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### #Decolonise!

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## A Decolonised Approach to Developing Training Materials for Low-Literate Participants of Rural Sewing Income Generating Projects

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### Abstract

Whilst training materials can be effective tools for addressing skills training needs, inherently colonised approaches undermine their anticipated benefit and use. Developers of skills training materials are customarily highly trained professionals, academics and practitioners who are often culturally and otherwise separated from the population for which their materials are intended. As a result, they may overestimate their end-users' abilities to read and understand textual information effectively. In the instance of the conventional training materials developed for income generating projects (IGPs) within rural communities, the disparity between the reading abilities of low-literate project participants set against the level of the informational materials exposes inherent difficulties that individuals face when trying to use such sources. Due to such specific and technical problems as the use of incomprehensible language, too many and subject specific words, and overall seemingly cognitive overload, the materials may be perceived to be user-unfriendly, rendering much needed training resources underutilised.

In this paper, an attempted decolonised approach towards the design and development of two sewing training instructional pamphlets is reported on. Motivated by the need to empower low-literate project participants, a user-centred approach supported an understanding of their sewing training material needs and challenges within the unique setting of rural sewing IGPs, enabling pamphlet designs that are informed by the perspectives of such participants. As a primary factor influencing implementation, the literacy level and acknowledged predilections of low-literate individuals are considered. Necessitating an indigenous framework, factors related to the culture and language are applied throughout the development. Upon completion, an empirical research inquiry was undertaken to determine the IGP participants' satisfaction with the developed pamphlets as employed in a field-based intervention. Pilot testing (in the Northern-Cape Province [NCP], South Africa [SA]) prior to the main investigation (within the North-West Province [NWP], SA) provided valuable feedback for improvement. Overall, the IGP participants expressed positive reaction towards the pamphlets, with a particular preference for the use of visual materials. While this research endeavour is not the first to produce sewing training materials for rural sewing

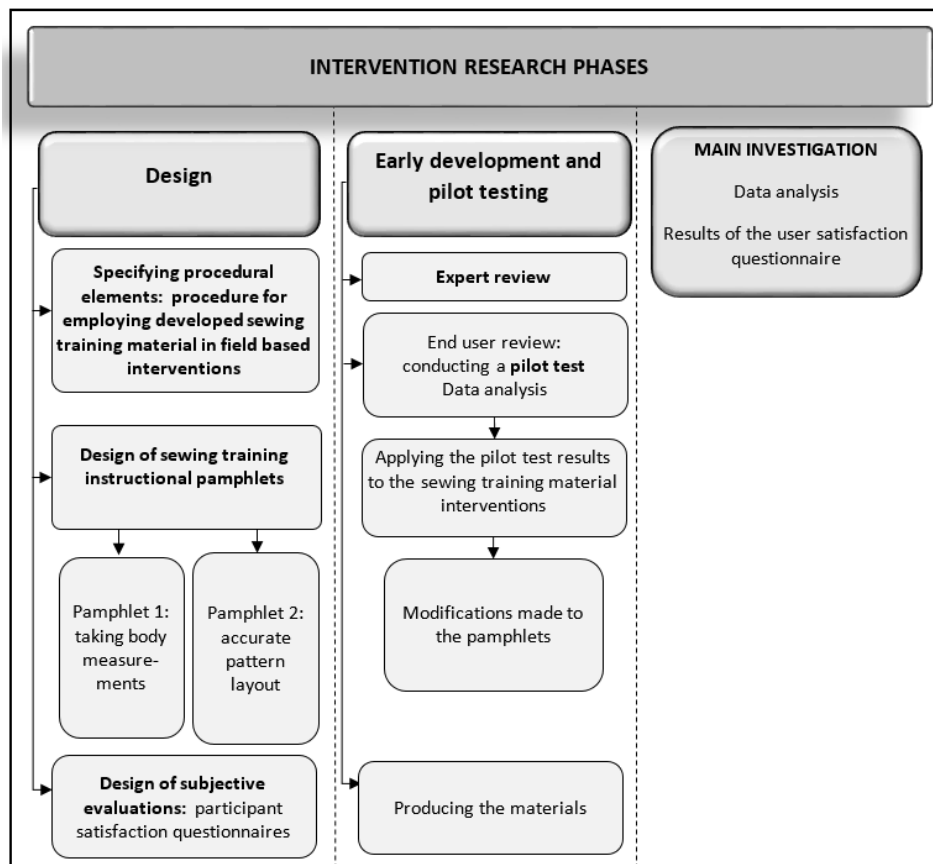
IGPs, it is the first attempt to adopt a decolonised approach. Additionally, it is the first to assess and affect user satisfaction during development.

**Keywords:**

*income generating projects, low-literacy, rural communities, sewing training materials.*

## Introduction

This paper forms the second part of a broader research investigation into the development of training materials for rural sewing income generating projects (IGPs). Adopting a user-centred approach, part one explored the sewing training material needs and practical sewing challenges within the unique settings of the rural sewing IGPs. The findings indicated that: (1) training materials that had been previously developed for these IGPs have not been implemented, (2) not only were these training materials found to be inappropriate in terms of literacy level (developed at Grade 10 level), they did not align with the acknowledged cognitive predilections that low-literate individuals hold for concrete (basing meaning on the literal meaning of single pieces of information) and pictographic thinking (the preference of information presented as pictorial elements) (Viswanathan, Rosa & Harris 2005, p. 21), (3) other commercially available sewing training materials also failed to address sewing training needs owing to challenges associated with reading as experienced by low-literate group participants, and (4) two prominent sewing training needs were identified during this investigation, namely the task of taking body measurements, and accurate pattern layout (Coetzee 2017). In this second part of the broader intervention research (IR) design, the research aimed to address the following research question: *How can appropriate sewing training materials for low-literate participants of rural IGPs be designed and developed, taking into consideration their most prominent sewing training needs?* The following specific objectives of this study were to design two sewing training instructional pamphlets, submit the designs for expert review in line with early development, complete pilot testing for further development, and to analyse the results of the user satisfaction questionnaire following the main investigation.



**Figure 1: IR phases and activities for this phase of the research investigation** (adapted from Rothman & Thomas 1994, p. 28)

## **Designing sewing training instructional pamphlets**

The popular use of pamphlets by government (to convey information pertaining to, for example, elections and health awareness) renders it one of the most familiar forms of textual communication within rural areas. Pamphlets were therefore selected as an appropriate medium for communication in this study. Other South African research findings also support the use of pamphlets (Dowse, Ramela & Browne 2011, p. 508). Due to the nature of the sewing training materials having to be as practical and applicable as possible (Van Niekerk 2006, p. 80), the pamphlets were designed to function as job aids. Job aids present an economical and efficient substitute for training, or training enhancement (Eittington 2002, p. 587) to prevent post training relapse (Merriam & Leahy 2005, p. 8). The latter use is based on the assumption that the memory of an individual is too fragile to be relied upon, and necessitates tools to be used for reinforcement (Eittington 2002, p. 587). This aspect holds particular importance for low-literate IGP participants, whose limited cognitive abilities may impede training or instructional sessions. The use of job aids further coincides with just-in-time training, namely the provision of training aids when they are actually needed, rather than repeating the training on an annual or deferred basis (Eittington 2002, p. 588) rendering trainees more open to the training itself. This factor is also particularly relevant as the composition of IGPs is not stagnant. Participants in IGPs enlist and leave voluntarily, causing members to be trained at different intervals, or to attend different training sessions, and to have vastly different levels of experience and practical skills. As is customarily used in support of learning, a step-by step instructional format was used as it more easily engages learners, better facilitates the modelling of tasks, and encourages the application of knowledge and skills (Ramos 2013; CARDET 2014), even when no training programme is available.

## **Considerations regarding the literacy level**

It was crucial to ensure that the sewing training material pamphlets aligned with the literacy level of the rural IGP participants (Dowse, Ramela & Browne 2011, p. 508). Low-literacy amongst group participants has been reported to constitute an obstacle and barrier to skills development (Niesing 2012, p. 3). The internationally applied term 'low-literate' refers to adult individuals (aged 18 years and older) with the highest completed grade level lower than Grade 7 (Adkins & Ozanne 2005, p. 93). This description is similar to the nationally applied term 'functionally illiterate', which also refers to a person (aged 15 years and older) with no education or a highest level of education of less than Grade 7 (StatsSA 2012, p.34). Research towards the design of informational materials for low-literate populations recommends that text should be developed at a level equivalent to 5<sup>th</sup> to 6<sup>th</sup> grade (Choi 2012, p. 374). However, upon entering the research setting (during phase one of this study), the researcher found that, even though some IGP participants had obtained Grade 12, some had attained only a very low level of education (as low as Grade 2).

As a repercussion of the longstanding colonialism in education prior to the initiation of the new democratic government, many residents from rural areas experience literacy challenges. The lack of educational services in these areas is evidenced by the lack of classrooms, textbooks and qualified teachers, which has detrimental consequences. National statistics indicate an admittedly high drop-out rate, noting that almost a quarter of rural children in primary schools drop out (SA 2008, p. 59), leaving many farm dwelling adults without basic literacy and numeracy skills (Kruger et al. 2005, p. 833). Additionally, individuals from rural communities do not foster a culture of reading (Gardiner 2008, p. 12). This, coupled with concerns pertaining to the quality of education in some farm schools, prompted the researcher to develop the reading level of the pamphlets below Grade 3 level (as per the Flesch Kincaid acknowledged readability formula) (Choi 2012, p. 374). A grade level lower than Grade 3 was applied.

### **Acknowledged cognitive predilections of low-literate individuals: pictographic and concrete thinking**

Due to the acknowledged cognitive predilection for pictographic thinking that low-literate individuals hold (Viswanathan & Gau 2005, p. 193), the use of visual materials is not only recommended, but also emphasised in literature as an integral component of communication when developing materials for low-literate individuals. The term 'visual materials' coincides with the notion of visual literacy, and thus with an individual's ability to decipher, recognise and interpret images (UNESCO 2006, p. 149). To facilitate low-literate individuals' preference for pictographic thinking, the sewing instructions were planned by considering a range of actions, visually depicted and presented in steps. Each step of the process was carefully planned, as visual materials that are poorly designed (by way of being too technical, abstract, or obscure) may have opposing effects for low-literate individuals (Ngho & Shepherd 1997, p. 267), thus complicating rather than clarifying the instruction.

In addition to pictographic thinking, low-literate individuals also engage in concrete thinking (Viswanathan, Rosa & Harris 2005, p. 15), that is, the tendency to process single pieces of information without deriving higher level intellectual abstractions (Viswanathan & Gau 2005, p. 189). To simplify cognitive demands, they often resort to making decisions habitually. While the aforesaid may be effective coping behaviours, these may be limiting factors when having to perform more complex instructions consisting of multiple actions. To counter cognitive overload when using the instructional pamphlets, a minimum number of specific topics was identified and prioritised (Zimmerman et al. 1996, p. 27; Viswanathan & Gau 2005, p. 192), visual material relating to what the low-literate readers would know and understand was used and foreign or abstract images, symbols depicting gestures, images requiring a specific perspective, and the use of images that convey multiple steps in a process were avoided (Ngho & Shepherd 1997, p. 267). A professional graphic designer was appointed for the composition of the pamphlets. Unlike designs commissioned for universal audiences, the researcher was actively involved during all the stages of development ensuring the appropriateness of the materials for the low-literate participants within a rural context.

### **Culture and language**

Additionally, culture presented an important consideration (Dowse, Ramela & Browne 2011, p. 513). Depending on the cultural background of an individual, visual materials may be understood with limited clarity, or interpreted differently than intended. The materials developed for the predominantly Tswana IGP participants had to be culture-specific, as cultural familiarity plays an important role in the perceived comprehension of low-literate individuals (Houts et al. 2006, p. 180) and therefore the materials had to be culturally acceptable and not display any foreign symbols (Mansoor & Dowse 2003, p. 1006). As an extension of cultural relevance, the home language of the low-literate individuals was incorporated (Zimmerman et al. 1996, p. 26) in the form of familiar Setswana wording and diction. Some of translated wording included descriptions of materials: *diphini* (pins), *theipi ya go meta* (tape measure) and *letsela* (fabric) as well as instructions including *kgato 1* (step 1) and *faoe beile, tthomela diphini* (when in place, put pins). The development of text followed a personalised approach (Dowse, Ramela & Browne 2011, p. 509) by adopting an active voice within the message content. Text and corresponding visual materials were positioned in close proximity to one another. Limited cognitive ability could cause low-literate individuals to devote their available cognitive resources to search for corresponding words and pictures, thus diverting them away from the act of learning. Comprehension of the intended message would therefore be enhanced when corresponding text and visuals were presented within the same border (Mayer 2001, p. 81).

### **Early development of the sewing training instructional pamphlets**

Materials developed for low-literate individuals require thorough evaluation to determine their appropriateness (Viswanathan & Gau 2005, p. 195). Thus the newly developed pamphlets were submitted for expert review before undergoing pilot testing within a user population (Kripilani et al. 2007, p. 375). An art expert was consulted to confirm the intended message of the visual materials. A sewing expert was consulted to confirm correctness of the step-by-step instructions. An expert in the field of low-literacy was consulted to ensure the relevance of materials for low-literate end users.

### **Pilot testing of the sewing training instructional pamphlets**

Pilot testing was undertaken to obtain feedback from the IGP participants for further development of the sewing training instructional pamphlets. Both pamphlets were implemented in a field-based intervention within a sewing IGP in the rural community of Jan Kempdorp, NCP, SA. This project unit presented a sample displaying similar characteristics to the population for the main investigation, as well as a similar setting. All the participants at this unit (four participants) were purposely selected to participate, were willing to participate and volunteered their participation. Although a limited sample, the pamphlets were specifically developed for these rural sewing IGPs based on their practical sewing training needs and literacy challenges and could therefore not be generalised to other populations within domains or backgrounds of other IGPs.

### **Procedure for implementing the sewing training instructional pamphlets in the field-based interventions**

Completing practical tasks provided the opportunity for the implementation of the sewing training instructional pamphlets, and enabled end-user review. A one-group pre-test post-test design was employed (Creswell 2014, p. 170). The pamphlet for taking body measurements was implemented first. As a pre-test measure, each participant was required to measure a fitting doll at four (4) key body dimensions (namely the shoulder, bust, waist and hip) without having any exposure to the sewing training pamphlet, or any other instructions or assistance. Each participant then received the body measuring pamphlet and read/reviewed it in private in their own time. Once completed, the participant was asked to complete the same measuring task as before, as a post-test measure. To ensure that no undue anxiety was caused, the researcher emphasised that it was not the skill level of the IGP participants being tested, but rather, the appropriateness of the pamphlet for assisting with sewing tasks. Finally, each participant completed a subjective evaluation in the form of a questionnaire (administered verbally) in order to determine their satisfaction with the pamphlets as users thereof.

The procedure for the implementation of the pattern layout pamphlet followed in a similar manner.

### **Measuring instrument**

An interviewer administered questionnaire was developed to determine the perceived readability, understanding, usefulness, learning of the participants and quality of the pamphlets. The questionnaire consisted of three sections. In Section A, the demographic details of the respondents, including their age, educational attainment and home language, were recorded. Section B was related to readability, understanding, ease of use and learning. As a factor impacting the implementation, Section C explored the perceived quality of the pamphlets by determining their preferences for size of text, the incorporation of pictures, length of material, and preferred visual material and language. A three-point Likert scale using pictographs developed by Van Staden (2012, p. 78) and specifically aligned with the cognitive predilections of low-literate individuals, was employed. The questionnaire was limited to 16 questions.

### **Data analyses**

Statistical analysis was completed using IBM SPSS® Statistics Version 23. Descriptive statistics were applied to all the variables of the satisfaction questionnaire in the form of frequency distributions (presenting the number and percentages of times that variables were observed) (Rubin & Babbie 2010, p. 290).






## **Results and discussion following pilot testing**

### **Demographic details of the pilot test respondents**

The pilot test involved 4 respondents. They were between the ages of 18 and 65 years old. While two of them had attained Grade 12, the other two had very low levels of schooling (namely Grade 2 and Grade 5).

### **Results of the user satisfaction questionnaire following pilot testing**

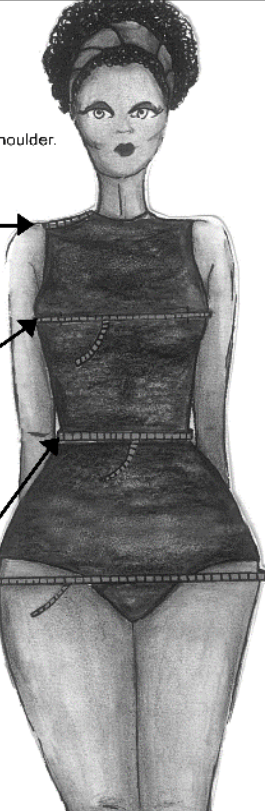
The pilot test results indicated an overall positive reaction towards the use of the pamphlets. Three of the four respondents indicated that the pamphlets were easy to read and easy to understand. While two respondents did not understand all the words, all four indicated their comprehension of the visual materials. Three respondents responded that they learned much from the pamphlets and will use them often in future. Most notably, three of the four respondents indicated that the pamphlets should be shorter. From previous research a correlation was found between individual working memory and cognitive abilities, and that any elements within the training materials not deemed necessary for learning may deter low-literate individuals from the learning process (De Jong 2010, p. 106). Additionally, instructional materials that are too long may cause reader disinterest and hinder concentration span (Mansoor & Dowse 2003, p. 1007), consequently rendering such material user-unfriendly. To counter for negative effects, the researcher shortened the body measurement pamphlet by 16 words to a total of 121 words, and the pattern layout pamphlet by 67 words to a total of 266. Additionally, bullets were added to make multiple points easier to read (Dowse, Ramela & Browne 2011, p. 513). Figures 2 and 3 below present the modified pamphlets.

<p><b>O tla thoka</b></p> <p><b>Theipi ya go meta</b></p>  <p><b>Pampiri ya dikarabo</b></p> 	<p><b>Take note/Ela tihoko</b></p> <p><b>The tape measure has two sides.</b> The one side shows measurements in inches.</p>  <p>The other side shows measurements in centimetres (cm)</p>  <p>We use cm </p>
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**How to take body measurements**

**Shoulder length**

- Measure from bottom of neck to the edge of the shoulder.
- E kwale.



**Bust**

- Measure across fullest part of the bust.
- Measure all around.
- E kwale.

**Waist**

- Measure around the slimmest part of the waist.
- Measure all around.
- E kwale.

**Hips**

- Measure where the hips are widest.
- Measure all around.
- E kwale.

**Ensure the tape is not skew**

**Figure 2: Pamphlet for taking body measurements**












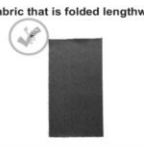
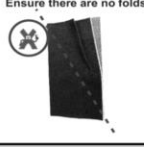







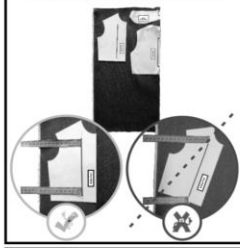

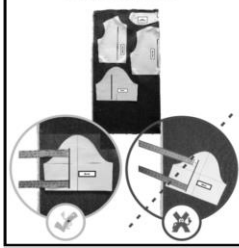
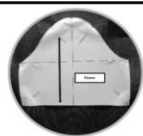
<p><b>O tia thoka</b></p> <p>Diphini</p>  <p>Theipi ya go meta</p>  <p>Letsela</p> 	<p><b>½ scale Pattern pieces</b></p> <p>Collar</p>  <p>Bodice Back</p>  <p>Bodice Front</p>  <p>Sleeve</p> 	<p><b>Know your Pattern Symbols</b></p> <p>The 'grainline' Lerumo leno le kaya go: align the pattern with the fabric edge.</p>  <p>The 'place on fold line' Lerumo leno le kaya go: place on the fold of the fabric.</p> 
<p><b>PELE O SIMOLOLA</b></p> <ul style="list-style-type: none"> <li>•Fold fabric lengthwise.</li> <li>•Bring together and match raw ends.</li> <li>•Ensure there are no folds.</li> <li>•Pin in corners to keep in place.</li> </ul> <p>Fabric that is folded lengthwise</p>  <p>Ensure there are no folds</p>  <p>Pin in place</p> 	<p><b>Take note/Ela thoko</b></p> <p>We fold the fabric double when we lay down pattern pieces (one for the left, and one for the right side of the body).</p>  <p>When the fabric is opened</p> 	<p><b>KGATO 1:</b></p> <p>Collar</p> <ul style="list-style-type: none"> <li>•Place the collar on the fabric fold.</li> <li>•When in place, pin at all corners.</li> </ul> <p>Placement of collar on fabric</p>  <p>Fa o e beile, thomela diphini</p> 
<p><b>KGATO 2:</b></p> <p>The Bodice Back</p> <ul style="list-style-type: none"> <li>•Place just below the collar.</li> <li>•Also on the fold of the fabric.</li> <li>•When in place, put pins.</li> </ul> <p>Placement of bodice back on fabric</p>  <p>Fa o e beile, thomela diphini</p> 	<p><b>KGATO 3:</b></p> <p>Place the Bodice Front in the open space.</p> <ul style="list-style-type: none"> <li>•Align with the fabric's raw edge.</li> <li>•To ensure this, measure both ends of the grainline (if the one point is 10 cm from the raw edge – then the other must also be 10 cm from the raw edge)</li> </ul> <p>Placement of bodice front on fabric</p>  <p>Fa o e beile, thomela diphini</p> 	<p><b>KGATO 4:</b></p> <p>Place the Sleeve.</p> <ul style="list-style-type: none"> <li>•Align with the fabric's raw edge.</li> <li>•To ensure this, measure both ends of the grainline.</li> </ul> <p>Placement of sleeve</p>  <p>When in place, put pins</p> 

Figure 3: Pamphlet for pattern layout

## Main investigation

The main investigation followed in the same manner as the pilot testing. The revised sewing training pamphlets were implemented during interventions within the sewing IGPs in the rural communities of Rysmierbuilt and Castello, NWP, SA. All the participants at these units (thirteen participants in total) were purposely selected to participate, were willing to participate and volunteered participation.

Data analyses followed in the same manner as the pilot testing.

### Results and discussion of the main investigation

#### *Demographic details of the main study respondents*

The demographic details of the respondents are presented in Table 1.

**Table 1: Demographic details of the respondents**

Demographic characteristics	Main investigation		
	N	n	%
Age	13		
18-29		5	39
30-39		3	23
40-49		2	15
50-59		3	23
Level of schooling	12		
Grade 4		1	8
Grade 7		3	23
Grade 9		1	8
Grade 10		2	14
Grade 11		2	14
Grade 12		3	23
Invalid response		1	8
Home language			
Setswana	13	13	100

The respondents in the main investigation were between the ages of 18 and 59 years old. Their highest level of schooling ranged between Grades 4 and 12. One respondent did not report on her educational attainment. Low-literate individuals are known to use dissimulation or avoidance as a coping strategy when they feel embarrassed about their literacy status (Viswanathan, Rosa & Harris 2005, p. 24). All the respondents were Setswana speaking.

## Results and discussion of the main investigation

### *The user satisfaction questionnaire*

Table 2 presents the results of the perceived readability, understanding, use, and learning of the respondents and the quality of the sewing training pamphlets.

**Table 2: Perceived readability, understanding, use, learning and the perceived quality of the sewing training pamphlets**

Question	Main investigation (N13)			
	Body measuring pamphlet		Pattern layout pamphlet	
	n	%	n	%
It is easy to read the pamphlet				
Yes	13	100	12	92
No	-	-	1	8
I don't know	-	-	-	-
It is easy to understand the pamphlets				
Yes	11	84	11	84
No	1	8	1	8
I don't know	-	-	-	-
No response	1	8	1	8
I could understand all the words				
Yes	13	100	13	100
No	-	-	-	-
I could understand all the pictures				
Yes	13	100	11	85
No	-	-	2	15
I will use other pamphlets like this one				
I will use it a lot	12	92.3	11	84
I will use it sometimes	-	-	1	8
I will use it a little	1	7.7	-	-
No response	-	-	1	8
I learned from the pamphlet				
I learned a lot	11	84.6	12	92
Average	1	7.7	-	-
I learned a little	1	7.7	-	-
No response	-	-	1	8
I liked the pamphlet				
I liked it very much	12	92	12	92
Average	1	8	1	8
I liked it a little	-	-	-	-
I liked having pictures in the pamphlet				
I liked it very much	13	100	13	100
Average	-	-	-	-
I liked it a little	-	-	-	-
The writing is big enough				
Yes	13	100	13	100
No	-	-	-	-
The pictures helped me to understand the pamphlets				
Yes	13	100	12	92
No	-	-	-	-
No response	-	-	1	8
The pamphlet should be shorter				
Yes	2	15	2	15
No	11	85	11	85
Do you prefer				
Line drawings	4	31	6	46
Photo's	9	69	7	54
In which language should the pamphlet be written				
Setswana	8	62	8	62
Afrikaans	-	-	-	-
English	5	38	5	38

The majority of respondents indicated that the body measurement and pattern layout pamphlets were easy to read (100% and 92% respectively) and easy to understand (84%). While all the respondents indicated an understanding of all the words, two (15%) did not understand all the pictures within the pattern layout pamphlet. In general, the pamphlets were considered to be useful (92% and 84%) and the respondents indicated that they learned much from them (85% and 92%). Shortening the content of the pamphlets and conveying only the smallest amount of information to complete the tasks may have ensured that the working memory capacity was not exceeded (De Jong 2010, p. 106). It may also have increased the likelihood that the users connected with and retained the informational material (Viswanathan & Gau 2005, p. 193). The respondents indicated a strong positive reaction towards the pamphlets (with a 92% response for liking it very much). Prior research has indicated that satisfaction with informational materials increases as familiarity increases (Dowse, Ramela & Browne 2011, p. 512). The incorporation of cultural elements within the pamphlets (such as sketches rendering a more Africanised figure; incorporating Tswana indigenous dress) may therefore have been a contributing factor. The link between low-literacy and pictographic thinking was emphasised as all the respondents not only liked having pictures in the pamphlets, but also reported that it helped them to understand the instructions. This may be ascribed to the fact that visual materials aid the opportunity for cognitive learning to occur (Ngho & Shepherd 1997, p. 266) and facilitate the understanding of step-by-step procedures which would be otherwise incomprehensible to low-literate individuals (Choi 2012, p. 374). These results support the findings of Dowse, Ramela and Browne (2011, p. 511) and Kripilani et al. (2007, p. 375) that visual materials are considered valuable by low-literate users for enhancing their comprehension of written information. The vast majority (85%) of the respondents were satisfied with the length of the pamphlets.

While prior research has indicated that home language significantly relates to the success of informational material (Mwingira & Dowse 2007, p. 180; Dowse, Ramela & Browne 2011, p. 513), five respondents (38%) indicated a preference for English. This may be due to the minimal amount of Setswana print material available, rendering them more accustomed to reading English text.

## Conclusion

This is the first research paper to attempt a decolonised approach towards the design and development of training materials for implementation in rural sewing IGPs. Based on identified sewing training needs, two sewing training instructional pamphlets were developed. The appropriateness of the pamphlets for low-literate users was ensured by a comprehensive process (incorporating a low grade level and factors enabling pictographic and concrete thinking) to empower participants of rural IGPs to use training materials within the constraints of low-literacy. Overall, the respondents indicated satisfaction with the pamphlets. They found it easy to read and understand, they learned a lot from it and will use it in future.

### Limitations

While the limited sample size prohibits generalisability of the study results, it could form the basis for other research towards the design and development of instructional pamphlets for low-literate users.

### Recommendations for future developments

A further phase of empirical research should be undertaken to objectively assess the sewing training instructional pamphlets for their effectiveness in achieving skills training outcomes. Additionally, a vast number of skills training shortfalls need to be addressed within the rural sewing IGPs. Future developments could also advance ways in which instructional materials could be shortened, and could further explore the dual text/visual and home language

/English approach. These principles could be applied to an array of multidisciplinary rural IGP endeavours including glass recycling, crafts, and woodwork.

**Ethics:** This study was approved by the Health Research Ethics Committee (HREC) of the North-West University (NWU), reference NWU—00043-16-S1. Complete informed consent was obtained from each of the research respondents.

**Competing Interests:** The authors have declared that no competing interests exist.

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