VISUAL LITERACY IN COMMUNITY COMMUNICATION: PRE-TESTING NUTRITION EDUCATION MATERIALS FOR ELDERLY CARE GIVERS IN BOIPATONG

Rolf GAEDE
Vaal University of Technology

Abstract

The paper deals with issues and concerns relating to the process of pre-testing visual illustrations used in educational material in a community communication setting. The first part of the paper discusses how selected aspects of nutrition education materials meant for elderly care givers in Boipatong were pre-tested using questionnaires (n=55) and focus group discussions in order to establish the target group's views and opinions about different types of visual illustration approaches. The information was subsequently used to guide the production of a visually illustrated nutrition education booklet, which was distributed free of charge in the community as part of a nutrition education intervention. The second part of the paper deals primarily with the focus group discussions, in which a total of 15 care-givers participated. The focus group discussions aimed to augment the questionnaire data, especially with regard to (a) the role of the visual images, (b) the comprehension of the visual messages, as well as (c) the appeal of the illustrations. Central themes in the focus group transcripts are that the visual component of the nutrition education materials plays a very important role and that the participants regard the nutrition education booklet as essential for their work as care givers. The findings confirm the importance of empirically pre-testing educational materials as thoroughly as possible in order to ensure a final product that meets the needs of the specific target community.
Keywords*: visual literacy, community communication, empirical pre-testing, nutrition education intervention*

Introduction

The present paper discusses the process of pre-testing the visual illustrations of a nutrition education booklet developed for a group of elderly care givers in the Boipatong area of the Vaal region of South Africa. In the field of visual literacy research, pre-testing educational messages in a sample of the target community before they are disseminated on a large scale is considered a *sine qua non*. As elaborated on in the seminal writings of Mody (1991), Boeren (1994), Brouwer (1995) and many others, pre-testing typically involves providing members of the target group with a provisional version of the educational material and to invite their comments and opinions with a view to identify any possible barriers to effective communication. Pre-testing procedures fall into two broad categories, namely those that focus on the comprehension of the message, as opposed to those that concern the appeal of the message (Mody 1991, p. 197), even though in practice these two evaluation criteria are more often than not inextricably intertwined. The approach to pre-testing described in this paper focuses on the appropriateness of the visual illustrations. The term 'appropriateness' covers both comprehension and appeal, i.e. it includes the readability of a visual illustration in a particular target group, or the ease with which the audience comprehends the intended meaning on the one hand, as well as the extent to which the chosen illustration approach fits with the aesthetic preferences of the target community on the other hand.

The illustrated booklet formed an integral part of a nutrition intervention funded among others by the National Research Foundation and the Vaal University of Technology's Centre for Sustainable Livelihoods, which aimed to address food insecurity, pervasive malnutrition, as well as poor food purchasing and consumption patterns in Boipatong. The intention was to raise significantly the nutrition knowledge of the community members, especially the elderly care givers of young children, many of whom are orphans (Holeni 2013). A recent study conducted in this community showed that the nutrition knowledge of the care givers was inadequate, and that the previously disseminated nutrition education pamphlets recommended by the Department of Health were poorly understood and did not meet the community's needs (Holeni 2013, p. 163). It therefore soon became clear that additional, improved nutrition education material was required, and this led to the development of a visually illustrated booklet, which was distributed free of charge once it had been pre-tested and reworked where needed.

As argued in the remainder of the paper, the importance of empirically pre-testing educational illustrations as thoroughly as possible in order to ensure a final product that meets the needs of the target community cannot be overstated. This requires entering into a dialogue with members of the community about the visual signs to be included, and the manner in which they should be used. Such a dialogue may be conducted in a highly structured format, as is the case with questionnaires, by following a format which is more open in nature, as is the case with focus group discussions, or by using a combination of these, which is the approach that was adopted in this study.

Theoretical underpinnings

The two most important concepts from the visual literacy literature that guided the study are the notion of visual representational latitude (VRL) as described by Pauwels (2005), and the contractual axis of semiosis, which forms part of Johansen's semiotic pyramid model of dialogic semiosis (1993).

Firstly, the term visual representational latitude derives from a visual literacy framework that provides an overview of the main visual representational practices in science. Specifically, Pauwels describes VRL as 'coping with controlled and uncontrolled variations in the depicted and the depiction' (2005, p. 6), which links closely with the notions of vagueness and indeterminacy as applied to representational practices. Pauwels writes that 'visual representational latitude, therefore, is not just a producer's (or sender's) problem; that is, it is not just a matter of deciding how to express variation, of choosing the right level of iconicity or abstraction for a specific purpose. It is also a user's (or receiver's) problem: what kind of variation is to be expected in the real world, and which elements in this particular representation are 'motivated' by a perceived reality, and which others are due to specific, intentional or unintentional choices of the producer, limitations of the medium or larger production context?' (2005, p. 6). In the context of this study, a visual illustration with a narrow VRL is associated with a relatively stable meaning and a low degree of vagueness or indeterminacy, and is thus considered to be appropriate for a nutrition education setting. In contrast, an image with a wide VRL tends to give rise to an extensive range of possible interpretations and a high degree of uncertainty, and is likely to needlessly confuse the majority of the target group. Stated differently, appropriate visual illustrations are characterized by a high degree of universalisation, to use a term from Habermas' work in the area of discourse ethics (1998). The principle of universalization requires the acceptance (Zustimmung) of the communicative norms at play by all involved, implying both an agreement (Einverständnis) and a contract (Vereinbarung). In this regard, Habermas writes that 'only those norms can claim validity that could meet with the acceptance of all concerned in a practical discourse. ... A norm is valid when the foreseeable consequences and side effects of its general observance for the interests and value-orientations of each individual could be jointly accepted by all concerned without coercion' (Habermas 1998, p. 18). In the context of the present study, this suggests that the appropriateness of visual illustrations is primarily determined by the quality of the agreement reached between the producer of the visual illustrations and the members target community during a dialogue.

Secondly, the term contractual axis of semiosis comes from a model of dialogic semiosis by Johansen (1993). Dialogic semiosis refers to the exchange of meaning between two parties using signs, (Johansen 1993, Johansen & Larsen 2002). The key components of dialogic semiosis are the stipulable sign (equivalent to the term 'representamen' in the terminology used by Peirce), the semiotic other, the interpretant, the semiotic self, and the object experienced. These poles connect the axes of the semiotic pyramid, i.e. the indexical, symptomatic, taxonomic, perlocutionary, experiential, conventional, supposed conventional, informational and contractual axes, each of which deals with one particular component of the process of semiosis. In his model of dialogic semiosis, Johansen (1993, p. 254) also discusses the relationship between these axes, which form triangular planes of the pyramid, such as the communication plane, delimited by the symptomatic, perlocutionary and contractual axes. The semiotic pyramid model can thus be used to map out in considerable detail the main features of a dialogue between the producer of the draft visual illustrations (the semiotic self), the member of the target community (the semiotic other) about a stipulable sign and what it stands for or depicts (the object experienced), as well as the agreement reached between the two parties on the contractual axis of semiosis. This includes situations which Johansen refers to as 'quasi-dialogue', or dialogue through a text, where the utterer or semiotic self is not present in person (1993, p. 254), as is the case when a research assistant conducts the data collection on behalf of the primary researcher.

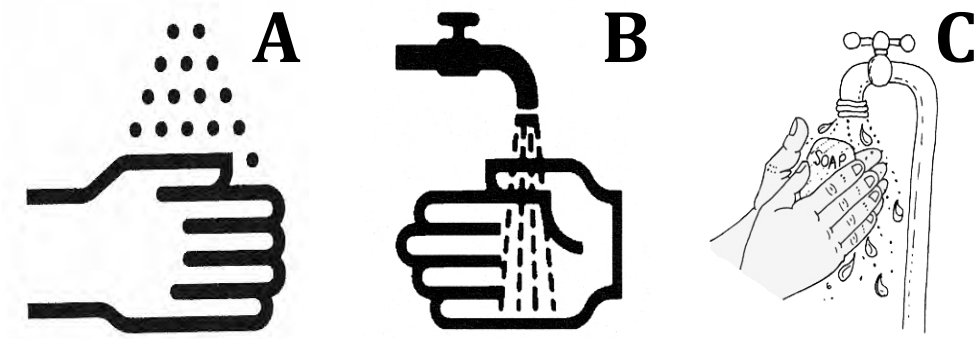
Data collection

The quasi-dialogue between the producer of the visual illustrations and the members of the target community held for the purpose of pre-testing the draft visual illustrations of the nutrition education booklet comprised (a) a highly structured component in the form of a questionnaire (n=55) completed by a field worker in the presence of the respondent, and (b) two less structured focus group discussions (n=7 and n=8), which were held in the hall of the Presbyterian Church in Boipatong and led by the same moderator. The questionnaire was designed in order to establish the target group's views and opinions about different types of visual illustration approaches. Each session which was conducted in the respondent's home language commenced with the research assistant indicating to the participant that the participation is voluntary and anonymous, and that the participant may withdraw at any stage without any negative consequences. The field worker also explained to the participant in everyday language that the aim of the questionnaire is to find out how we can produce visual illustrations which are clear and easily understood and generally acceptable to the target community. The process of completing the questionnaire did not exceed ten minutes in order to steer clear of respondent fatigue effects. This meant that only a limited amount of items could be included. These covered biographical information about the respondent (home language, age and gender), a question about the preferred format of the educational material (a pamphlet, a booklet, or other options such as a poster or a CD), a question about language preference, and a question about whether the final version should be in colour or monochrome (to make dissemination by photo-copying easier). The remainder of the questionnaire contained four items in which the respondent was either presented with a visual illustration and asked to indicate what is being shown in order to measure whether the visual representational latitude of that particular image is adequately narrow, or the respondent was shown a series of two or three different ways of depicting the same information and asked to choose one option and to briefly explain the reason for the choice (see Figure 1). The images included in this section of the questionnaire ranged from clip art style illustrations of soy beans, pictogram style illustrations about frequently washing hands to maintain hygiene, monochrome outline drawings of a bunch of carrots with varying degrees of visual abstraction, as well as a 'straight' colour photograph which depicted different sources of protein. The session was concluded with the research assistant inviting the respondent to make any general comments and to state any views or opinions about how the nutrition education materials can be improved. At the end of the session, the research assistant thanked the participant. Apart from refreshments served at the venue and a small hamper containing fresh vegetables and legumes, no other inducements were offered for participating. The overall intention with the

questionnaires was to avoid a scenario where the respondents were required to supply complex verbal explanations to convey their preferences, as the members of the target group could not be expected to be conversant with advanced visual literacy terms and concepts. For example, the term 'visual abstraction' was not understood by the majority of the respondents, yet when two images with varying degrees of visual abstraction depicting the same referent were shown next to each other, and the respondent was asked to indicate which of the two options is the preferred choice, and for what reason, the respondents were able to convey their preferences, views and opinions without any difficulty.

Figure 1. An excerpt from the questionnaire. The respondent was asked: 'The visual style of the following three pictures is different. Please indicate which ONE of the visual styles you prefer. Please explain your choice.

The focus group discussions were held a few weeks after the questionnaires data was collected and gave those community members who had completed a questionnaire the option of discussing their views in greater detail on a voluntary basis. Additional draft illustrations were circulated for comment among the focus group participants shortly before the session commenced. The focus group discussions aimed to augment the questionnaire data, especially with regard to the role the visual images play in the educational materials, as well as with regard to the appropriateness of the illustrations, including (a) whether the visual representational latitude of a particular illustration approach is sufficiently narrow and the intended meaning of the visual messages can be easily comprehended, and (b) whether a particular illustration approach fits with



the aesthetic preferences of the target community. The focus group discussions were audio recorded and subsequently transcribed and translated into the English language. The focus group moderator commenced each of the two sessions by welcoming the participants and explaining the standard format and general aims of focus groups in brief. The participants were encouraged to 'share and compare' (Morgan 1988) issues and concerns relating to the draft nutrition education booklet in a relatively unstructured way. The moderator commenced each session with a statement along the lines of 'I would like to ask the group to discuss the role of the pictures…' Once the discussion was underway, additional probes were 'Will the pictures help to understand the messages? Can the group mention examples? Will the pictures help with remembering (or internalizing) the messages? Can the group mention examples? Do the pictures increase the appeal of the educational material, i.e. make it more attractive or interesting? Can the group mention examples?'

Data analysis

In the case of the questionnaire data, the analysis involved the tabulation of responses and rudimentary descriptive statistics (calculating means, frequencies etc.), which yielded a basic quantitative indication of which illustration approaches the respondents considered to be more appropriate than others. As far as the analysis of the focus group transcripts is concerned, the purpose of the analysis was to obtain a deeper and more nuanced understanding of the issues and concerns which informed the focus group participants' views about the draft visual illustrations. The analysis comprised two phases. During the first phase, usually referred

to as a ‘top-down analysis’ (Le Compte & Schensul 1999), the analysis sought to find responses in the transcripts that link with the broad categories that informed the moderator's protocol, such as comments relating to the role the illustrations play in the draft nutrition education booklet. During the second phase, a ‘bottom-up analysis’ (Le Compte & Schensul, 1999) aimed to identify information in the transcripts relating to the appropriateness of the visual illustrations not directly covered by the themes contained in the moderator's protocol.

Findings

The questionnaire data suggest that according to the elderly (mean age 64 years), exclusively female and predominantly Sesotho-speaking respondents, the final version of the nutrition education material should be printed in the form of a booklet roughly A5 in size, and that the main information should be in the Sesotho language. There was no dominant opinion with regard to whether the final booklet should be printed in colour not, as the ability to make monochrome photocopies with ease seemed to be an important consideration for some of the respondents. With regard to those items of the questionnaire that dealt with the appropriateness of the draft visual illustrations, only 34.5% of the respondents were able to identify the envisaged or intended meaning of a clip art image depicting soya beans. A response of 'beans' was recorded as a correct response, whereas replies such as peas, potatoes or apples were considered as incorrect. It is therefore clear that this particular image should not be included in the final nutrition education booklet, and that clip art style images should be treated with caution in this type of setting. This particular questionnaire item result is in line with a recent study conducted in the Qwa-Qwa region of South Africa, where the visual representational latitude of clip art illustrations was also found to be unacceptably wide. The majority of the respondents did not opt for illustrations with a high degree of visual abstraction and did not include any pictogram-style illustrations in their preferred choices. Opinions were divided with regard to the desirability of a colour photograph (a monochrome line drawing was presented as the alternative option) with some of the respondents mentioning that the line drawings were simpler in appearance and that it was therefore easier to see 'what is going on' in the illustration.

With regard to the focus group transcripts, central themes which emerged are that, according to the opinion of the participants, the visual component of the nutrition education materials plays a very important role and that the participants regard the nutrition education booklet as essential for their work as care-givers. As was to be expected, the group tended to veer towards discussing nutrition education topics, such as what foods to purchase with a limited amount of money, how many eggs should be eaten per week and so on. However, the moderator managed on the whole to steer the discussion towards items listed on the moderator's protocol, without coming across as domineering. Both groups were characterised by a positive, relaxed and open communicative atmosphere and the audio recordings suggest that all present felt comfortable with the overall pace of the conversation.

Based primarily on the top-down analysis phase, the transcript data of the two groups taken together indicate that the participants saw the inclusion of visual illustrations as essential for a number of different reasons. Apart from relatively vague statements such as '*We can be very happy if the pictures could be retained in this books, so that they can increase our knowledge*', some of the comments contain clear, practical descriptions of the role the images play and why the participants see them as valuable, e.g. '*If you remove the pictures from the book, say I’m in a hurry, I want to take a look and read, and wonder where it is. But if there are pictures, I quickly locate it, because here is the picture.*' or '*Yes, we think it’s vital [to include images] because sometimes you don’t know what soya beans are, but when looking at this pictures, even at the counter, you’re able to identify them*'. Several statements in the transcripts imply that the members of the target community engaged with the draft visual illustrations on a strongly literal, as opposed to figurative, level of meaning that emphasises the pragmatic dimension of the images. Examples include '*I think these pictures... if you don’t*

know which ones are lentils, you can identify that type. You can see which ones are soya beans, split peas and dry beans' and '*According to me, it's to help one to see for instance, what kind of grains are lentils. Because they're all grains, but they help you to know the difference that the lentils and the soya beans are not the same as the dry beans and split peas.*' and '*The pictures are good… they match the text we've just read here. So, we're happy to see these pictures. They will help us a lot to know what we should buy*'. The participants also expressed clear opinions about the design and content of the booklet, such as '*How are you going to bind this book? Will it be on hard cover? You see kids can take the book, play with it and then destroy it. So I think it's safe on hard cover than when it's like this*' and '*Madam, I'm happy because it was written in a language that anyone can understand. Normally when it's in a foreign language, I mean English or Afrikaans or any other language, the majority of us don't understand, even if there's an interpreter, somewhere he may make it difficult to understand. So, I'm happy that it was written in a language that anyone understands, more especially since we grannies are not educated, and not all grannies went to school. So I think it's a very important book. At least, even grannies will take their reading glasses and read with understanding…*'. The participants also identified and corrected minor spelling errors in the captions.

The two most important items to emerge during the bottom-up analysis phase dealt with the relationship between the text and the visual illustrations, especially that the pictures and text must match closely on a literal level of meaning, and that a large font size is essential for both the captions and the main body of the text. For example, one of the participants stated that '*The pictures are good… they match the text we've just read here. So, we're happy to see these pictures. They will help us a lot to know what we should buy*' and '*Is there anything as you look at this book that you think would help? … Only the... Speak your mind Mama… I'd be happy if the font could be enlarged. And I will be very happy if it can be written in my language. This is Sesotho*'.

To summarise, the questionnaire and focus group data taken together indicate that the design of the educational material should conform to the following main points: (a) the target community values practical information on a literal level of meaning that assists them to distinguish between different types of foods, such as the various types of legumes, and helps them to know what foods to buy. The members of the target community see this as the primary role of the visual illustrations and do not think that the visual images should be included merely in order to beautify, or raise the visual appeal, of the educational material; (b) according to the views and opinions of the participants, a large font size throughout the publication and an A5 size hard bound booklet format, with Sesotho as the primary language, are appropriate; (c) The visual illustrations and the captions, as well as the main text of the publication, must match closely; (d) the majority of the target community do not prefer illustrations with a high degree visual abstraction, such as pictograms, and these are considered inappropriate; (e) the literal meaning of the draft clip art style illustrations was very poorly understood, or the visual representational latitude was unacceptably wide. This suggests that clip art style images should be used with caution in order to avoid a scenario where the visual illustrations generate a wide range of unintended meanings. Based on the above, the draft version of the nutrition education booklet was re-worked and then distributed free of charge in the community as one of the components of the larger nutrition intervention.

Concluding discussion

This paper discussed the process of empirically pre-testing draft illustrations of a nutrition education booklet designed primarily for the caregivers of young children in Boipatong. A main point in the paper is that in order to ensure that the final version of the visual illustrations meets the needs of the target community, entering into a dialogue between the producer of the visual illustrations (i.e. the semiotic self), and the members of the target group (i.e. the semiotic other) is essential. In the case of this particular study, the dialogue may be described as a quasi-dialogue, as research assistants conducted the data collection on behalf of the producer

of the visual illustrations. This quasi-dialogue comprised a highly structured component in the form of questionnaires, as well as an open-ended component that involved focus group discussions. Taken together, the information collected during the two phases of pre-testing confirms the view in the literature that both (a) comprehension, or a sufficiently narrow visual representational latitude associated with a high degree of universalisation, as well as (b) appeal, or an adequate degree of fit with the aesthetic preferences and practical needs of the members of the target community, play an important role. During pre-testing, it is of course not possible to accommodate all participants equally, and to satisfy the whims and fancies of each and every community member in full. However, the main value of pre-testing is that barriers to effective communication can be identified and addressed. For example, one of the participants casually mentioned during the focus group discussion that the font size of the text in the nutrition education booklet should be larger than the standard font size commonly used in printed materials, because the majority of the care givers are elderly and poor eyesight is common among them. As this particular example illustrates, it is ultimately the quality of the dialogue between the producer of the educational material and the members of the target community which determines whether the process of pre-testing can be considered a success.

As mentioned above, the empirical study discussed in this paper took the pre-testing categories suggested by Mody (1991, p. 197), as well as the theoretical frameworks by Pauwels (2005) and Johansen (1993) as a basic point of departure. The primary role of these theoretical underpinnings was to delimit the study to a relatively small number of clearly defined concepts (comprehension versus appeal; narrow versus wide visual representational latitude; and dialogue on the contractual axis of semiosis). To a lesser extent, the theoretical underpinnings also informed the design of the data collection phase, in the sense that the majority of questionnaire items were in some way related to the core concepts that had been isolated at the outset, and parts of the focus group discussions may be described as dialogic semiosis in action. However, it would have been counterproductive to include the terms 'visual representational latitude', 'contractual axis' and/or 'semiosis' in the questionnaire, or to introduce these terms during the focus group discussions and to ask the participants to reflect on them. As the main aim of the study was to empirically pre-test draft educational illustrations as thoroughly as possible in order to ensure a final product that meets the needs of the target community, the analysis of the raw data and the discussion of the findings emphasised the formulation of practical recommendations for the design of the nutrition education material, rather than an evaluation of the theoretical underpinnings, which may form the topic of a separate study.

References

Boeren, A 1994, *In other words... The cultural dimension of communication for development,* Centre for the Study of Education in Developing Countries, The Hague.

Brouwer, H 1995, 'Communicating with pictures: The role of pictures in health education in outpatient clinics in rural African hospitals'. *Visual Sociology*, vol. 10, no. 2, pp. 15-27.

Habermas, J 1998 *The inclusion of the other. Studies in political theory,* MIT Press, Massachusetts.

Holeni, F 2013, *Evaluating nutrition knowledge and education tools for child care givers in Boipatong*, Vaal University of Technology, Vanderbijpark.

Johansen, J D & Larsen, S E 2002, *Signs in use: An introduction to semiotics*, Routledge, London.

Johansen, J D 1993, *Dialogic semiotics: An essay on signs and meaning*. Indiana University Press, Bloomington.

Le Compte, M D & Schensul, J J 1999, *Analyzing and Interpreting Ethnographic Data*, Altamira Press, London.

Mody, B 1991, *Designing messages for development communication: An audience participation-based approach*, Sage Publications, New Delhi.

Morgan, DL 1988, *Focus groups as qualitative research*, Sage Publications, London.

Pauwels, L 2005, 'Scientific discourse and visual representational literacy: elements and dimensions of an integrated theoretical framework', in R E Griffin, S B Chandler and B D Cowden (eds) *Visual literacy and development*. , International Visual Literacy Association, Loretto, pp. 1-10.

Acknowledgements

I thank the community members who participated in the study, as well as Rina Ochse, Tshinakaho Nyatela, Abdul Egal, and the research assistants Sapphy Magoro, Reba Motlogelwa, Boitumelo Kgotlele, Maleshoane Tjabane, Beatrice Matela, Boitumelo Mallane, Lerato Ponyo and Lelingoana Limema.