowledge, which is further categorised into subjective and objective knowledge. In this chapter, the conclusions, implications, limitations and recommendations of this study are discussed.

#### **4.2 CONCLUSION**

Potchefstroom (SA) and Fayetteville (USA) are both regarded as academic cities, also hosting internationally recognised universities. Despite this similarity, consumers from these two locations were found to differ vastly with regard to demographic variables, such as predominant population group, language usage and educational background. Despite these differences, clothing labels in Potchefstroom (SA) and in Fayetteville (USA) proved to be relatively consistent with regard to their written information; however, attention was directed towards the care symbols used by the two countries and cities as differences were evident. All the objectives of this comparative study (as discussed in Chapter 1) were met by employing a quantitative, non-experimental, descriptive approach.

Firstly, the demographic profiles of respondents in Potchefstroom and Fayetteville were determined. Results indicated that the largest population groups in Potchefstroom included the Black/African and White/Caucasian group respectively, while the latter group was also the largest in Fayetteville. Furthermore, vast differences were evident with regard to educational attainment as the majority of respondents in Potchefstroom completed secondary education (matric/grade 12), whereas most respondents in Fayetteville had completed a tertiary education qualification and none had less than matric.

The results of this study indicated that the objective knowledge regarding “symbols” of respondents in Potchefstroom and Fayetteville differed practically significantly while only a tendency was evident for the difference in their objective knowledge regarding the written information on clothing labels. No practically significant differences were found for their subjective knowledge and objective knowledge of “do not symbols”. The better objective knowledge with respect to “symbols” among respondents in Fayetteville may be attributed to higher educational attainment, a tendency of more frequent label reading or due to other factors that were not identified in this study. Furthermore, practically significant correlations indicated a negative relationship between respondents’ subjective and objective knowledge of some of the written information on labels, thus implying that a higher perceived knowledge among respondents in Potchefstroom and Fayetteville were associated with a lower actual knowledge level of some written information. Subjective knowledge of label information among respondents in the two countries differed with regard to age and education, while no differences were found in the objective knowledge of the written information between respondents in both locations based on demographic characteristics. Objective knowledge of “symbols” and “do not symbols” differed between respondents in Potchefstroom and Fayetteville based on age, education and amount of time spent shopping for clothing products, while differences with regard to gender were also evident for “symbols”.

## **4.3 IMPLICATIONS**

### **4.3.1 Implications for consumers**

This study has contributed towards the literature on consumers’ knowledge of the information on clothing labels in a developing and a developed country context. For this reason, the results of

this study can be used as a guideline for future research endeavours in this field. This study only provided a brief indication as to why respondents in both locations did not use clothing labels and it is therefore suggested that future qualitative research should be conducted to gain an in-depth understanding of this situation. Furthermore, the results revealed that respondents in Potchefstroom had a lack of objective knowledge concerning “symbols”. It is therefore argued that respondents in Potchefstroom may not use clothing labels to make informed decisions when purchasing clothing products and may not follow the care instructions after a purchase has been made. As these instructions may not be followed, the lifespan of the product will decrease, therefore resulting in financial loss on the part of the consumer as well as a lack of consumer satisfaction. Since consumers in developing countries often have a lower income, it is of particular importance that these consumers should be able to follow clothing labels to reduce financial losses. Consumers in this developing country context need to be educated as to the importance of the information on clothing labels and their use, especially with regard to “symbols”. It is suggested that educational programmes should be developed and employed and should aim at improving consumers’ objective knowledge of clothing labels. This may allow such consumers to make more informed clothing purchasing decisions. Such educational programmes can be employed in primary and secondary schools to educate younger consumers and the use of extension services would ensure that older consumers in Potchefstroom will also receive information on the existence and use of clothing labels.

On the contrary, the results indicated that respondents in Fayetteville had practically significant higher levels of objective knowledge concerning “symbols”, thus implying that these consumers were well aware of the existence and use of some of the information on clothing labels. It is suggested that the objective knowledge of consumers in this context can still be optimised especially with regard to the written information and “do not symbols” on clothing labels by developing and employing similar educational programmes as for Potchefstroom, or motivational programmes, which may have a positive impact on their objective knowledge of clothing labels.

#### **4.3.2 Implications for manufacturers, retailers and marketers of clothing**

International manufacturers, retail organisations and marketers of clothing are advised to consider the results of research conducted in the field of consumer sciences, in this case focusing



on consumers' knowledge of clothing labels in a developing and developed country context. As previously mentioned, the results of this study indicated that respondents, especially in a developing country context, did not have sufficient knowledge of the "symbols" provided on clothing labels. Furthermore, results also indicated that respondents in both Potchefstroom and Fayetteville did not have sufficient knowledge of "do not symbols". Manufacturers, retailers and marketers of clothing in a developing and developed country context can contribute to the objective knowledge of respondents from Potchefstroom regarding all information on clothing labels and the objective knowledge of respondents from Fayetteville regarding "do not symbols" by employing techniques aimed at increasing consumers' awareness and to motivate consumers, especially those within a developing country, to use clothing labels to a greater extent. Within an international context, these techniques can include in-store advertisements related to clothing labels (which can also be placed in fitting rooms), the inclusion of label information on hangtags and free pamphlets or brochures that provide consumers with information on how to read and interpret the written information and care symbols on clothing labels. The use of such informational techniques may positively influence consumers in SA and the USA to use labels to a greater extent, which would also have a positive influence on their objective knowledge of clothing labels. Greater usage of labels before and after a purchase has been made by consumers in SA and the USA may result in an increased lifespan of clothing products, which would lead to greater consumer satisfaction with the clothing manufacturer and clothing retailer.

Furthermore, it is suggested that independent and government-owned organisations such as the WTO (World Trade Organization), TBT (Technical Barriers to Trade) as well as the SABS (South African Bureau of Standards) and the FTC (Federal Trade Commission of the USA) within a developing (SA) and developed country (USA) context should consider research conducted regarding clothing labels. Such organisations should consider consumers' needs and preferences regarding the information and symbols on labels and should also address the difficulties consumers experience with clothing labels. Some demographic subgroups of respondents in a developing country context indicated that they did not use clothing labels because it is confusing, difficult to locate information and too detailed. In contrast, some demographic subgroups of respondents in a developed country context experienced problems with the small size of the label content and the trustworthiness of clothing labels. These organisations could alter existing labelling regulations regarding the amount of information and the size of the print on clothing labels. Such implementations may enable manufacturers in a

developing and developed country to provide consumers with clothing labels that better suit their needs, which may lead to more frequent label reading and increased clothing label objective knowledge among consumers in both contexts.

#### **4.3.3 Implications for developing and developed countries**

As previously mentioned, SA is regarded as a developing country as it hosts urban areas that are equipped with resources such as public services and educational institutions and rural areas where such resources are lacking. Although this study did not extend to the rural areas in and around Potchefstroom, the results indicated that the second largest percentage of respondents had not completed secondary education. This may be related to the lack of educational opportunities in this developing country as well as these respondents' lower levels of objective knowledge concerning certain aspects of clothing labels. Furthermore, this study indicated that Black/African respondents in Potchefstroom had the least objective knowledge, specifically of different fibres indicated on clothing labels. This may be due to the low success rate of the GEAR programme to create more formal occupations for Black/African residents. As a result, it is argued that some Black/African consumers do not hold positions in formal occupations and may therefore not be familiar with the consumption process that is associated with clothing purchases. This may negatively effect their in-store experiences of clothing labels and also influence their familiarity and subsequent objective knowledge of some of the information on clothing labels.

On the contrary, the USA is considered to be a first-world, developed country with a strong economy whose residents have considerably high levels of educational attainment and income, which was also confirmed by this study. Results indicated that respondents in Fayetteville had high levels of objective knowledge concerning some of the pictorial information ("symbols") on clothing labels, which according to previous research, is also associated with educational attainment and income. Although some respondents in this developed country did not have high levels of objective knowledge concerning "do not symbols", it is evident that respondents in this context do not face the same predicaments that are associated with developing countries, in this case SA.

#### **4.4 LIMITATIONS AND RECOMMENDATIONS**

As mentioned, there was the lack of previous research focusing on the clothing label knowledge of consumers located in a developing and developed country. Furthermore, no previous research was found that compared the overall clothing label knowledge of consumers from different geographical areas. For this reason, the first limitation of this study is that the results could not be directly compared to other research in this specific subject area. Another limitation included the number of questions contained in the measurement instrument. It is recommended that the measurement instrument for future research on this topic should only include the main aspects that are concerned with clothing label knowledge, such as subjective and objective knowledge, which will ensure a reasonable amount of time to complete the questionnaire. Due to the sampling methodology used for this study, the results were not intended to be representative of the entire population of consumers in Potchefstroom and in Fayetteville as well as all consumers in SA and the USA. Regardless of this limitation, these results still provide an indication of consumers' subjective and objective knowledge of the information on clothing labels as well as insightful recommendations for the parties concerned. The results of this study can be used as a guideline for future research concerning this topic within a developing and developed country context.

### **RESEARCH METHODOLOGY**

#### **5.1 INTRODUCTION**

The methodology section describes the methods and procedures employed in this study. Detailed descriptions are given of the study design, population groups, sampling technique, study samples, data collection, measuring instrument, data analysis, ethical considerations and validity and reliability.

#### **5.2 STUDY DESIGN**

A quantitative, non-experimental, descriptive approach was employed to allow the researchers to provide answers to the research question, namely “What are the differences between consumers’ subjective and objective clothing label knowledge in a developing (Potchefstroom, North West Province of SA) and a developed (Fayetteville, Arkansas, USA) country context?” The chosen approach proved to be suitable as variables were measured in order to comprehend the behavioural patterns (Babbie & Mouton, 2001:49) of consumers in Potchefstroom (SA) and Fayetteville (USA). Next follows a discussion of how the research was conducted using three sequential research phases.

##### **5.2.1 Phase one**

The first phase of this study consisted of a literature review. The researcher used the information to obtain clarity on all aspects that were involved in this study. A well-grounded argument was then constructed that was consistent with the aims and objectives of this study, as described in Chapter 1.

### **5.2.2 Phase two**

The second phase of the study was the empirical research phase. This phase is referred to as the main study. This study was carried out in Potchefstroom in SA and Fayetteville in the USA in which purposively selected respondents were asked to participate in the study by completing an interviewer-administered questionnaire (Babbie & Mouton, 2001:249).

### **5.2.3 Phase three**

The last phase of the study involved the statistical analysis of the raw data obtained from the samples of respondents, documentation of results, discussions and conclusions.

## **5.3 POPULATIONS AND DESCRIPTIONS OF THE SAMPLES**

The selection of a population presented the researchers with delimitations regarding the units being studied (Neuman, 2011:224). As this study was comparative in nature, emphasis was placed on two separate population groups: consumers in Potchefstroom in SA and consumers in Fayetteville in the USA. The target population in each geographical area were adult consumers between 18 and 70 years of age. The sample in Potchefstroom primarily included residents who belonged to any of the identified population groups in SA, namely Black/African, White/Caucasian, Coloured/Mixed origin and Indian/Asian (Statistics South Africa, 2012a:48-51; 2012b). Similarly, the sample in Fayetteville included respondents from all the population groups in the USA, namely White/Caucasian, Black/African American, Asian, American Indian and Alaska Native and Native Hawaiian and other Pacific Islanders (United States Census Bureau, 2010a; 2010b).

## **5.4 SAMPLING TECHNIQUE AND SAMPLE SIZE**

In this study the researchers used a non-probability technique named purposive sampling (Maree & Pietersen, 2007b:178). Due to the chosen sampling technique, respondents who participated in the study were required to meet specific inclusion criteria:

- Respondents had to be between the ages of 18 and 70 years;
- Respondents had to participate in clothing shopping;
- Respondents had to be able to read clothing labels;
- Respondents and their spouses must not have worked in a clothing-related sector.

The above inclusion criteria were employed in this study for a number of reasons. Firstly, all the respondents who participated in the study (who were between the ages of 18 and 70 years) had to have participated in clothing shopping. As a result of this, it is argued that the respondents would have had previous opportunities to familiarise themselves with clothing labels. As familiarity is considered to be a principle variable of knowledge that stems from consumers' acquisition of prior knowledge (Johnson & Russo, 1984:543; Mitchell, 1982:45), it is further argued that these respondents' familiarity with clothing labels would have increased with an increased number of prior experiences. Secondly, all the respondents had to be able to read clothing labels as Section F of the questionnaire (objective knowledge) required respondents to refer to a facsimile of a clothing label and provide answers to this section. Lastly, the respondents and their spouses were not allowed to have worked in a clothing-related sector so that they could not have acquired any expert knowledge of clothing labels from their work experiences in this sector. Although the chosen sampling technique did not ensure a representative sample (Maree & Pietersen, 2007b:178), the researchers employed this technique with the aim of obtaining a predetermined number of respondents who represented the different gender, age cohorts and ethnic groups in Potchefstroom and Fayetteville. Sampling was done in various public areas visited by residents to increase the representativeness of the population samples in both cities as suggested by Dr S.E. Ellis, Head of the Statistical Consultation Services (SCS) at the Potchefstroom Campus of the North-West University (NWU).

In Potchefstroom the sample comprised of 162 respondents from the Black/African population group (36.4%) and 159 respondents from the White/Caucasian population group (35.7%). Furthermore, the researchers and field workers obtained 84 respondents who formed part of the Coloured/Mixed origin population group (18.9%) and 40 respondents who represented Indians/Asians (9.0%). Although the sample selection was not proportional to the sizes of the population groups identified in Potchefstroom and Fayetteville, the researchers weighed the data according to representative statistics to correspond to the sizes of the population groups in both locations. With regard to Fayetteville, 276 respondents were selected who represented the

White/Caucasian population group as this was the largest group (80.7%) identified in Fayetteville (United States Census Bureau, 2010a). However, the researcher could only recruit 23 respondents from the Black/African American group (6.7%), five respondents from the Asian group (1.5%) and 6 respondents from the American Indian and Alaska Native group (1.8%). Only one respondents belonging to the Native Hawaiian and other Pacific Islanders group could be obtained due to the limited number of such individuals in Fayetteville. The number of respondents per population group for the samples in Potchefstroom and Fayetteville were approximately equally divided to represent both genders. Additionally, across all population groups and both genders, the researchers obtained respondents who were between the ages of:

- 18 – 24 years;
- 25 – 34 years;
- 35 – 54 years;
- 55 years and older.

## **5.5 DATA COLLECTION**

The term data collection refers to the methods available for use by researchers to obtain primary data from the selected sample of respondents (Maree & Pietersen, 2007a:156). The researchers chose questionnaires as the data collection method because it allowed primary numeric data to be obtained from both samples of respondents (Mouton, 2001:43; Neuman, 2011:43). During the data collection process, care was taken to purposively select respondents to allow some degree of representativeness of the results. All the respondents in Potchefstroom and Fayetteville were approached at predetermined public and private areas which existed in both cities at the time. These areas included universities, municipal offices, elder-care facilities, parking areas, shopping centres and various retail outlets (excluding clothing retailers), which hosted individuals of both genders, different ages and different population groups. Permission was obtained from all the authorities in charge of the public and private locations to approach individuals for the purpose of conducting the study. Data was collected at the same time from the populations in Potchefstroom and Fayetteville until the required number of valid responses, totalling 445 usable questionnaires from Potchefstroom and 336 from Fayetteville, had been obtained (N=781).

In Potchefstroom the researcher and the fieldworkers carried out the interviews by recording all the information obtained from the respondents and explaining if the respondents had any uncertainties (Babbie & Mouton, 2001:250). Prof. M. Warnock from the University of Arkansas, who was co-supervisor of this study, was responsible for data collection in Fayetteville in the USA. The statistical analysis of all the data was performed by the SCS of the NWU, Potchefstroom Campus.

## **5.6 MEASURING INSTRUMENT**

For the purpose of this comparative study, a face-to-face questionnaire, also known as an interviewer-administered questionnaire (Babbie & Mouton, 2001:249; Maree & Pietersen, 2007a:158) was used in Potchefstroom and Fayetteville to obtain primary data by asking respondents predetermined questions within the framework of a structured conversation (Babbie & Mouton, 2001:249). The instrument was the most suitable for the study as the researchers and the interviewers were able to elucidate any uncertainties on the part of the respondents during the conversation. However, the disadvantages that were associated with the chosen instrument should also be acknowledged. These included high costs and the possibility of interviewer bias (Maree & Pietersen, 2007a:158), although the latter disadvantage was limited by thorough training of the fieldworkers.

The questionnaire comprised exploratory plus open and close-ended questions. More specifically, demographical, multiple-choice, dichotomous, filter and follow-up questions were included in the questionnaire (Maree & Pietersen, 2007a:161-164). Additionally, in some sections of the questionnaire, respondents were asked to answer questions by choosing from alternative answers provided on a Likert scale. The questionnaire proved to be consistent with the objectives of the study and the conceptual framework (Chapter 1; Figure 1) and was divided into the following sections:

- Section A – Opening
- Section B – Demographic and general information
- Section C – Clothing label subjective knowledge
- Section D – Care instruction beliefs
- Section E – Label reading



- Section F – Clothing label objective knowledge

The measuring instrument was employed in previous research by Van der Merwe *et al.* (2013) which served as a pilot study for the present study. For the purpose of this study, changes were made to the existing instrument, which are indicated in Table 5.1. The two measuring instruments used in Potchefstroom and Fayetteville were similar with regard to the various sections (as indicated above) as well as the questions included within these sections. The differences between the two measuring instruments included the various options respondents were able to choose from, especially with regard to population group, home language, educational background and total monthly household income after deductions, as these variables were different in Potchefstroom and Fayetteville.

## 5.7 STATISTICAL ANALYSIS OF THE DATA

As this study was quantitative in nature, the researchers used the services provided by the SCS of the NWU. All analyses were performed by employing SPSS statistical software. Descriptive analyses were carried out on the data obtained in both cities, which presented the researchers with the frequencies and percentages of respondents' demographic characteristics (Ha & Ha, 2012:12). The results were then weighed according to the latest census information available for both cities to ensure proportional race and gender distribution of the population groups. A one-way analysis of variance (ANOVA) was used to separately determine the differences between Potchefstroom and Fayetteville respondents' demographic characteristics with one dependent variable, such as subjective knowledge, while a two-way ANOVA technique determined the differences in the mean values of biographical data for the two groups that were relevant to this study (Howell, 2011:407). According to Cohen (1988) as cited by Walker and Almond (2010:8), a large effect size is greater or equal to  $d=0.8$ , while a medium effect size is  $d=0.5$  to  $d=0.8$ . For the purpose of this study, Cohen's  $d$ -values which were greater than  $d=0.75$  were considered to indicate practical significance (Ellis & Steyn, 2003:52). Furthermore, cross-tabulations were used to determine whether an association existed between two given variables (Salkind, 2011:344, 345). Cramer's V was used to determine whether the association was of high strength (Healey, 2012:320) and for this study values that were higher or equal to Cramer's  $V=0.5$  were reported as these values represent large effect sizes (Zaiontz, 2013) that are of practical

significance. Lastly, Spearman's rank-order correlations were used to determine whether any practical significant associations existed between the variables in this study (Salkind, 2011:77).

## **5.8 ETHICAL CONSIDERATIONS**

In the practice of social research, attention must be given to the ethical issues involved in the study of human beings either as individuals or groups (Babbie & Mouton, 2001:520). In this study, which focused on individuals from Potchefstroom and Fayetteville, the ethical issues identified by Babbie and Mouton (2001:522-525), Maree and Van der Westhuizen (2007:41, 42) and Neuman (2011:135) with respect to voluntary participation, informed consent, anonymity and confidentiality were addressed. This study was approved by and registered with the Ethical Committee of the NWU (Reference code: NWU-00024-09-A1). Prof. M. Warnock also obtained ethical approval for this study from the University of Arkansas (Reference code: IRB#12-09-086).

### **5.8.1 Voluntary participation of respondents**

Voluntary participation is described as an individual's or group's right to decide whether or not they are willing to contribute towards the research being conducted. Furthermore, no respondents should be compelled to make such contributions against their will (Neuman, 2011:135). In this study, the researchers and fieldworkers informed all respondents of the purpose of the research and clearly stated that participation in the study was voluntary. This information was also available in the covering letter of the questionnaire (Appendix C).

### **5.8.2 Informed consent**

Verbal agreement by potential respondents to participate in a study may not be sufficient as respondents should be made aware of the purpose of the research being conducted and what the information will be used for (Neuman, 2011:135). A consent form provided respondents with the necessary information regarding the researchers' and fieldworkers' identification, the institutions of interest, the purpose of the study, confidentiality and voluntary participation and contact information (Creswell, 2009:89). In this study, prior to the administration of the questionnaire,

the researchers and fieldworkers read and explained the consent form to the respondents and politely asked them to give their written agreement for participation.

### **5.8.3 Anonymity and confidentiality**

Anonymity is described as the inability of the researcher, fieldworker/s or any parties involved in the research to distinguish an association between a response and a respondent, while confidentiality is described as the researcher's commitment to respondents that no personal information will be made publicly available (Babbie & Mouton, 2001:523). In this study, respondents' anonymity was ensured as demographic questions in Section B of the questionnaires (Appendices D and E) did not ask for information regarding respondents' identity numbers, birth names, contact numbers or addresses. All parties involved in the collection and analysis of the information were obliged to respect respondents' confidentiality at all times (Mouton, 2001:244), and the respondents participating in this study were verbally informed of this.

### **5.8.4 Storage of data**

All data obtained from respondents in Potchefstroom (SA) and Fayetteville (USA) is organised and stored for a minimum period of seven years in the building for Consumer Sciences (F15) at the Potchefstroom Campus of the NWU. If any individual or researcher wishes to view and/or study the original data for the purpose of verifying the validity and accuracy thereof, permission to do so must be obtained from the NWU. All data obtained for the purpose of conducting this study remains the property of the NWU, Potchefstroom Campus.

**TABLE 5.1: CHANGES MADE TO EXISTING QUESTIONNAIRES**

SECTION A - OPENING					
Question number	Description	Original question	Question changed to	Question added	Reason
7	Age	18-24 25-34 35-44 45-54 55-64 55+	18-24 25-34 35-54 55+	N/A	35-54 represented mature consumers; 55+ represented older consumers
8	Educational attainment	No schooling Some primary Some secondary Matric Degree/Diploma Postgraduate Other	(SA) Less than matric Matric Tertiary education (USA) High school GED Tertiary education	N/A	Too many categories Inclusion criteria: Respondents should have been able to read
SECTION C – CLOTHING LABEL SUBJECTIVE KNOWLEDGE					
17	Subjective knowledge (SK)	N/A	N/A	How well informed are you about clothing label information?	Subjective knowledge needed to be determined
18	SK	N/A	N/A	How well informed are you about the written information on clothing labels?	
19	SK	N/A	N/A	How well informed are you about textile fibres?	
20	SK	N/A	N/A	How well informed are you about brand names?	
21	SK	N/A	N/A	How well informed are you about country of origin?	
22	SK	N/A	N/A	How well informed are you about different sizing systems?	
23	SK	N/A	N/A	How well informed are you about care symbols?	

## 5.9 VALIDITY AND RELIABILITY

Validity in terms of a measuring instrument refers to an instrument that accurately measures the concept of interest (Babbie & Mouton, 2001:648). In this study, the researchers ensured face validity, content validity (Neuman, 2011:192, 193) and construct validity (Pietersen & Maree, 2007:219). The researchers first asked experts in the field of consumer sciences to review the measuring instrument. Additional information from the literature was also provided for the review, which served as a reference regarding additional questions that were added to the existing questionnaire. The SCS of the NWU assisted with the execution of exploratory factor analysis (EFA) using Principal Axis Factoring with Oblimin rotation on Sections C, D, E and F of the questionnaires with the aim of determining the construct validity of the measuring instrument (Pietersen & Maree, 2007:217, 219). The EFA ensured the correct categorisation of items belonging to specific factors by employing Kaiser's criterion.

The EFA of consumers' subjective knowledge, label reading and objective knowledge of care symbols (Sections C, D and F of the questionnaires) for the combined data of Potchefstroom and Fayetteville yielded one factor each, except for care symbols, which had two factors. Similar factors were identified from the data from Potchefstroom and Fayetteville. The Keiser-Meyer-Olkin (KMO) measure of sampling adequacy was employed in order to determine whether the factor analysis would be useful (Anon., 2013). The factor from Section C ("subjective knowledge") for the data from Potchefstroom (KMO=0.82), Fayetteville (KMO=0.89) and combined (KMO=0.82) were all "great" according to Kaiser (1974:35). Referring to the factor "label reading" from Section E, a KMO value of 0.70 was indicated for the Potchefstroom instrument, while the KMO for this factor was 0.68 for the instrument used in Fayetteville. The joint KMO for "label reading" was 0.7 which, according to Kaiser (1974:35), is a medium value. The two factors "objective knowledge of symbols" and "objective knowledge of do not symbols" from Section F displayed a KMO of 0.67 and 0.71 for the instruments used in Potchefstroom and Fayetteville respectively, while the joint KMO was 0.73. All four factors as identified indicated sampling adequacy.

With regard to the items in the factors identified from the scales in the Potchefstroom data, four communalities were below 0.3, with the lowest being 0.17. These low communalities were

indicated in the factor “subjective knowledge”. The same factor (“subjective knowledge”) identified in the Fayetteville data showed no communalities that were below 0.3, with the highest being 0.73. The joint data for “subjective knowledge” indicated four communalities that were below 0.3, with the lowest being 0.24. In the “label reading” factor identified within both sets of data, all communalities were higher than 0.3, with the highest for Potchefstroom and Fayetteville data being 0.78. The joint data for “label reading” displayed no communalities that were below 0.3, with the highest being 0.81. The last analysis of the factors “objective knowledge of symbols” and “objective knowledge of do not symbols” for the Potchefstroom data indicated three communalities that were lower than 0.3, with the lowest being 0.16. No communalities were below 0.3 for this factor analysis for the Fayetteville data. The joint data for these two factors (“objective knowledge of symbols” and “objective knowledge of do not symbols”) displayed two communalities that were below 0.3, with the lowest being 0.24.

Furthermore, with regard to the Potchefstroom data, the factor “subjective knowledge” explained a total variance of 40.1%, while the same factor in the Fayetteville data explained a total variance of 60.8%. The joint data for “subjective knowledge” explained 46.5% of the variance. The total variance for “label reading” was 72.9% and 70.5% for Potchefstroom and Fayetteville data respectively, while the joint data for “label reading” explained a total variance of 75.5%. The factors “objective knowledge of symbols” and “objective knowledge of do not symbols” for the Potchefstroom data explained a total variance of 45.2%, while the same two factors explained a total variance of 59.6% for the Fayetteville data. A total variance of 50.9% was further explained for the joint data of “objective knowledge of symbols” and “objective knowledge of do not symbols”. Although the variation in percentages explained for the factor analyses were somewhat low in some instances of Potchefstroom data and some communalities were below a value of 0.3, the inclusion of these low communality items within these factors made sense from a theoretical viewpoint. The combined factor analyses for both sets of data indicated that construct validity had been obtained. Acceptable construct validity was thus obtained for all factors.

The concept of reliability with regarding a measuring instrument refers to obtaining similar findings upon administering the instrument to similar subjects who form part of the same population being studied. Although the measuring instrument used in this study had already been

developed and used for prior research, the reliability of the instrument for this comparative study had to be determined by employing Cronbach's alpha reliability coefficient to measure internal consistency of the constructs that were present within both questionnaires (Pietersen & Maree, 2007:215). Regarding the factor "subjective knowledge", the Cronbach's alpha coefficient was 0.74 for Potchefstroom and 0.89 for Fayetteville, while the joint coefficient for this factor was 0.81. Furthermore, for the factor "label reading", the Cronbach's alpha coefficient was 0.81 and 0.79 for Potchefstroom and Fayetteville respectively, while the joint coefficient was 0.84. For the factor "objective knowledge of symbols", Potchefstroom (Cronbach's alpha=0.7), Fayetteville (Cronbach's alpha=0.8) and the joint coefficient (Cronbach's alpha=0.73) displayed values between 0.7 and 0.8, which indicates acceptable reliability (Field, 2005:668). Similarly, the factor "objective knowledge of do not symbols" also indicated high coefficients for Potchefstroom (Cronbach's alpha=0.7), Fayetteville (Cronbach's alpha=0.81) and the joint coefficient (Cronbach's alpha=0.82).

The mean inter-item correlations for "subjective knowledge" were 0.3 and 0.5 for the Potchefstroom and Fayetteville data respectively, while the joint value for this factor was 0.4. With regard to "label reading", the mean inter-item correlations for data from both cities as well as the joint value were 0.6. The mean inter-item correlations for the factor "objective knowledge of symbols" was 0.23 for the Potchefstroom data and 0.4 for the Fayetteville data, while the joint mean for this factor was 0.3. Furthermore, the mean inter-item correlation for the factor "objective knowledge of do not symbols" was 0.5 and 0.91 for the Potchefstroom and Fayetteville data respectively, while the joint mean was 0.7. The mean inter-item correlations for "objective knowledge of symbols" were higher than the recommended value of 0.15-0.50 (Clark & Watson, 1995:316) as respondents may have experienced a high degree of similarity between all questions in this section (Potchefstroom and Fayetteville) since it included pictorial information that respondents may have regarded as similar in nature.

All the methods and procedures explained in this research methodology section were used in this study to compare consumers' knowledge of the information provided on clothing labels in a developing (Potchefstroom, SA) and a developed (Fayetteville, USA) country context. Detailed discussions of the results of this study can be found in the research article (Chapter 3).

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**THE PURPOSE OF THIS QUESTIONNAIRE IS TO DETERMINE CONSUMERS'  
KNOWLEDGE OF CLOTHING LABELS IN A DEVELOPING AND DEVELOPED COUNTRY  
CONTEXT**

**To all respondents**

A study is currently being conducted to determine and to compare the clothing label knowledge of consumers residing in Potchefstroom, in the North West Province of South Africa (SA), and in Fayetteville, Arkansas, in the United States of America (USA). The researchers kindly ask your support towards the research being conducted as it will provide insights into South African and American consumers' use and comprehension of clothing labels that might lead to the proposition of educational programmes in SA and the USA to promote consumers' current understanding of the information presented on labels; enabling consumers to make more informed clothing purchase decisions.

Participation in the study is **voluntary** and all the information obtained in Potchefstroom and Fayetteville will be handled in an **anonymous** and **confidential** manner. It is asked of you as respondent to read and complete the following questionnaire with the researcher or fieldworker. This questionnaire will not take more than 15 minutes to complete.

Your contribution towards the study is appreciated.

---

Charlene van Schalkwyk

**Supervisor:** Prof. M. van der Merwe

**Co-supervisor:** Prof. M.J.C. Bosman

**Co-supervisor:** Prof. M. Warnock



Consumers' knowledge of clothing labels in a developing and developed country context

## CLOTHING LABEL KNOWLEDGE SURVEY

### Section A: Opening

1. Do you or your spouse/partner work in any of the following industries? Please mark the appropriate box.

	Yes	No	
Textile industry			1
Consumer Sciences			2
Clothing design			3
Clothing retail			4
None of the above			5

*If the respondent marked any option in 1-4, end interview.*

2. For whom do you do clothing shopping? Please mark the appropriate boxes.

	Yes	No	
For the entire household			1
For yourself and the children			2
For yourself and your spouse/partner			3
Only for yourself			4
None ( <i>end interview</i> )			

3. To complete this interview, you will need to read certain items.  
Do you need glasses to read?

Yes (continue with question 4)		1
No (continue with question 5)		2

4. Do you have them with you?

Yes		1
No		2

**If respondents answered No: show them Card A and ask them to read the label information to you. If they can't read it, thank them and end interview.**

## Section B: Demographic and general information

5. Mark the respondent's gender in the appropriate box.

Male		1
Female		2

6. To which population group do you belong to? Please mark the appropriate box.

Black/African		1
White/Caucasian		2
Coloured/Mixed origin		3
Indian/Asian		4
Other		5

7. What is your home language? Please mark the appropriate box.

English		1	IsiNdebele		7
Afrikaans		2	Sepedi		8
Setswana		3	Tshivenda		9
Sesotho		4	SiSwati		10
IsiZulu		5	Xitsonga		11
IsiXhosa		6	Other		12

8. What is your age? Please mark the appropriate box.

18-24		1
25-34		2
35-54		3
55+		4

9. What is your educational background? Please mark the appropriate box.

Less than Matric (Grade 12)		1
Matric (Grade 12 completed)		2
Tertiary education (completed)		3

10. How many children under the age of 18 live with you? Please mark the appropriate box.

0		1
1		2
2		3
3		4
4		5
5+		6

11. What is your total monthly household income after deductions in rand? Please mark the appropriate box.

0 to 4000		1
Between 4000-8000		2
Between 8000-20000		3
Between 20000-50000		4
Between 50000-100000		5
More than 100000		6

**Please mark the appropriate box for the following questions.**

12. How often do you shop for clothing products?

Annually		1
Once per season		2
Once a month		3
Once in two weeks		4
Once a week or more		5

13. Approximately how much time do you spend each time you shop for clothing products?

Less than 1 hour		1
1 to 2 hours		2
More than 2 hours		3

14. Are you aware that clothing product labelling is regulated by specific legislation in South Africa?

Yes		1
No		2

15. Do you or anyone who lives with you have a dislike for any specific textile fibre? Please mark the appropriate box.

Yes (continue with question 16 and 17)		1
No (continue with question 18)		2

16. For which textile fibre do you or the household member have a dislike? (Mark "Yes" OR "No" in each block).

		Yes	No
16.1	Polyester	1	2
16.2	Nylon	1	2
16.3	Acrylic	1	2
16.4	Cotton	1	2
16.5	Wool	1	2
16.6	Silk	1	2
16.7	Other (please specify)		

17. Why do you or the household member have a dislike for these specific fibre(s)?

## Section C: Clothing label subjective knowledge

Please mark the appropriate box for the following questions.

		Not informed at all	Not well informed	Somewhat informed	Well informed
18.	In your opinion, how well informed are you about clothing label information?	1	2	3	4
19.	In your opinion, how well informed are you about the written information on clothing labels?	1	2	3	4
20.	In your opinion, how well informed are you about textile fibres?	1	2	3	4
21.	In your opinion, how well informed are you about brand names?	1	2	3	4
22.	In your opinion, how well informed are you about the country-of-origin?	1	2	3	4
23.	In your opinion, how well informed are you about different sizing systems?	1	2	3	4
24.	In your opinion, how well informed are you about the care symbols on clothing labels?	1	2	3	4

## Section D: Care instruction beliefs

For each of the next two statements, I want you to tell me if you Strongly disagree, disagree, agree, or strongly agree with the statement or don't know.

**Show CARD B (card B shows the answer choices Strongly disagree, Disagree, Agree, Strongly agree and Don't know)**

Please mark the appropriate box for the following questions.

		Strongly disagree	Disagree	Agree	Strongly agree	Don't know
25.	By following the care instructions on a clothing item, it is ensured that the item will last longer.	1	2	3	4	5
26.	I wash/ tumble dry/ iron clothing item regardless of what the care instructions on the label specify.	1	2	3	4	5



## Section E: Label reading

Please mark the appropriate box for the following questions.

		Never	Rarely (once in a while)	Sometimes	Always
27.	How often do you read clothing labels?	1	2	3	4
28.	How often does the information on a clothing label affect your decision to buy a product?	1	2	3	4
29.	How often do you read the care label instructions after purchasing clothing items?	1	2	3	4

30. Is there anything about clothing labels that keeps you from using them as often as you would like?

Yes (continue with question 31)		1
No (continue with question 32)		2

31. Select **ALL** the reasons why you do not use clothing labels as often as you would like. (Mark "Yes" [1] OR "No" [2] for each of the following.)

		Yes	No
31.1	Takes too much time to read	1	2
31.2	Too much information/Too detailed	1	2
31.3	Confusing/I don't understand	1	2
31.4	Print is too small for me to read	1	2
31.5	Too little information	1	2
31.6	Do not trust/believe the information	1	2
31.7	Unnecessary to know	1	2
31.8	Difficult to find information	1	2
31.9	Other (please specify)		

32. Select **ALL** the people or sources that have helped you learn how to read clothing labels. (Mark "Yes" [1] OR "No" [2] for each of the following)

		Yes	No
32.1	Consumer Scientist/Textile Scientist	1	2
32.2	Store assistant	1	2
32.3	Relatives/Friends	1	2
32.4	Newspaper/Magazine	1	2
32.5	Books	1	2
32.6	Class/Course	1	2
32.7	Internet	1	2
32.8	TV	1	2
32.9	Radio	1	2
32.10	Other (please specify)		

## Section F: Clothing label objective knowledge (Locating information)

Take a look at this label. (**Show Card C**)

33. Of what fibre/s are this clothing item made of? \_\_\_\_\_

Correct	1
Incorrect	2

34. What percentage of spandex does this clothing item contain? \_\_\_\_\_

Correct	1
Incorrect	2

35. Name the brand of this clothing item. \_\_\_\_\_

Correct	1
Incorrect	2

36. Name the manufacturer of this clothing item. \_\_\_\_\_

Correct	1
Incorrect	2

37. What is the main fibre of this clothing item? \_\_\_\_\_

Correct	1
Incorrect	2

38. What is the country-of-origin for this clothing item? \_\_\_\_\_

Correct	1
Incorrect	2

39. What is the size of this clothing item? \_\_\_\_\_

Correct	1
Incorrect	2

40. At what temperature should this clothing item be washed? \_\_\_\_\_

Correct	1
Incorrect	2

41. Does this clothing item contain any synthetic fibres? \_\_\_\_\_ If yes, please specify










Correct	1
Incorrect	2

42. Does this clothing item contain any natural fibres? \_\_\_\_\_ If yes, please specify

Correct	1
Incorrect	2

## Identifying symbols/acronyms

Please identify the following symbols/logos by marking only **one** appropriate block in each row below the symbol that applies to the wording.

											√ 1	X 2
43.	Do not dry clean										1	2
44.	Tumble dry										1	2
45.	Wool										1	2
46.	Hand wash										1	2
47.	Iron										1	2
48.	Leather										1	2
49.	Cotton										1	2
50.	Do not bleach										1	2
51.	Machine wash										1	2

Thank you for your contribution towards this study.



Consumers' knowledge of clothing labels in a developing and developed country context

## CLOTHING LABEL KNOWLEDGE SURVEY

### Section A: Opening

1. Do you or your spouse/partner work in any of the following industries? Please mark the appropriate box.

	Yes	No	
Textile industry			1
Consumer Sciences			2
Clothing design			3
Clothing retail			4
None of the above			5

*If the respondent marked any option in 1-4, end interview.*

2. For whom do you do clothing shopping? Please mark the appropriate boxes.

	Yes	No	
For the entire household			1
For yourself and the children			2
For yourself and your spouse/partner			3
Only for yourself			4
None ( <i>end interview</i> )			

3. To complete this interview, you will need to read certain items.  
Do you need glasses to read?

Yes (continue with question 4)		1
No (continue with question 5)		2

4. Do you have them with you?

Yes		1
No		2

**If respondents answered No:**

***show them Card A and ask them to read the label information to you. If they can't read it, thank them and end interview.***

## Section B: Demographic and general information

5. Mark the respondent's gender in the appropriate box.

Male		1
Female		2

6. To which population group do you belong to? Please mark the appropriate box.

White/Caucasian		1
Black/African American		2
Asian		3
American Indian and Alaska Native		4
Native Hawaiian and other Pacific Islanders		5
Other		6

7. What is your home language? Please mark the appropriate box.

English		1
Spanish		2
Other Indo-European Languages		3
Asian and Pacific Islander Languages		4
Other		5

8. What is your age? Please mark the appropriate box.

18-24		1
25-34		2
35-54		3
55+		4

9. What is your educational background? Please mark the appropriate box.

High school Diploma		1
GED		2
Tertiary education (completed)		3

10. How many children under the age of 18 live with you? Please mark the appropriate box.

0		1
1		2
2		3
3		4
4		5
5+		6

11. What is your total monthly household income after deductions in dollar? Please mark the appropriate box.

0 to 10000		1
Between 10000-20000		2
Between 20000-40000		3
Between 40000-80000		4
Between 80000-100000		5
More than 100000		6

**Please mark the appropriate box for the following questions.**

12. How often do you shop for clothing products?

Annually		1
Once per season		2
Once a month		3
Once in two weeks		4
Once a week or more		5

13. Approximately how much time do you spend each time you shop for clothing products?

Less than 1 hour		1
1 to 2 hours		2
More than 2 hours		3

14. Are you aware that clothing product labelling is regulated by specific legislation in the United States?

Yes		1
No		2

15. Do you or anyone who lives with you have a dislike for any specific textile fiber? Please mark the appropriate box.

Yes (continue with question 16 and 17)		1
No (continue with question 18)		2

16. For which textile fiber do you or the household member have a dislike? (Mark "Yes" OR "No" in each block).

		Yes	No
16.1	Polyester	1	2
16.2	Nylon	1	2
16.3	Acrylic	1	2
16.4	Cotton	1	2
16.5	Wool	1	2
16.6	Silk	1	2
16.7	Other (please specify)		

17. Why do you or the household member have a dislike for these specific fiber(s)?

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### Section C: Clothing label subjective knowledge

Please mark the appropriate box for the following questions.

		Not informed at all	Not well informed	Somewhat informed	Well informed
18.	In your opinion, how well informed are you about clothing label information?	1	2	3	4
19.	In your opinion, how well informed are you about the written information on clothing labels?	1	2	3	4
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21.	In your opinion, how well informed are you about brand names?	1	2	3	4
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### Section D: Care instruction beliefs

For each of the next two statements, I want you to tell me if you Strongly disagree, disagree, agree, or strongly agree with the statement or don't know.

**Show CARD B (card B shows the answer choices Strongly disagree, Disagree, Agree, Strongly agree and Don't know)**

Please mark the appropriate box for the following questions.

		Strongly disagree	Disagree	Agree	Strongly agree	Don't know
25.	By following the care instructions on a clothing item, it is ensured that the item will last longer.	1	2	3	4	5
26.	I wash/ tumble dry/ iron clothing items regardless of what the care instructions on the label specify.	1	2	3	4	5



## Section E: Label reading

Please mark the appropriate box for the following questions.

		Never	Rarely (once in a while)	Sometimes	Always
27.	How often do you read clothing labels?	1	2	3	4
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29.	How often do you read the care label instructions after purchasing clothing items?	1	2	3	4

30. Is there anything about clothing labels that keeps you from using them as often as you would like?

Yes (continue with question 31)		1
No (continue with question 32)		2

31. Select **ALL** the reasons why you do not use clothing labels as often as you would like. (Mark "Yes" [1] OR "No" [2] for each of the following.)

		Yes	No
31.1	Takes too much time to read	1	2
31.2	Too much information/Too detailed	1	2
31.3	Confusing/I don't understand	1	2
31.4	Print is too small for me to read	1	2
31.5	Too little information	1	2
31.6	Do not trust/believe the information	1	2
31.7	Unnecessary to know	1	2
31.8	Difficult to find information	1	2
31.9	Other (please specify)		

32. Select **ALL** the people or sources that have helped you learn how to read clothing labels. (Mark "Yes" [1] OR "No" [2] for each of the following)

		Yes	No
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32.3	Relatives/Friends	1	2
32.4	Newspaper/Magazine	1	2
32.5	Books	1	2
32.6	Class/Course	1	2
32.7	Internet	1	2
32.8	TV	1	2
32.9	Radio	1	2
32.10	Other (please specify)		

## Section F: Clothing label objective knowledge (Locating information)

Take a look at this label. (**Show Card C**)

33. Of what fiber/s are this clothing item made of? \_\_\_\_\_

Correct	1
Incorrect	2

34. What percentage of spandex does this clothing item contain? \_\_\_\_\_

Correct	1
Incorrect	2

35. Name the brand of this clothing item. \_\_\_\_\_

Correct	1
Incorrect	2

36. Name the manufacturer of this clothing item. \_\_\_\_\_

Correct	1
Incorrect	2

37. What is the main fiber of this clothing item? \_\_\_\_\_

Correct	1
Incorrect	2

38. What is the country-of-origin for this clothing item? \_\_\_\_\_

Correct	1
Incorrect	2

39. What is the size of this clothing item? \_\_\_\_\_

Correct	1
Incorrect	2

40. At what temperature should this clothing item be washed? \_\_\_\_\_

Correct	1
Incorrect	2

41. Does this clothing item contain any synthetic fibers? \_\_\_\_\_ If yes, please specify.

\_\_\_\_\_

Correct	1
Incorrect	2










42. Does this clothing item contain any natural fibers? \_\_\_\_\_ If yes, please specify.

\_\_\_\_\_

Correct	1
Incorrect	2

## Identifying symbols/acronyms

Please identify the following symbols/logos by marking only **one** appropriate block in each row below the symbol that applies to the wording.

											✓ 1	X 2
43.	Do not dry clean										1	2
44.	Tumble dry										1	2
45.	Wool										1	2
46.	Hand wash										1	2
47.	Iron										1	2
48.	Leather										1	2
49.	Cotton										1	2
50.	Do not bleach										1	2
51.	Machine wash										1	2

Thank you for your contribution towards this study.

## APPENDIX E

CARD A








MACHINE WASH  
COOL IRON  
DO NOT TUMBLE DRY  
DO NOT BLEACH  
DO NOT DRY CLEAN

WASH LIKE COLOURS  
TOGETHER  
MADE IN SOUTH AFRICA  
FROM IMPORTED MATERIAL

CARD B

STRONGLY DISAGREE  
DISAGREE  
AGREE  
STRONGLY AGREE  
DON'T KNOW

CARD C

*GO!*  


MACHINE WASH  
COOL IRON  
DO NOT TUMBLE DRY  
DO NOT BLEACH  
DO NOT DRY CLEAN

WASH LIKE COLOURS  
TOGETHER

MADE IN CHINA

97% COTTON  
3% SPANDEX  
10/34  
ABC TEXTILES

## APPENDIX F

CARD A

MACHINE WASH				
COOL IRON				
DO NOT TUMBLE DRY				
DO NOT BLEACH				
DO NOT DRY CLEAN				
WASH LIKE COLORS TOGETHER				
MADE IN THE UNITED STATES OF AMERICA FROM IMPORTED MATERIAL				

CARD B

STRONGLY DISAGREE
DISAGREE
AGREE
STRONGLY AGREE
DON'T KNOW

CARD C

<i>GO!</i>				
MACHINE WASH				
COOL IRON				
DO NOT TUMBLE DRY				
DO NOT BLEACH				
DO NOT DRY CLEAN				
WASH LIKE COLORS TOGETHER				
MADE IN CHINA				
97% COTTON				
3% SPANDEX				
10/34				
ABC TEXTILES				



## **LETTER OF CONSENT**

### **TITLE OF THE STUDY:**

Consumers' knowledge of clothing labels in a developing and developed country context.

Dear Mr. /Mrs. /Miss.

Date .... / .... / 20...

### **THE AIM AND NATURE OF THE STUDY:**

The aim of this study is to determine and to compare the clothing label knowledge of consumers in a developing (Potchefstroom, in the North West Province of SA) and a developed country (Fayetteville, Arkansas, in the USA) context. Prospective respondents will be approached at predetermined public – and private areas which are located in Potchefstroom and in Fayetteville, where they will be asked to make a contribution toward the study by means of completing an interviewer-administered questionnaire.

### **RESEARCH PROCEDURE:**

- 1) You, as the respondent, will be asked to fill out a questionnaire with the researcher/fieldworker, aimed to determine the clothing label knowledge of consumers in Potchefstroom and Fayetteville.
- 2) The questionnaire will take approximately 15 minutes to complete.
- 3) You, as respondent's anonymity is assured as the questionnaire do not aim to obtain information on first and last names, contact information, identification number, or residential address. All the information obtained in Potchefstroom and Fayetteville will be handled and stored in a confidential manner. Upon publication of the study, the available information will prove to be insufficient for the identification of any respondents participating in this study.
- 4) You, as the respondent, may not personally benefit from participating in the study, but your contribution toward the study might benefit other individuals and communities in SA and the USA.
- 5) Upon agreement to participate in this study, you, as respondent, are also agreeing that the information can be used by the researchers for the purpose of conducting the study, by any means necessary. Respondents' personal information will not be linked to the information obtained.

### **POTENTIAL BENEFITS OF THE STUDY**

This study will establish the differences between the clothing label knowledge of consumers who are from a developing country (Potchefstroom, in the North West Province of SA) and a developed country (Fayetteville, Arkansas, in the USA) and to identify the main factors having an impact on these consumers' knowledge. The results of this study might lead to the proposal

of educational programmes in Potchefstroom (SA) and Fayetteville (USA) aimed to promote consumers' knowledge of labels, thus leading consumers to make more informed purchase decisions and to follow the correct procedures for garment care after a purchase has been made.

#### **CONTACT INFORMATION**

Should you, as respondent, require more information, please contact Prof. M. van der Merwe (study leader) at 018 299 2476.

#### **WITHDRAWAL OF PARTICIPATION**

You, as the respondent, have the right to withdraw from the study at any time. Should you feel the need to do so, it is requested that you will only do so after careful consideration.

#### **DECLARATION OF CONSENT**

I have read through the information provided about the research study and declare that I fully understand the content thereof. I hereby voluntarily agree to participate in the study. I would hereby like to exempt the University or any employee or any student of the University from any liability which I might incur during this study.

Furthermore, I waive my right to institute any claims whatsoever against the University which may arise during the running of the study or the conduct of any person involved in the study, except for claims arising from the negligent conduct of the University or its employees or students.

Signature of the respondent: \_\_\_\_\_

Signed at \_\_\_\_\_ on the \_\_\_\_\_ day of

\_\_\_\_\_ 20\_\_\_\_



CONSUMERS' KNOWLEDGE OF CLOTHING LABELS IN A DEVELOPING AND DEVELOPED COUNTRY CONTEXT.

SOUTH AFRICAN AND AMERICAN QUESTIONNAIRE MEMO

**SECTION F – CLOTHING LABEL OBJECTIVE KNOWLEDGE (LOCATING INFORMATION). In accordance with card C.**

Question 33: Of what fibers/fibres are this clothing item made of?

- *Cotton and Spandex*

Question 34: What percentage of spandex does this clothing item contain?

- *3 percent*

Question 35: Name the brand of this clothing item.

- *Go!*

Question 36: Name the manufacturer of this clothing item.

- *ABC Textiles*

Question 37: What is the main fiber/fibre of this clothing item?

- *Cotton*

Question 38: What is the country of origin for this clothing item?

- *China*



Question 39: What is the size of this clothing item?

- 10/34

Question 40: At what temperature should this clothing item be washed?

- 40 degrees


Question 41: Does this clothing item contain any synthetic fibers/fibres? If yes, please specify.

- Yes, Spandex


Question 42: Does this clothing item contain any natural fibers/fibres? If yes, please specify.

- Yes, Cotton


### Identifying symbols/acronyms


Question 43: Do not dry clean - 


Question 44: Tumble dry - 


Question 45: Wool - 


Question 46: Hand wash - 

Question 47: Iron - 

Question 48: Leather - 

Question 49: Cotton - 

Question 50: Do not bleach - 

Question 51: Machine wash - 



## **SAGE UK Style Guide**

## 2. Article opening material

### 2.1 Headings

1. Headings should have an initial capital with everything else lowercase, unless proper names.
2. Italics can be included in A heads (H1) if needed, e.g. mathematical symbol or genus name.
3. Headings are unnumbered and formatted as below.
4. Where headings are referred to in the text use section names, as headings are not numbered.

**A head (H1)** (bold with initial cap, all the rest lowercase)

#### **Introduction**

The mucosa of the small and large intestines is the largest reservoir of tissue macrophages (M $\phi$ ) in both humans and mice.<sup>1</sup> Although M $\phi$  possess various

*B head (H2)* (italic with initial cap, all the rest lowercase)

#### *Human samples*

Human specimens of normal large intestine were obtained from normal tissues of three patients with colon cancer who had their large intestine resected for

*C head (H3)* (same as B head, but set as first line of paragraph, full out; italic with initial cap, all the rest lowercase, followed by a full stop. Following text runs on)

*Single nucleotide primer extension.* The PCR product from bisulfite-treated genomic DNA was cleaned with ExoSAP (USB) prior to SNUPE reaction. For calibra-

Headings for Abstract, Keywords, Funding, Acknowledgements, Conflict of interest (in that order), References, Appendices are same as A head but smaller font size

#### **Acknowledgements**

We thank Dr van Lookeren Campagne (Genentech) for providing blocking mAb against CRlg (clone 14G8) and isotype control mAb (anti-ragweed).

(CEs: where a template is being used there is no need to format these. Where no template is being used, please format as bold/italic, but there is no need to mark the font sizes, TS will format.)

### 2.2 Article types

Where a journal displays article types, these should appear on the first page of each article, left aligned above the horizontal rule, and in italics.

General technical or research papers should be classified as *Original Article* (with uppercase initial caps) for STM, and *Article* for HSS. (Check with the PE, as there is some variation between journals.)

Other usual paper types are as follows: *Review Article*, *Case Study*, *Technical Note*, *Case Report*. Individual journals may also have other paper types, as agreed with the Editor. Where no particular convention has been agreed, *Original Article* should be followed for STM, and *Article* for HSS.

## 2.3 Article title

Please format with an initial capital only and remaining words lower case, unless proper names. Italics can be included where necessary (e.g. genus name). Run on subtitle after colon, with initial capital after colon

## 2.4 Author names, affiliations, and corresponding address

### Authors

List authors in the order that they appear on the manuscript. Authors' first name should be in full, middle names should be initials *without* full stops (e.g. Simon PS Sharma) and no spaces between multiple initials. No series comma before the 'and' before the final author name.

### Affiliations

Affiliations should contain only the following: department *or* faculty, institution, country. Some HSS journals

may have institution and country only. Do not include titles, positions, qualifications, street names, or postcodes/zip codes. Affiliations should *not* end in a full stop.

STM: author names should be annotated with superscripted numbers (CE: do not use automated endnotes against names and affiliations). If all authors are at the same affiliation no superscript numerals are required. Affiliations appear separately with the corresponding address at the bottom of the right column (see next page):

Mark A Creager<sup>1</sup>, Reena L Pande<sup>1</sup> and William R Hiatt<sup>2,3</sup>

HSS: affiliations should directly follow each author name, as follows:

### Mark A Creager

(Department of Engineering,) Southampton University, UK

### Reena L Pande

(Department of Engineering,) Southampton University, UK

### William R Hiatt

County Hospital, CA, USA; Harvard Medical

School, USA Multiple affiliations are separated

by a semi-colon.

### Corresponding author

The affiliations and corresponding author information is positioned as follows:

Bottom of the right column on the first page of each paper, separated from the text with a horizontal rule (some exceptions apply for specific journals).

### Corresponding author:

John Smith, Department of Social Studies, South Bank University, 4 Sample Road, London SE17 9OP, UK Email: john.smith@sbu.ac.uk

STM: Affiliations and corresponding author details should appear as follows, bottom of right column. HSS: corresponding author appears in the same position, minus the affiliations.

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<sup>1</sup>Research Center Borstel, Leibniz-Center for Medicine and Biosciences, Borstel, Germany

<sup>2</sup>Microbiology Department, Chemical Faculty, Gdańsk University of Technology, Gdańsk, Poland

<sup>3</sup>Novartis, Basel, Switzerland

**Corresponding author:**

Sven Müller-Loennies, Research Center Borstel, Leibniz-Center for Medicine and Biosciences, Parkallee 22, D-23845 Borstel, Germany.  
Email: sml@fz-borstel.de

Please remove any fax or telephone numbers, titles (e.g. Dr, Professor), positions (e.g. Senior Lecturer)

Please note: 'Email' with cap E and without hyphen. Email should start a new line. There *should* be a full stop after the country in the corresponding address.

Affiliations and corresponding address text should be left aligned, not justified, to avoid irregular spacing between words.

## 2.5 Abstract and keywords

**Abstract** should appear in bold without a colon, text should start on the next line, with no indent.

**Keywords** (all one word) should appear in bold without a colon. The keywords should start on the next line, separated by commas only, not semi-colons. The first keyword should have an initial cap.

**Abstract**

Anaphylaxis related to drug therapy with 5-HT<sub>3</sub> antagonists, in particular, palonosetron has not been reported frequently in the literature. Here a case is presented where the patient possibly had an anaphylactic reaction to palonosetron. In this case report, a 40-year-old female with ovarian cancer developed shortness of breath and hypotension after receiving her palonosetron as part of her premedication for chemotherapy. The patient recovered successfully with fluids and supportive care. This case demonstrates that even after successful treatment in the past with palonosetron a patient may later develop a hypersensitivity to the agent.

**Keywords**

Palonosetron, anaphylaxis, hypersensitivity, 5-HT<sub>3</sub> receptor antagonist

In some journals, Abstracts have sub-headings, e.g. Methods, Conclusion etc. These should be formatted in bold with a colon in bold and each sub-heading should start a new paragraph. The text should run on after each heading with an initial capital.

## Submitted/accepted dates

For journals that publish received/revised/accepted dates (applies to specific journals, if unsure please check with the PE), this should appear after the Keywords and be formatted thus:

Date received 29 July 2010; reviewed 30 August 2010; accepted 5 November 2010

**Keywords**

H5N1, apoptosis, TRAIL, caspase-10

Date received: 30 March 2011; revised: 19 April 2011; accepted: 28 April 2011

## 2.6 Running heads

Recto: should be author surname(s), e.g. *Smith*, or *Smith and Jones*, or *Smith et al.* (for three or more authors, and et al. is also in italic).

Verso: full journal title in italic, followed by 0(0).

For IMechE journals: e.g. *J. Automobile Engineering* 0(0), without the Proc. IMechE or journal letter).

### 3. General style and layout

#### 3.1 Logo and imprint box

All papers in the standard SAGE design will have a journal logo in the top right with an imprint box underneath (although the logo may be missing on journals that are new to the SAGE design). The imprint box will contain the following information: journal name, vol/issue/page numbers (for papers in production, vol/issue are represented by 0(0), page numbers are the number of pages in the PDF, e.g. 1–9), copyright line, link to permissions web page, DOI, journal URL, SAGE logo:



#### 3.2 Figures

1. STM: All figures should have a key line (i.e. be enclosed in a box). HSS: figures have no key line.
2. Figures should be appropriately sized (done by the TS). They do not need to be a full column width or page width.
3. Figure permissions: any figures reproduced from another publication need permission. In cases where those publishers listed on the STM permission Guidelines page (<http://www.stm- assoc.org/permissions-guidelines/>), permission is not required and only the reference number need be present in the caption. Some publishers ask for certain text, e.g. Elsevier.
4. Source: in cases where permission is required and has been obtained, this should appear below the caption in the following form: Source: reproduced with permission from publisher, year, reference number (Vancouver), author, date (Harvard).
5. Any abbreviations needing to be spelled out should be listed after the caption, starting on the next line, in the following format: IC: internal combustion; PID: proportional–integral–derivative).
6. Captions are positioned below the figures and left aligned.
7. Captions should start, for example, **Figure 1.** (with a full point also in bold) and have a full point at the end. Where the text runs onto multiple lines, the captions need not be justified but should be aligned left.
8. Where figures have multiple parts, these should be labelled as (a), (b), (c), etc. (not A, B, C). Captions should contain subheadings for all parts if not present in the figure itself.
9. All figures should be numbered consecutively and cited in the text as Figure 1, Figure 2 etc. (Figure should be spelled out in full, not abbreviated).
10. Text citations: figures should be referenced in the text as follows: Figure 1, or Figures 1 and 2, or Figures 2 to 4, or Figure 1(a) and (b), or Figure 2(a) to (c). Where the figure citation is not part of the sentence it should be placed in parentheses.

Examples:

Please see Figure 2 for an illustration of the model used

The model used was an X3G standard type, exported from Germany (Figure 2 or see Figure 2).

### 3.3 Tables

1. Tables do not need to be a full column width or page width, but should be the appropriate width for the content. They will be laid out by the TS so no work is required by CEs on table layout, only on content.
2. Table headings should be left aligned, even when they relate to multiple columns, unless this creates confusion.

Tables should only have minimal horizontal rules for clarity, and no vertical rules (done by TS, no need for CE to format).

4. All tables should be numbered consecutively and cited in the text as Table 1, Table 2 etc. (Table should be spelled out in full, not abbreviated).
5. Table permissions: any tables reproduced from another publication need permission. In cases where those publishers listed on the STM permission Guidelines page (<http://www.stm-assoc.org/permissions-guidelines/>), permission is not required and only the reference number need be present in the caption. Some publishers ask for certain text, e.g. Elsevier.
6. Source: in cases where permission is required and has been obtained, this should appear below the table in the following form: Source: reproduced with permission from publisher, year, reference number (Vancouver), author, date (Harvard).
7. Any abbreviations needing to be spelled out should be listed under the table (smaller font, TS will format), in the following format: IC: internal combustion; PID: proportional–integral–derivative.
8. General notes to the Table should be positioned below the Table, typeset in a smaller font and should start 'Note:', and end in a full stop. Do *not* add the word 'Note:' unless needed for clarity.
9. Footnotes should be represented in the table by superscript letters <sup>a</sup>, <sup>b</sup>, <sup>c</sup>, etc., and appear below the Table (smaller font, TS will format). Each footnote should start a new line and end with a full stop. These notes should precede the source for the table, if included.
10. Captions are positioned above the table and left aligned.
11. Captions should start, for example, **Table 1.** (with a full point also in bold) and have a full point at the end. Where the text runs onto multiple lines, the captions need not be justified but aligned left.
12. Dates in Tables can be shortened to, for example, 4 Dec 10, if space is lacking. Do not use the form 04/12/10, as this could be confused as 12 April in US.
13. Normal text in columns should always be left aligned. Data in tables should be aligned on units if all the data in that column take the same units. Otherwise, the data should be left aligned. Units in table headings should be enclosed by parentheses, not square brackets (if any brackets are required at all).

### 3.4 Lists

1. For lists where items are not full sentences, use (a), (b), (c) etc. or bullet points (whichever is more appropriate) and separate items with semi-colons. Start list with a preceding colon and end list with a full stop.
2. For lists where items are full sentences or multiple sentences, use 1. 2. 3. Start list with a preceding full stop or semi-colon (whichever is more appropriate), and end list with a full stop.
3. List numbering/bullets should be full out and left aligned, with text indented and aligned. Lists should be separated from preceding/following text with a line space.
4. Where list items include headings, that heading should be italic, same size as text and end in a full stop. The following text should run on.

### 3.5 Maths/equations (see section 5, p. 14 for more details)

1. Equations should be left aligned with a 3 mm indent, *not* centred.
2. Equations can be broken at operator symbols (x, -, +, etc.), and continue on the next line, starting with the operator itself.

3. Equations should be separated from text above and below by at least one line space.
4. Any equation numbers should be enclosed in parentheses and right aligned, and aligned horizontally with the bottom line of the equation or equations, where multiple terms are covered by one equation number. (Not all equations need be numbered, see section 5).

**General note: text following Figures, Tables, equations does not need to be full out with no indent. If the next block of text after any of these items is a new paragraph, then this may be indented.**

### 3.6 Appendices

#### Maths notation list

1. Where present, notation should appear as Appendix 1, following the references. The heading *Notation* should be a B-head (not Notations; it is not plural).
2. Abbreviations list should be separated from mathematical notation under a separate B-head *Abbreviations*.
3. Notation should be listed in alphabetical order, English letters first, followed by Greek, followed by numbers, followed by symbols.
4. Subscripts and superscript should come under a separate C-head (italic and smaller font), and symbols should follow the same order as in point 2 above.
5. The Notation section does not need to be cited in the text, like other Appendices.
6. Notation list should be left aligned. Text in the notation section should be left aligned in general, not justified.
7. Please note that a notation list is not compulsory in mathematical papers, as long as all symbols are defined in the text.

#### Other appendices

1. Numbering of figures/tables/equations in Appendices should follow on from the numbering in the text.
2. All tables/figures should have captions.
3. All appendices should be cited in the text, e.g. (see Appendix 1). If they are not cited, authors need to be queried for a citation position.

### 3.7 Notes and footnotes

#### Textual notes

##### HSS

References: Vancouver style reference citations are represented as textual notes, as a numeral enclosed in a square bracket. Harvard style references are as follows (Smith, 1999).

Any other textual notes: are indicated by a superscript Arabic numeral placed *after* the punctuation. All textual notes should be collected and placed after the text and before the reference section with the heading

#### Notes.

##### STM

References: Vancouver style reference citations are represented as textual notes, as a superscript Arabic numeral. Harvard style references are as follows (Smith, 1999).

Any other textual notes (whether references are Harvard or Vancouver) are indicated by a superscript Arabic letter and the corresponding footnote appears at the bottom of the relevant column.

In STM journals, footnotes should be edited into the text if appropriately and easily incorporated. However, please leave footnotes if this is not possible.

#### Authors' biographical notes

These should appear at the end of the paper with the heading **Author biography** (or **biographies**), in same font size as References/Funding etc. heading. Follow journal style.



### 3.8 Book reviews

Please check that the book details are given in this format at the top of each review.

Author, *title*, publisher: place, date of publication; 000 pp.: ISBN, price (hbk), ISBN, price (pbk)

Editor(s) (ed[s].), *title*, publisher: place, date of publication; 000 pp.: ISBN, price (hbk), ISBN, price (pbk)

## 4. Spelling, punctuation and formatting

### 4.1 Author style/voice

We will endeavour to keep the author's voice as much as possible:

1. Some authors write in the first person. CEs please note that we will *not* be taking articles out of the first person into the third person.
2. Where American authors have used American spellings, we should also endeavour to keep the author's grammar/punctuation, e.g. closed em-dashes instead of spaced en-dashes, single quotation marks within double, series comma etc.
3. Where UK authors have used -ise spellings throughout their papers in a consistent fashion, please do not change. Where there is inconsistency, use -ize.

### 4.2 General spelling rules

The general rules are as follows:

- UK spellings should be followed for European articles (-ise is acceptable)
- US spellings should be followed for North American articles
- Rest of the world – follow author style but make it consistent
- Canadian spellings should be standardized to UK or US, depending on author preference
- The following list shows some common exceptions to the '-ize' rule:

Samples							
advertise	arise	devise	enfranchise	expertise	merchandise	promise	surmise
advise	chastise	disenfranchise	enterprise	franchise	Misadvise	reprise	surprise
affranchise	circumcise	disguise	exercise	improvise	Premise	revise	televise
apprise	comprise	emprise	excise	incise	Prise	supervise	treatise

Note also: analyse (for UK), catalyse, dialyse, paralyse.

Do not mix English and US spellings. Some common US variations in spelling:							
analyze	Color	favor	fulfill	labor	license (noun)	Program	traveler/traveling
behavior	counseling	fetus	gray	mold	pediatrics	practice (verb)	willful

Follow author style regarding use of the possessive's for proper names ending in s. However, 's is not used for classical names, e.g. Socrates' philosophy.

The following books are recommended: *Hart's Rules*; *Fowler's Modern Usage*.

### 4.3 Punctuation and formatting

#### Commas

- Follow author style but make consistent
- Oxford or series comma are not generally used; only use an Oxford/series comma if essential for clarity

#### Parentheses

These can be used throughout. Double sets of parentheses are acceptable, e.g. (see Figure 2(a)). Do not use square brackets in the text, except in the following circumstances.

Square brackets are used only to enclose an author's comment within a quote, e.g. [sic], [emphasis added]. Square brackets are also used for equations and mathematical expressions within the text.

### Quotes

Use single quotes, with double quotes within quoted material. (See section 4.1 for exceptions for articles written by US authors.)

### Hyphenation

The basic rule is to follow author style but be consistent.

### Use of upper and lower case

Check the author's usage first, and make consistent. For specific titles use initial caps, for generic titles use lower case (useful pointers follow):

*Institutions, movements, denominations, political parties:*

- the Roman Catholic Church
- he has catholic tastes
- They were Bolsheviks
- bolshevism, communism

*Titles, ranks:*

- the President (referring to a particular one)
- the Spanish Foreign Minister
- a president
- several government ministers

*Geographical names:*

Capitalize politically defined or geographically named places, use lower case in all other instances.

- the West, the East
- western values, eastern culture
- South Africa
- the south of Scotland

*Periods, events:*

- Second World War
- rationing during the war

*Article and book titles:*

Follow the style used in the references.

### Roman and italic usage

- Anglicized words should be roman with no accents (common examples follow):

<i>Samples</i>			
ad hoc	coup d'etat	laissez faire	post mortem
a priori	de facto	nouveau riche	raison d'être
a propos	elite	op. cit.	sine qua non
avant-garde	en masse	per annum	status quo
bona fide	en route	per capita	vice versa
bourgeois/bourgeoisie	et al.	per se	vis-a-vis
cafe	in situ	post hoc	

- Words in other languages – follow author style and make consistent.
- Keep author's own emphasized words or phrases (in italic), unless excessive.
- General: usual italic rules applies, e.g. genus, species, relevant mathematical symbols, x-axis, y- axis, journal/book/magazine names, etc.

### Quoted text

Spellings and punctuation in quoted texts should not be altered. If they are obviously incorrect, query with author or insert [sic].

#### *Undisplayed quotes:*

Short quotations should be indicated by single quotation marks, with double quotation marks for quotation material within the quote. A full point (or other punctuation) follows the reference for the quote, e.g. '... is the most decisive and important' (Smith, 2003).

#### *Displayed quotes:*

Lengthy quotes (40 words or more) should be displayed and indented, with a line space above and below, separating it from the text – follow journal style. Font size will be smaller (TS to format)

### Money

For currency use the common symbol or abbreviation: £, US\$, AUD\$, etc. – where the quantity is stated, but not when the unit of currency is being referred to in general terms, examples follow:

- The price of oil rose to US\$25 per barrel.
- The US dollar was at an all-time low.
- £150m, *not* millions or mlns.

### Units in the text

1. Where units are referred to in the text in general terms, they should be written out in full.
2. Where a specific quantity is used, the abbreviated form of the unit must be used; e.g. the nails were several centimetres long; the nails were each 2 cm in length.
3. Always use numerals with the abbreviated unit and use abbreviated units wherever possible – in lists of statistics, in tables and line artwork.
4. Numeral and units should be separated by a thin space, i.e. 100 km, not 100km (this does not need to be indicated by the CE, the TS will format, PR/PE to check). NOTE: exception to the thin space rule applies for percent and degree symbols, i.e. 90% and 35.7°
5. Abbreviations of units are the same for singular and plural (do not add an s); they do not take a full point. E.g. 25 min, 55 s
6. Use SI units wherever possible (see specific Journal webpages for more specific notes).

### Numbers

1. Spell out numbers one to nine; for numbers 10 and over use numerals, except at the beginning of a sentence. Re-work the sentence if necessary.
2. Use numerals with percentages (use the % symbol, not per cent or percent), with units, in statistical passages, in tables, etc.
3. Spell out and hyphenate one-half, two-thirds, etc.
4. Do not use a comma in 4-digit numbers (thousands) but do use one in 5-digit numbers (tens of thousands) and above, e.g. 5643; 1298; 14,600; 342,885; 1,000,001. Do *not* use a thin space.
5. Do not contract number ranges, e.g. page ranges and dates; i.e. use pp. 24–29, 13–15 October, 1981–1999 etc.
6. Decimal points are never raised off the line.
7. Do not mix spelled-out numerals and units: 6 cm not six cm.

### Dates

1. Write out dates in text and refs as follows: 30 September 2003, except in Tables if space is short, then a shortened version may be used, e.g. 11 Sep 08 (do not use 11/9/08, as this could be confused in the US as 9th November).
2. Do not use an inverted comma in decades, e.g. 1960s, mid-1930s. Avoid 80s, etc.
3. Use numerals for centuries (except in history journals where it is spelled out), e.g. a 21st-century dilemma.

## 4.4 Abbreviations

### General

1. Do not use abbreviations in the title of a paper, in the abstract, or keywords, unless the full version is very long and clumsy or the abbreviation is better known than the full term (e.g. DNA). Abbreviations may be used in headings and subheadings if they have already been defined previously in the paper at first usage. If in doubt, spell out.
2. Define an abbreviation the first time that it is used (except in the Abstract): write the term out in full followed by the abbreviation in parentheses. Use the abbreviation consistently thereafter, including at the start of sentences.
3. For plural terms, use plural abbreviations, e.g. low-density lipoprotein, LDL; low-density lipoproteins, LDLs.
4. If you need to abbreviate months or days of the week (for example, in a crowded table), use the first three letters without a full-stop (Mon, Tue; Jan, Feb).
5. If abbreviations are used in a figure or table, they must all be defined in the caption or in a Table note/footnote even if they are also defined in the text.
6. Do not use abbreviations invented by the author of a paper for that paper – ideally, only conventional, generally accepted abbreviations should be used.
7. Do not abbreviate single words (exceptions apply) or use two-letter abbreviations other than those listed below. (Two-letter engineering abbreviations are available in the IMechE Style Guide supplement).
8. Abbreviations consisting of capital letters, and acronyms and contractions, should not take full points, e.g. USA, UK, MA, UN, WHO, PhD, NATO (or Nato), UNESCO (or Unesco), AD, BC
9. Unfamiliar (but generally accepted) abbreviations should always be written out in full when first mentioned, with the abbreviated form following in parentheses, e.g. “The Confederación Española de Derechas Autónomas (CEDA) was formed”. Thereafter use the abbreviation.
10. Contractions do *not* take a full point, e.g. Mr, St, Ltd, edn, Dr, neither do contracting degrees (Dr, DPhil, PhD, MSc). The following abbreviations take full points: no., Co., p., pp., vol., ch. (but use vols and chs), e.g., ed. (but use eds), et al., etc., i.e., cf., (note that this means ‘compare’ and not ‘see’), n.d.
11. No comma after e.g., i.e. or cf. Etc. has a full stop and is usually preceded by a comma in a list. They may be used in lists or figure or table legends, and within parentheses.
12. In reference lists, notes, footnotes, corresponding author address (if required) and authors’ biographical notes, please use the standard abbreviated form for American states (and Canadian/Australian territories). Please spell out in full in the text (see section 7.3 for full list of US state abbreviations).

*Some journals use abbreviations that do not need to be spelled out, even at first usage. For a full list of abbreviations that do not need to be spelled out for each individual journal, please visit the journal webpage.*

**STM abbreviations:** some abbreviations of terms that we do not define in full are listed here (follow style given):

- SD = standard deviation
- SEM = standard error of the mean
- NS = not significant
- a.m. in the morning (but use 24-hour clock if possible)
- p.m. in the afternoon
- N/A = not applicable
- Chemical symbols ( $\text{H}_2\text{O}$ ,  $\text{H}_2\text{SO}_4$ ) may be used without definition. However, write in full unless this is inappropriate (e.g. ‘Water consists of hydrogen and oxygen’; ‘Nitric oxide is also found in peripheral nerves’). Refer to *Scientific terminology* notes for further guidance.

See the Appendix (pp. 26 and 27) for a full list of accepted general two-letter STM abbreviations and engineering abbreviations.

## Technical content: maths, equations, etc.

### 5.1 Maths notation convention

There is no specific convention for mathematical notation in terms of matrices, vectors, variables, operators, functions, subscripts, superscripts and scalars. CE please follow the author's symbols and notation conventions, ensuring that these are consistent throughout the paper.

Please query the author if any symbols are unclear, duplicated with more than one definition, or undefined.

### 5.2 Equations

#### Layout of equations

1. Equations should be left aligned on a 3 mm indent, *not* centred.
2. Equations should be numbered in sequence throughout the text, with the numbering continuing through all appendices. However, equations only need to be numbered if cited in the text, and not all equations necessarily need to be numbered.
3. Equation numbers should be set flush right and in sequence. Each numbered equation should have its own line.
4. No punctuation is used before or after an equation (i.e. no commas, colons, hyphens etc.)
5. The equation number should align with the *bottom line of equation*. Where the equation number covers multiple equations, it should align with the bottom line of the last equation.
6. When referred to in text, equations take the form 'equation (1)'. When a range of equation numbers is referred to, use the form: equations (1) and (2); equations (1) to (3); equations, (1), (2), and (5) to (7).

With the assumptions outlined previously, conservation of momentum and the definition of velocity change gives

$$m_1 u_1 + m_2 u_2 = m_1 v_1 + m_2 v_2 \quad (1)$$

$$\Delta v = v - u \quad (2)$$

Equations (1) and (2) lead to

$$\Delta v_1 = -\Delta v_2 \frac{m_2}{m_1} \quad (3)$$

A diagram showing a generalized impact configuration

7. If two or more small equations or conditions can fit on one line, then they should be well separated with a 2-em space. Commas and words, set upright not italic, may be used to enhance clarity.
8. Equations in text must be reduced to one line depth. Display equations are built up to two line depth.

For instance, the equation  $(x - y)/(x^2 + 2y - 3)$  runs on in the text but for display becomes

$$\frac{x - y}{x^2 + 2y - 3}$$

–

$$x^2 + 2y - 3$$

9. CEs: Spaces between + and – and other operators need not be marked. TS will format.
10. Unless separating small equations and conditions, as shown above, odd words between equations such as 'where', 'and', 'thus', 'therefore' should be on a separate line from the equations and flush left. Only use initial capitals for these if they start a new sentence.
11. When a single equation has been presented with a label/header (e.g. 'momentum conservation equation', 'blade element momentum theory', etc.), present the label before the equation, full left, half-line above, and in roman.
12. Where an equation is too long to fit on one line, take over whole terms starting if possible with a + or – or = symbol, and indent.

13. Where a bracketed term has to be split over lines move the second part to the right to show it is still part of the same term (align to the right of the bracket).
14. Pairs of opening and closing brackets should be the same size, even when they are on different lines.
15. Where an equation breaks at an equals sign indent a further em in from the first line.
16. Where equations are split over 2 lines, the break should occur before the operator:

$$\begin{aligned}
 &m_2(1 + e_p)(U_{2p} - U_{1p}) \\
 &= (m_1 + m_2)\Delta v_1 - m_1 h_1 \Delta \omega_1 - m_2 h_2 \Delta \omega_2 \qquad (9)
 \end{aligned}$$

### 5.3 Units

SI preferred. Expressions such as rpm, psi, cfm, gpm, mph, kph, tsi, revs should be avoided. Use instead r/min, lbf/in<sup>2</sup>, gal/min, mile/h, km/h, ton/in<sup>2</sup>, rotational speed, etc.

Notes: Greek  $\mu$  in  $\mu\text{m}$  should always be roman; MPa and GPa should always have a capital P.

### 5.4 Symbols and operators

A thin non-breaking space should separate symbols and operators from numerals, and be present either side of multiplication dots and all operators, e.g. +, -, =, x, <, >, etc. (this does not need to be indicated by the CE, the TS will format)

## 6. Appendices

### 6.1 General STM acceptable 2-letter abbreviations (should be defined on first mention):

AH	arterial hypertension	ML	maximum lysis
AP	anteroposterior	MR	magnetic resonance
AR	androgen-receptor	MS	multiple sclerosis
AS	ankylosing spondylitis	ND	no data
AT	anti-thrombin	NF	nuclear factor
BP	blood pressure	NK	natural killer
CE	centre–edge	OD	optical density
CF	cystic fibrosis	OR	odds ratio
CI	cardiac index	OS	overall survival
CI	confidence interval	PC	protein C
CO	cardiac output	PD	potential difference
CP	cerebral palsy	PD	progressive disease
CR	complete response	PE	probable error
CT	clotting time	PP	pulse pressure
CT	computed tomography	PR	partial response
ED	emergency department	PT	prothrombin time
ED50	median effective dose	RA	rheumatoid arthritis
EU	European Union	RA	right atrium
FA	fatty acid	Rh	Rhesus
FA	folinic acid	RQ	respiratory quotient
FR	fixed ratio	RR	relative risk
GH	growth hormone	RR	response rates
GM	genetically modified	RT	room temperature
GP	general practitioner	RV	right ventricle
Hb	haemoglobin	SE	standard error
HR	heart rate	SV	stroke volume
IR	infrared	TB	Tuberculosis
LD50	median lethal dose	TC	total cholesterol
LH	luteinising hormone	TF	tissue factor
LV	left ventricle	TS	thymidylate synthase
mAb	monoclonal antibody	TT	thrombin time
ME	medial epicondyle	UV	Ultraviolet
ME	myalgic encephalomyelitis	VD	venereal disease
MI	myocardial infarction		

**6.2 Engineering acceptable 2-letter abbreviations** (should be defined on first mention):

AC/DC	alternating current/direct current	HC	Hydrocarbon
A/C	air conditioning	KF	Kalman filter
AI	artificial intelligence	MR	magnetorheological
AI	auto-ignition	MR	magnetic resonance
CA	crank angle (also used as a unit of measurement)	MS	mass spectrometry
CC	combustion chamber	MW	molecular weight
CG	centre of gravity	NN	neural network
CI	compression ignition	NS	Navier–Stokes
CM	centre of mass	PI	proportional–integral
CV	cyclic variability	PM	particulate matter
DI	direct injection	<i>Re</i>	Reynold's number
EA	evolutionary algorithm	RF	radio frequency
EM	electromagnetic	RI	rollover index
EV	electric vehicle	SD	standard deviation
FE	finite element	SI	spark ignition
GA	genetic algorithm	TC	traction control
GT	gas turbine	UV	Ultraviolet



## **SAGE Harvard**

### **General**

1. Initials should be used without spaces or full points.
2. Up to three authors may be listed. If more are provided, then list the first three authors and represent the rest by et al. Fewer authors followed by et al. is also acceptable.

### **Text citations**

1. All references in the text and notes must be specified by the authors' last names and date of publication together with page numbers if given.
2. Do not use *ibid.*, *op. cit.*, *infra.*, *supra*. Instead, show the subsequent citation of the same source in the same way as the first.
3. Where et al. is used in textual citations, this should always be upright, not italic.

### ***Note the following for the style of text citations:***

1. If the author's name is in the text, follow with year in parentheses:  
... Author Last Name (year) has argued ...
  
2. If author's name is not in the text, insert last name, comma and year:  
... several works (Author Last Name, year) have described ...
  
3. Where appropriate, the page number follows the year, separated by a colon:  
... it has been noted (Author Last Name, year: page nos) that ...
  
4. Where there are two authors, give both names, joined by 'and'; if three or more authors, use et al.:  
... it has been stated (Author Last Name and Author Last Name, year) ...  
... some investigators (Author Last Name et al., year) ...
  
5. If there is more than one reference to the same author and year, insert a, b, etc. in both the text and the list:  
... it was described (Author Last Name, yeara, yearb) ...
  
6. Enclose within a single pair of parentheses a series of references, separated by semicolons:  
... and it has been noted (Author Last Name and Author Last Name, year; Author Last Name and Author Last Name, year; Author Last Name, year) ... Please order alphabetically by author names.

7. If two or more references by the same author are cited together, separate the dates with a comma:  
... the author has stated this in several studies (Author Last Name, year, year,  
year, year) ... Please start with the oldest publication.

8. Enclose within the parentheses any brief phrase associated with the reference:  
... several investigators have claimed this (but see Author Last Name, year: page nos–page nos)

9. For an institutional authorship, supply the minimum citation from the beginning of the complete reference:

... a recent statement (Name of Institution, year: page nos) ...

... occupational data (Name of Bureau or Institution, year: page nos) reveal ...

10. For authorless articles or studies, use the name of the magazine, journal, newspaper or sponsoring organization, and not the title of the article:

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11. Citations from personal communications are not included in the reference list:

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  - Author Last Name Initial Jr (year)
  - Author Last Name Initial II (year)
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  - Two-author references in alphabetical order according to the second author's name;
  - Et al. references in alphabetical order; in the event of more than one entry having the same date, they should be placed in alphabetical order of second (or third) author, and a, b, etc. must be inserted.

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Brown TR and  
Yates P (2003)  
Brown W (2002)  
Brown  
n W  
(2003  
a)  
Brown  
n W  
(2003  
b)  
Brown W and  
Jones M (2003)  
Brown W and  
Peters P (2003)  
Brown W, Hughes J and  
Kent T (2003a) Brown W,  
Kent T and Lewis S (2003b)
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8. Journal titles should not be abbreviated in SAGE Harvard journal references
9. Where et al. is used in reference lists, it should always be upright, not italic.

## 4. Reference styles

### **Book**

Clark JM and Hockey L (1979) *Research for Nursing*. Leeds: Dobson Publishers.

### **Book chapter**

Gumley V (1988) Skin cancers. In: Tschudin V and Brown EB (eds) *Nursing the Patient with Cancer*. London: Hall House, pp.26–52.

### **Journal article**

Huth EJ, King K and Lock S (1988) Uniform requirements for manuscripts submitted to biomedical journals.  
*British Medical Journal* 296(4): 401–405.

### **Journal article published ahead of print**

Huth EJ, King K and Lock S (1988) Uniform requirements for manuscripts submitted to biomedical journals.  
*British Medical Journal*. Epub ahead of print 12 June 2011. DOI: 10.1177/09544327167940.

**Website**

National Center for Professional Certification (2002) Factors affecting organizational climate and retention. Available at: [www.cwla.org/programmes/triechmann/2002fbwfiles](http://www.cwla.org/programmes/triechmann/2002fbwfiles) (accessed 10 July 2010).

**Thesis/dissertation**

Clark JM (2001) *Referencing style for journals*. PhD Thesis, University of Leicester, UK

**Newspaper/magazine**

Clark JM (2006) Referencing style for journals. *The Independent*, 21 May, 10.

**Conference article (published or unpublished)**

Clark JM and Smith P (2002) Latest research on car exhaust manifolds. In: *17th international conference on strain analysis* (ed L Macadam), London, UK, 23–25 September 2010, pp.12–14. London: Professional Engineering Publishing.

**Blog**

Clark JM (2006) Article title. In: Blog title. Available at: [www.blogit.com/johnmatthewclark](http://www.blogit.com/johnmatthewclark) (accessed 20 August 2011).

**Report**

1. MacDonald S (2008) The state of social welfare in the UK. Report, University of Durham, UK, June.
2. Citigroup Ltd. (2011) *How to make your money work for you*. Report for the Department of Finance. Report no. 123345, 13 June. Oxford: OUP.

**Package insert (medical etc.)**

1. Eisai Inc. (2008) Aloxi (package insert). New York: Esai Inc.

**Standard**

1. ISO 27799:2008 (2008) Information security management in health.

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## APPENDIX L



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**E-mail: [karien.redelinghuys@nwu.ac.za](mailto:karien.redelinghuys@nwu.ac.za)**

28 November 2013

To whom it may concern

This letter serves to confirm that the thesis entitled “Consumers’ knowledge of clothing labels in a developing and developed country context” by Charlene van Schalkwyk has been language edited by CTrans. This means that the article has been edited for spelling, grammar and syntax. The references of the thesis were also cross-checked, but remained the responsibility of the student to finalise.

The above-mentioned document has been edited by a professional editor. However, the onus rests on the author to work through the editorial changes proposed by CTrans, and to either accept or reject them.

Yours sincerely

A handwritten signature in black ink, reading 'Redelinghuys', with a stylized flourish at the end.

Karien Redelinghuys

Manager: CTrans