

REVIEWING SEWING TRAINING MATERIALS FOR PARTICIPANTS OF RURAL INCOME GENERATING PROJECTS

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ABSTRACT

Training materials contribute to the effectiveness of community-based projects when they address practical skills training needs. Various types of sewing training materials exist, but their suitability for use in South African rural income generating projects (IGPs) has not been investigated. Our aim was to review existing sewing training materials for their potential appropriateness and application in three selected rural sewing IGPs and to identify prominent sewing training needs. This qualitative study was executed in two phases. The first phase consisted of document analysis of selected currently available books and online sources. The interview-based second phase asked five community facilitators in the three IGPs to comment on the appropriateness of training material presented to them and on training needs encountered in their units. The findings revealed that print and online sources theoretically appropriate for use by IGP participants were less likely to be suitable in practice. The interview data also indicated challenges with practical skills, relating especially to the tasks of taking body measurements and of pattern layout. This study suggests a need to redesign training materials specifically for low-literate end-users in South African community-based rural sewing IGPs. It also offers an initial set of guidelines for reviewing and revising such materials that could give direction for developing training materials for a broader range of IGPs.

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INTRODUCTION

Income generating projects (IGPs) are initiatives to improve people's economic conditions by directing a community's resources towards generating earnings through productive activities

(Albee 1994). Many IGPs aim to uplift vulnerable communities such as those in rural areas where employment opportunities remain scarce (Menyuko 2011). Their members, who frequently lack education or training, often form groups in order to establish small businesses (Keane & Ross 2012); these include women's groups that draw on traditional roles such as beading, knitting or baking (Somtunzi 2002). Because relatively little capital is required to purchase the necessary equipment, sewing projects have become popular start-ups for income generation (Botha 2005). To ensure that products for sale are of marketable quality, IGP group members need the requisite practical skills, which may be acquired or improved with assistance from facilitators and from the right training materials. The aim of this study was to review available training materials for their appropriateness for rural sewing IGPs in South Africa, and to identify training needs that such materials are required to fulfil.

The composition of such sewing IGPs is diverse. Their members can differ in age, educational level, and practical expertise and, because criteria for participation seldom exist, they may enrol and exit at will. Varying skills levels mean that facilitators are important for successful IGP operations (Trollip 1997). Some are externally appointed (such as those in government programmes). Others are active project members (seamstresses), engaging in their groups' income-generating activities while simultaneously fulfilling leadership roles as 'community facilitators', and are vital for project sustainability (Van Niekerk 2006b). Often informally appointed, they understand the group's culture, motivate and encourage the other participants, and supervise the IGP's day-to-day activities (Duvenhage *et al.* 2013; Trollip 2001; Van Niekerk 2006b).

Inadequate sewing-related practical skills inhibit the profitability of these IGPs (Niesing 2012), because inferior quality renders their products unmarketable (Van Niekerk 2006b). A further major contributor to the effectiveness of skills-based community projects, therefore, is the availability of appropriate training materials (Oldewage-Theron *et al.* 2005; Van Niekerk 2006b). Sewing training materials refer to textual materials developed to aid sewing tasks. Originally designed for academic or sewing training purposes, they can take the form of manuals,

instructional guides, textbooks, or workbooks (printed or electronic). Their value depends on their ability to assist with fulfilling specific practical training needs and with information to help group members to acquire and maintain the skills needed for creating income-generating items.

The suitability of sewing training materials for low-literate members of rural IGPs influences their usefulness. The term 'literacy' encompasses cognitive skills related to reading and writing (Posel 2011; United Nations Educational, Scientific and Cultural Organization [Unesco] 2006), and 'low-literate' refers to adults (aged 18 years and older) with less than a Grade 7 education (Adkins & Ozanne 2005a; Statistics South Africa 2012). 'Functional literacy' covers reading and writing competencies needed for adults to function adequately in daily life and links skills associated with literacy and numeracy to specific settings and may relate to specific subject fields (Viswanathan & Gau 2005), as, for example, the ability to read sewing instructions.

Approximately two-thirds of South Africa's adults have only marginal reading skills (Dowse *et al.* 2011; Mansoor & Dowse 2003). Limited schooling opportunities in rural areas mean that many adults in rural areas lack basic literacy skills (Gardiner 2008). Almost a quarter of rural children exit primary schools unable to read and understand documents effectively (SA 2008; Spaul 2016) and are likely to experience difficulties in using typical text-based training materials (Mansoor & Dowse 2003).

South African women have higher unemployment rates than men - 35.9% and 30.1%, respectively (Statistics South Africa 2018a) - and female-headed households are at significantly higher risk of poverty (Rogan 2016). Rural women have the least access to employment opportunities and often depend on the income of male family members working on farms (Kruger *et al.* 2006). Scant skills training or opportunities for advancement in rural areas make it hard for female farm dwellers to earn (Van Niekerk 2006b). These factors are motivators for urgent research and development in the area of rural IGPs.

The present study focused on a community engagement initiative, undertaken by North-West

University (NWU), which had established three community-based sewing IGPs in rural areas; one was based in the Northern Cape and the other two in the North West province. A training manual had been compiled, entitled "A facilitator's guide to arts and crafts training" (Van Niekerk 2006a) (hereafter referred to as the 2006 Manual), which focused on sewing-related arts and crafts to assist community facilitators with skills development training in their IGPs, and specifically targeted projects involving rural women with low incomes and little or no formal education. This was the only training material developed for these three sewing IGPs at the time of our investigation; no information was available as to its application in practice, but research conducted in these IGPs (Niesing 2012) reported a lack of training resources, which suggests that it was not used. Furthermore, it seems never to have been assessed in terms of its appropriateness for its designated end-users.

Our study revisited the needs of these three sewing IGPs for relevant and user-friendly training materials. Existing and currently available sewing training materials were tested for their potential suitability for these women's groups. Interviews were then conducted with five community facilitators who were invited to comment on selected material presented to them and on what they considered the most significant practical sewing challenges experienced in their groups. The purpose was to establish what kinds of training materials would be most helpful for our rural sewing IGPs.

LITERATURE REVIEW

Crucial for attempts to select or prepare appropriate training materials, particularly for rural South African IGPs, are considerations relating to the literacy levels of such sources as well as their content.

Literacy levels

Matching training materials to end-users' needs requires establishing the approximate literacy level of a document. This may be achieved by applying validated tests such as the Fry readability assessment, the Coleman-Liau Index, the Gunning Fog Index, and the Flesch-Kincaid

readability test. These establish the user's number of years of formal schooling or estimated age for him or her to be able to comprehend a text at first reading. For example, a document with a literacy level of 12 means that it would normally be understood by a Grade 12 learner or 18-year-old (Flesch-Kincaid, Microsoft Office 2018). In the absence of comparable tests designed for South African conditions, Flesch-Kincaid is useful because it assesses document readability on two levels: reading ease and grade level. Its reading ease scores range between 0 and 100, with higher scores indicating greater reading ease (Kincaid *et al.* 1975); its grade levels, however, correspond to those in schools in the United States (US) (Kincaid *et al.* 1975).

The literacy level of a document suitable for low-literate individuals in South Africa's rural areas extends beyond reading ease and grade level alignment (Viswanathan & Gau 2005). The users' cognitive and behavioural needs make them respond differently to textual materials than their literate counterparts (Jae *et al.* 2011; Viswanathan *et al.* 2005). Three factors require specific consideration when reviewing textual materials for low-literate individuals: the amount of reading required, the context, and the nature of the material (Viswanathan & Gau 2005).

The amount of reading required for comprehension can be challenging as extensive theoretical materials inhibit the learning process for low-literate readers (Viswanathan & Gau 2005). Reading activities are complex (Stevenson & Palmer 1994) and learning that results from reading requires three sets of interrelated cognitive processes: word recognition, sentence comprehension, and text comprehension (Stevenson & Palmer 1994). Limited reading skills can compromise the relationship between the low-literate reader and the training materials (Mwingira & Dowse 2007), especially where text and numbers are prominent (Viswanathan *et al.* 2005). Because low-literate individuals tend to rely on images to obtain information (Van Biljon & van Rensburg 2011; Viswanathan *et al.* 2005), visual material is crucial.

The context in which information is presented is significant. Low-literate individuals tend to engage in concrete thinking (the literal meaning of

single pieces of information) (Viswanathan & Gau 2005; Viswanathan *et al.* 2005) and may find it hard to apply generalised information to real-world settings or to their specific training needs. For example, in the sphere of sewing, a general instruction to 'conduct quality checks' could more usefully be specified as 'cut away all loose threads' for this audience.

The nature of the material is also important. Textual materials are mostly designed to be read rather than to be used interactively in the learning process (Viswanathan *et al.* 2005). Scarcity of libraries in underdeveloped rural areas mean scarcity of printed information, so people in South African rural communities may lack a culture of reading (Gardiner 2008) and may therefore find the use of books unfamiliar or intimidating.

Content

Content is crucial when reviewing the suitability of training materials for use in rural IGPs. Overall, those that are commercially available for sewing include production-related aspects ranging from elementary (introduction to the sewing machine and construction of seams) to general (constructing pleats, pockets, necklines, sleeves, hems, zips and fabric closures) and may incorporate more advanced sewing techniques (such as corsetry and tailoring). The skills required to produce any textile item require hand-eye coordination (ability to sew in a straight line), basic mathematical skills (reading numerical measurements), and literacy skills (reading and understanding sewing instructions). For existing training material to be applicable, its content must address actual skills training needs. Sewing IGPs' products typically include items such as bags, pencil cases, aprons, placemats, tablecloths and table runners (Van Niekerk 2006b), although some undertake larger scale production of more advanced items such as uniforms and traditional garments. However, even though sewing IGPs' items are generally basic rather than complicated, participants often have a limited range of skills and find it difficult to learn new ones (Van Niekerk 2006b). For relevance to an IGP population, the development of training material content needs to address the appropriate skills level and take a bottom-up approach to match skills training needs (Trollip

2001).

The literature highlights key considerations in the provision of appropriate training materials for users' needs. To understand how best to supply the right training materials for use in South African rural sewing IGPs, this study assessed existing training materials in terms of their appropriateness and explored participants' own views of what they regarded as the most prominent sewing training needs that needed to be addressed.

RESEARCH METHODOLOGY

Research design

A two-phase qualitative research design, based on document analysis and interviews, was used to investigate the use of sewing training materials in South African rural sewing IGPs and users' challenges. A range of available materials was assessed and because individuals develop meanings and experiences of the world in which they live (Creswell 2014), we also sought actual community facilitators' views of selected material for possible application in their unique settings.

Data collection and analysis

Phase One: Document analysis

Document analysis was conducted to assess the appropriateness of the original 2006 Manual for application in the rural sewing IGPs in terms of its literacy level and content. To explore possible usefulness of other existing materials, a selection of 15 commercially available books and online sources was also analysed. For the analysis of these documents, steps suggested by Bowen (2009) were applied, including finding, selecting, and appraising sources.

Finding and selecting sources: The 2006 Manual was obtained from the NWU's project coordinator for the rural sewing IGP groups for which it had been prepared. A further eight published books were selected for inclusion in the study. The criteria used to choose these materials were based on content, which ranged from most basic to more advanced tasks, with some sources addressing more technical aspects related to pro-

duction. The selection was wide enough for the review to be sufficiently representative of the materials available. The final list of published books comprised the following:

- Cole, J.C. & Czachor, S., 2010, *Professional sewing techniques for designers*, Fairchild, New York;
- Di Lorenzo, M.F., 2010, *Tailoring techniques for fashion*, Fairchild, New York;
- Easton, J., 1986, *The encyclopaedia of sewing*, Hamlyn, Middlesex;
- Henry, M., 1994, *The A-Z of the sewing machine*, Batsford, London;
- Reader's Digest., 2010, *The new complete guide to sewing*, Reader's Digest Association, Pleasantville;
- Singer., 1990, *Sewing step-by-step*, Cy DeCosse, Minnetonka;
- Smith, A.V., 2009, *The sewing book*, DK Publishing, New York; and
- Westfall, M.G., 1997, *Successful sewing*, Goodheart-Willcox, Tinley Park.

For online sources we used the web search engine Google to obtain initial information, but the overwhelming amount of results necessitated more targeted investigation. We therefore decided to examine the procedure suggested for inserting a zip, as this basic task applies to many items produced in sewing IGPs. This activity was found in all the sources and therefore provided the basis for a standardised review. Seven online sources were selected for inclusion:

- Browne, L., 2012, Sewing secrets, viewed 19 March 2016, from <http://coatsandclarksewingsecrets.com/blogcategory/sewing/sewing-a-lapped-zipper-in-a-skirt>;
- Giddens, J., 2012, Sewing Technique: lapped zipper, viewed 19 May 2016, from http://extension.usu.edu/files/publications/factsheet/FC_Clothing&Textiles_2012-02pr.pdf;
- Lapped zipper tutorial, 2012, viewed 19 May 2016, from <http://scruffybadgertime.co.uk/2012/08/my-mammas-lapped-zipper-tutorial/>;
- Nielsen, M., 2013, Tutorial: centred and lapped zippers, viewed 19 May 2016, from <http://blog.megannielsen.com/2013/05/tutorial-centered-and-lapped-zippers/>;
- Percy, C., 2008, Threads Magazine, viewed

19 May 2016, from <http://www.threadsmagazine.com/item/3728/sewing-in-a-zipper/page/all>

All the selected sources were in English and originated from the US and the United Kingdom (UK). Although it is recommended that informational sources directed at low-literate audiences should be presented in their home language (Zimmerman *et al.* 1996), we could obtain no Setswana materials or any sources reflecting the Tswana culture of our IGPs for inclusion in this review.

Appraising sources: All the selected sources were reviewed in terms of literacy level and content. Determining the literacy level applied Flesch-Kincaid to test reading ease and grade level, as well as the presence of visual material. In terms of content, each book was reviewed against 13 sewing activities most relevant to the work and types of item produced in the rural sewing IGPs: (1) maintaining a sewing machine, (2) threading of machines, (3) taking body measurements, (4) determining fabric grain direction, (5) reading pattern information, (6) aligning the grain line of pattern and fabric, (7) cutting accurately, (8) transferring pictures to fabric (motifs for hand embroidery), (9) making gathers or ruffles, (10) inserting a zip, (11) quality control, (12) different kinds of hand stitches, and (13) finishing and packing.

Phase Two: Semi-structured individual interviews

Sampling: This study focused on the NWU's three rural sewing IGPs. The total population of five community facilitators was purposively included in the sample, two of whom were based at the Northern Cape unit and three at the North West Province units. These participants present the target audience of the 2006 Manual. Most important, they had actual experience of the sewing training needs in their respective IGP units, they had prior experience in the facilitation of sewing IGPs; they were above the age of 18 years; they were willing to participate in the interviews, to be voice recorded, and were Afrikaans, English or Setswana speaking. A research assistant acted as mediator, negotiating entry and obtaining independent and informed consent before semi-structured interviews were

conducted and data collected.

Procedure: The interview schedule for each participant contained open-ended questions with associated sub questions (Creswell 2014) and covered four topics: (1) implementation of the 2006 Manual; (2) review of commercially available sewing training material; (3) sewing training material needs (to facilitate discussion, participants were presented with the same range of activities as reviewed in the document analysis because these were deemed relevant to the types of item produced in their sewing IGPs); (4) the most challenging sewing tasks experienced, with reference to items made in their respective IGP units.

Data analysis: The data were organised and prepared by a translator and transcriber who transcribed audio data into text verbatim, and then translated the interviews conducted in Setswana into English. The researcher typed and sorted the field notes. She then became conversant with the interview data content before coding (Nieuwenhuis 2007). The codes were grouped into corresponding categories and the data were organised and summarised, in some instances in tables to create a visual image of the findings (Schurink *et al.* 2011) and to present the number of responses per item. Finally, interpretations were made.

Trustworthiness: Five standards of trustworthiness (Botma *et al.* 2010; Lincoln & Guba 1986) were applied: truth value, applicability, consistency, neutrality and authenticity. To satisfy *truth value*, the first author engaged with and obtained information from the participants (Lincoln & Guba 1986) while taking field and observation notes to ensure authentic representation of the data (Botma *et al.* 2010). Following data collection, she reviewed the transcribed interview data at length. *Applicability*, with reference to the interview participants, was ensured by purposely selecting IGP community facilitators who had prior experience working within the IGP units, so as to obtain information from the most knowledgeable and relevant persons. For *consistency*, the researcher used credible and identifiable literature sources, and provided thick description of the research methods employed in the context of the rural IGPs (Lincoln & Guba 1986). To make sure that the research was free

from bias, *neutrality* was achieved via co-coder reliability by the second author, thus confirming the findings of the study. Literature pertaining to low-literate individuals was applied to verify the findings (Creswell 2014; Lincoln & Guba 1986). *Authenticity* was achieved by honestly portraying the opinions of the participants through direct quotations in the discussion (Williams & Morrow 2009).

FINDINGS AND DISCUSSION

The findings and discussion are presented according to the two phases of the study, starting with document analysis and followed by interview findings.

Phase One: Document analysis of existing sewing training materials

The 2006 Manual

The 2006 Manual, designed for the specific rural IGPs represented in our study, was reviewed for its appropriateness in terms of the match between its literacy level and that of its consumers, the community facilitators.

Literacy level

We determined the literacy level of the 2006 Manual by establishing its reading ease and grade level (Flesch-Kincaid, Microsoft Office 2018). Its ease of reading score of 58.7 was lower than the general range (60–70) associated with a standard document targeting a literate audience (Flesch-Kincaid, Microsoft Office 2018); this finding revealed the manual as even less appropriate for low-literate individuals. Its grade level was 9.6, equivalent to a school level of nearly Grade 10, which was higher than the score of 8.0 suggested for general documents and than the prescribed score of less than Grade 7 for low-literate users (Adkins & Ozanne 2005b). It is noteworthy that these standards apply to contemporary academic English based not on South African but on US standards for English first-language users. In the rural areas of our IGP study, English is often neither a first nor a second language, and Setswana and Afrikaans are the most prevalent languages. In addition, the 2006 Manual did not provide for the acknowledged predilection of low-literate individ-

uals for pictographic thinking, nor did it satisfy their preference for visual information, as suggested by Yan *et al.* (2008), as its pictures were used merely for decorative purposes. Written information was therefore, inappropriately (Dowse *et al.* 2011), the only source of guidance, and we concluded that our IGP facilitators would find it difficult to read and interpret sewing instructions presented in this text format.

Amount of reading, context, and nature

The 115-page 2006 Manual was designed to be read rather than interactively used. Such extensive theoretical material presents obstacles for low-literate individuals, who find it hard to apply general information to unique settings (Viswanathan *et al.* 2005).

Content

The sewing section of the 2006 Manual presented broad production-orientated guidelines rather than concrete instructions. The absence of a strong association between the 2006 Manual and the need for it to guide specific practical applications made it unlikely that low-literate community facilitators of rural sewing IGPs could easily apply this text to address their requirements. While the document did for the most part offer guidelines, it addressed only 5 of the 13 sewing activities reviewed. We concluded, therefore, that its relatively high literacy level, its non-specific content, and its limited coverage, would inhibit its use by the targeted facilitators.

The authorial approach was also questioned. Materials developed from a writer's perceptions (i.e. using a top-down approach) may not accurately represent the actual needs of a target population (Trollip 2001). For this reason, needs assessments have been recommended to make sure of the appropriateness of materials developed for community-based initiatives (Fawcette *et al.* 1994, Trollip 2001).

Commercially available sewing training materials

We reviewed selected commercially available sewing training books for the appropriateness of their literacy level and content (Table 1) and online sewing training sources in terms of appropriate literacy level (Table 2). A review of content did not apply to the online sources as spe-

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Procedure: The interview schedule for each participant contained open-ended questions with associated sub questions (Creswell 2014) and covered four topics: (1) implementation of the 2006 Manual; (2) review of commercially available sewing training material; (3) sewing training material needs (to facilitate discussion, participants were presented with the same range of activities as reviewed in the document analysis because these were deemed relevant to the types of item produced in their sewing IGPs); (4) the most challenging sewing tasks experienced, with reference to items made in their respective IGP units.

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Amount of reading, context, and nature

The 115-page 2006 Manual was designed to be read rather than interactively used. Such extensive theoretical material presents obstacles for low-literate individuals, who find it hard to apply general information to unique settings (Viswanathan *et al.* 2005).

Content

The sewing section of the 2006 Manual presented broad production-orientated guidelines rather than concrete instructions. The absence of a strong association between the 2006 Manual and the need for it to guide specific practical applications made it unlikely that low-literate community facilitators of rural sewing IGPs could easily apply this text to address their requirements. While the document did for the most part offer guidelines, it addressed only 5 of the 13 sewing activities reviewed. We concluded, therefore, that its relatively high literacy level, its non-specific content, and its limited coverage, would inhibit its use by the targeted facilitators.

The authorial approach was also questioned. Materials developed from a writer's perceptions (i.e. using a top-down approach) may not accurately represent the actual needs of a target population (Trollip 2001). For this reason, needs assessments have been recommended to make sure of the appropriateness of materials developed for community-based initiatives (Fawcette *et al.* 1994, Trollip 2001).

Commercially available sewing training materials

We reviewed selected commercially available sewing training books for the appropriateness of their literacy level and content (Table 1) and online sewing training sources in terms of appropriate literacy level (Table 2). A review of content did not apply to the online sources as specific searches were conducted.

Literacy levels

A total of eight books and seven online sources were reviewed. The averages of the Flesch-Kincaid readability test showed that the reading ease scores of the books (75.5) and of the online sources (77.4) were higher than the general range (60–70), suggesting that 14 of the 15 selected commercially available sources were fairly easy to read. Their grade level indicators (based, however, on US schooling levels) ranged from as low as grade 3 to as high as grade 9; the book indicators averaged grade 4.5, somewhat lower than the grade 6.9 average of the online sources. All the sources included visual materials to supplement verbal instructions. While many of the books contained drawings (63% drawings and 37% photographs), all the online materials contained photographs.

Content

We ascertained that all the books addressed at least some of the required sewing activities (with 53% of the activities addressed on average) (Table 1). These findings indicated that, in theory, the literacy levels and content of the selected commercially available sewing training materials could serve the purposes of low-literate end-users. However, our review of the amount of reading, the context, and the nature of these materials raised questions about their overall suitability for South African rural sewing IGPs.

TABLE 1: REVIEW OF COMMERCIALY AVAILABLE SEWING TRAINING BOOKS (n = 8)

Author/year of publication of selected sources (chronological order)		Considerations for literacy level				Considerations for content
		Flesch-Kincaid test		Visuals included		Number of sewing activities addressed (n = 13)
		Reading ease (out of 100)	Grade level	Photographs	Drawings	
1	Eaton (1986)	77.9	4.6		X	6 (46%)
2	Singer (1990)	41.6	8.1	X		8 (62%)
3	Henry (1994)	87.9	4.3		X	3 (23%)
4	Westfall (1998)	78.2	4.0		X	7 (54%)
5	Smith (2009)	83.0	4.4	X		9 (69%)
6	Cole and Czachor (2010)	82.8	3.0		X	7 (54%)
7	Di Lorenzo (2010)	80.2	3.3	X		5 (38%)
8	Reader's Digest (2010)	72.5	4.5		X	10 (77%)
Average		75.5	4.5	-	-	7 (53%)
Counts		-	-	3 (37%)	5 (63%)	-

(Flesch-Kincaid, Microsoft Office 2018)

TABLE 2: REVIEW OF COMMERCIALY AVAILABLE ONLINE SEWING TRAINING MATERIALS (n=7)

Author/title year (chronological order)		Considerations for literacy level			
		Flesch-Kincaid test		Visuals included	
		Reading ease (out of 100)	Grade level	Photographs	Drawings
1	Percy (2008)	69.3	8.7	X	0
2	Giddens (2012)	78.2	5.4	X	0
3	Lapped zipper tutorial (2012)	75.7	9.0	X	0
4	Browne (2012)	72.7	6.7	X	0
5	Nielsen (2013)	80.1	6.2	X	0
6	Insert a lapped zipper (2014)	78.5	7.3	X	0
7	Learn to sew: how to sew a zipper (2016)	87.9	5.0	X	0
Average		77.4	6.9	-	0
Counts		-	-	7 (100%)	0 (0%)

(Flesch-Kincaid, Microsoft Office 2018)

Amount of reading: The page count of the selected books ranged between 112 and 542. They covered a wide range of topics, but extensively theoretical content could overwhelm or even intimidate low-literate individuals (Viswanathan & Gau 2005), undermining its usefulness. While the online sources provided a more targeted approach to the information required, in practice their accessibility for rural IGPs is questionable, given the inadequacy of internet availability in South Africa's rural areas

(Mzekandaba 2016) and the country's high and rising data costs (Van Zyl 2016).

Context: Both the books and online sources presented instructional text and visual materials in general and idealised ways, contrasting with actual rural sewing IGP conditions, where many lack basic infrastructure and equipment and often make do with fabric scraps and makeshift furniture. When content that depicts fine materials and equipment is too different from users'

real-life settings, they may feel that the training material does not apply to them. Furthermore, none of the reviewed sources reflected any indigenous frameworks related to a rural community nor could we find any sewing training or instructional materials presented in an Africanised context.

Nature: IGP groups are seldom homogeneous. Participants differ in age, education level, and practical competency, which can have implications for collective use of training material. Older IGP community facilitators with low educational attainment could be uncomfortable using books and online sources, while younger facilitators with more formal schooling could be more familiar with books and more technologically savvy.

Following this review of selected, potentially suitable, commercially available sewing training materials suggests that none were likely, in their current form, to be able to be collectively used by community facilitators in the rural sewing IGPs in our study. This finding supports the point made by Viswanathan *et al.* (2005) that training materials need to be redesigned to suit the requirements of low-literate participants of rural income generating projects.

Phase Two: Interviews with IGP community facilitators

Following presentation of the participating community facilitator demographics, the interview data below are organized according to three key topics: review of the 2006 Manual and commercially available training materials; sewing training material needs; and most challenging sewing tasks.

Demographics: The ages of the five participants ranged from 18 to 60 years and older. Their educational attainment also differed: one had completed Grade 2, two had completed Grade 5 and two had completed Grade 12, confirming the findings of Kruger *et al.* (2006) of persisting shortfalls of basic education in rural areas. The community facilitators were clearly not homogeneous, which has implication for the selection and collective use of training materials in their IGP in terms of literacy level.

Topic 1: Review of the 2006 Manual and commercial sewing training material

When shown the 2006 Manual, none of the participants recalled ever seeing it before, indicating that it seemed neither to have reached its targeted end-users nor to have become embedded in their IGP units. This finding reveals that scarce resources developed for rural IGP use can go to waste if they are not available or methodically applied. The document analysis of the 2006 Manual in Phase One had found a literacy level that was too high for such users, so we asked for no further comments from participants about this document.

Of the five participants, four reported having no sewing training materials available to them, confirming Niesing's (2012) finding of a persistent lack of training resources in rural IGPs. This part of the project presented dual limitations. First, that the 2006 Manual was not further reviewed from the intended users' perspective and second, that reasons for textual training materials not being available or not being used in practice (which could relate to factors such as accessibility or resource allocation) were not empirically investigated. Both of these present opportunities for further investigation.

To facilitate further discussion on the appropriateness of sewing training material, participants were shown the textbook, *The new complete guide to sewing* (Reader's Digest 2010). This source was selected because it addressed basic sewing tasks in ways likely to be of interest, included prominence of visual material, and had an appropriate literacy level (reading ease score 72.5; grade level 4.5). In reviewing this sewing training book, the participants showed enthusiasm at the prospect of using it but noted challenges related to reading the text:

'The problem is to read. I can see the pictures and understand them. But this [reading] is the challenge' [#1, Grade 2].

Most available commercial training material have been produced for users who are assumed to have basic literacy skills (Viswanathan & Gau 2005), but they may be beyond the proficiency of low-literate individuals. Linguistically unclear words and unfamiliar phrases in the materials shown to our participants proved difficult. One

TABLE 3: SEWING TRAINING MATERIAL NEEDS OF IGP COMMUNITY FACILITATORS

Sewing activity (n=13)	Responses (n=5)			
	Yes	No	*	N/A
Maintaining a sewing machine	2	1	2	0
Threading of machines	0	3	0	2
Taking body measurements	5	0	0	0
Determining fabric grain direction	3	2	0	0
Reading pattern information	3	2	0	0
Align grain line of pattern and fabric	4	1	0	0
Cutting accurately	1	2	0	2
Transferring pictures to fabric (motifs for hand embroidery)	0	2	1	2
Making gathers or ruffles	2	3	0	0
Inserting a zip	1	3	1	0
Quality control	2	2	0	1
Different kinds of hand stitches	3	1	1	0
Finishing and packing	1	4	0	0
Yes	There is a need for training material on this sewing activity.			
No	There is no need for training material on this sewing activity.			
*	The facilitators do not require training themselves, but it might apply to other members of the group.			
N/A	Not applicable. This item was not raised/discussed during the interviews			

participant commented:

'I will not be able to understand some words. There are some which I understand when I read English, but some' [shakes head implying negative response] [#3, Grade 5].

Surprisingly, even the literate participant indicated words that were hard to understand:

'I have never come across the stitching words, so it is going to be difficult' [#5, Grade 12].

The responses to this text suggested insufficient functional literacy among our community facilitators to be able to read and use it. To deal with low-literacy and reading limitations, various coping strategies are applied (Adkins & Ozanne 2005a; Adkins & Ozanne 2005b; Van Staden 2012; Van Staden *et al.* 2017; Viswanathan *et al.*, 2005). Our study, for example, clearly illustrated the strategy of relying on help from more literate friends (Jae *et al.* 2011), one participant remarking, with reference to another project member, that:

'She must read for me, so I can understand what is being said' [#1, Grade 2].

Notably, four of the five participants mentioned a culture of mutual assistance with sewing techniques in the IGP's social group environment:

'We share the experience that we taught ourselves, we pass on to others' [#2, Grade 12].

This finding echoes the principle reported by

Viswanathan and Gau (2005) that materials for low-literate individuals should encourage a 'do-with-me' style of facilitation, rather than just communicating instructions.

Pictorial dependence also featured in our study:

'... at times you read and do not understand, but when you read looking at that picture to see how it is like, and then be able to [read]' [#4, Grade 5].

Another challenge for the same participant was the amount of reading required to comprehend the materials: *'...there is too much information here...'*

Learning may be hampered when working memory capacity (or 'short-term memory') is exceeded in a reading task. This implies that high-involvement content can consume available cognitive resources, generating cognitive overload (De Jong 2010). For low-literate individuals, this could hinder the learning process (Viswanathan & Gau 2005). We concluded, from participants' comments about the text they reviewed (in *The New Complete Guide to Sewing*, 2010) and from our earlier document analysis, that currently available commercial sewing training materials were unlikely to be useful to low-literate rural IGP end-users in their present form.

Topic 2: Sewing training material needs

To understand better the practical sewing chal-

allenges faced by the rural sewing IGPs (Topic 3), we asked the five participants to indicate their training materials needs (Table 3).

Five activities yielded 3 or more “yes” responses, which we read as representing the most prominent needs. These were: Item 3, taking body measurements (5/5); Item 4, determining fabric grain direction (3/5); Item 5, reading pattern information (3/5); Item 6, aligning grain line of pattern and fabric (4/5); and Item 12, different kinds of hand stitches (3/5). Because Items 4, 5, and 6 can all be classified as sub-activities within pattern layout, we concluded that the two most prominent sewing training needs were identified as taking body measurements and pattern layout.

Topic 3: Most challenging sewing tasks

To explore further the most dominant challenges resulting from the training needs identified by the participants, we asked them to describe any losses resulting from problems encountered. One participant emphasised pattern layout as a serious issue, making it clear that practical sewing challenges had far-reaching consequences:

‘...the only thing that we experience is when you put the pattern [position the pattern on the fabric], because you don’t know how to set a pattern on a material [referring to the correct procedure for pattern layout], then we ‘miscut’ it [cut it incorrectly] and lose fabric. Then we have to buy another cloth, additional to replace the lost one.’ [#2, Grade 12]

Not applying the correct procedure for pattern layout results in incorrect pattern placement, causing the garment to be cut off-grain; rectification means having to purchase new material, with a cost to the IGP. Such expenses erode already small profit margins.

This study, with its focus on end-user reviews of available training material, yielded critical information about practical issues and conditions facing rural sewing IGPs as they use their skills to earn an income. Situating the participants’ contributions in the context of our more wide-ranging document reviews of existing training materials, however, provides helpful direction for the development of appropriate targeted training materials for IGPs in particular, for rural sewing IGPs and for their successful use in practice.

CONCLUSION

Our document reviews (in Phase One) of existing sewing training material for appropriateness in rural sewing IGPs revealed the value of testing informational material to assess its level in theory; direct end-user feedback (in Phase Two) offers further critical information about its specific match to the unique contexts and needs of end-users – in our case, of South African rural sewing IGPs. While many commercially available sewing training materials can appear potentially appropriate in terms of literacy level and content, they may be found to be less suitable in practice when reviewed by IGP community facilitators themselves, for instance, as in the case of the Reader’s Digest (2010) textbook in our study.

The user-centred approach in Phase Two also provided an initial bottom-up understanding of the applicability of, and challenges associated with, the use of textual sewing training material in the unique settings of South African rural sewing IGPs. Our sample of community facilitators viewed the commercially available sewing training material as presenting challenges, specifically related to the task and the amount of reading involved.

We conclude that there is a need to redesign and customise sewing training materials for use in rural sewing IGP units such as those represented in our study. Our findings generated the following suggestions to guide such endeavours. Overall, revised training materials should:

- be developed at an appropriate literacy level to accommodate low-literate individuals in IGP units;
- support cognitive predilections for pictographic thinking by including prominent visual materials;
- present small amounts of information at a time to avoid cognitive overload, and align these with the tendency of low-literate individuals to engage in concrete thinking;
- facilitate interactive presentation in line with the social group dynamic within the IGPs, and be presented in a format supporting the IGP group demographics (i.e. with a wide range of age, education, literacy level, and sewing expertise);
- be based on actual training needs to address

the practical challenges as experienced by the potential users;

- be implemented and evaluated in practice within IGP units with a view to further ongoing improvement.

The value of our study lies in its two-phase method of inquiry, which combines the application of document review with insights gained from the empirical investigation involving specific targeted end-users, as well as in the information it provides about the needs of rural sewing IGPs. While the small scale of the present study, which targeted just three rural sewing IGP units, means that the findings are not generalisable to other populations, it offers a promising point of departure for broader investigations, including further reviews of training materials – in sewing IGP units provincially and nationally, as well as across a variety of IGP fields related, for instance, to those producing baked goods, woodwork or ceramic craft items. The development, presentation, and use of relevant, user-friendly training materials to support IGPs deserves serious attention, as these can potentially transform the quality and the earning power of IGPs and assist struggling groups in their attempts to improve quality of life for themselves, their families, and their communities.

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COMPETING INTERESTS

The authors have declared that no competing interests exist.

ETHICS CONSIDERATIONS

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

research participants.

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