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The formative research process in developing and designing tuberculosis prevention and treatment display cards aimed at a community with a low level of literacy

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Abstract

This paper reports on the formative research process in the development of a series of tuberculosis prevention and treatment display cards, aimed at a community with a low level of literacy. The aim of the project was to evaluate existing posters and to develop a new series of display cards that health workers could use to discuss tuberculosis symptoms and treatment with their patients.

Fifty two patients from eight tuberculosis clinics participated in the evaluative process of existing posters and the formative design process of display cards during a structured interview with a qualitative approach. The results indicated that the subjects had difficulty in understanding some of the Western-oriented graphic conventions, and the symbolic and latent messages in the existing posters. Only one of the existing posters obtained an acceptable comprehension level. The comprehension rating of the twelve new display cards improved when they were developed during a formative process with tuberculosis patients. A realistic photographic approach proved to be more effective in communicating the prevention and treatment messages to an audience with a low level of literacy, than did a simplified-illustrative approach.

This paper compares the results of this project with those of others and suggests guidelines that graphic designers can use when designing for developing communities. The paper is illustrated with examples of both the existing and the new display cards.

Introduction

The formative research process is a method that designers can use to improve their visual communication products when they and their targeted audience are not from a homogeneous cultural, educational and socio-economic background (Mody, 1991; Linney, 1985 & 1995; Melkote, 1991). Differences can arise between the intended message of the designer and the interpretation of the audience, as their perception and interpretation of visual imagery differ due to incongruous backgrounds (de Lange, 1998; Haaland, 1984; Kalsi, 1990). Developmental workers and graphic designers (Easterby & Hakiel, 1981; Fuglesang, 1983; Grieshop & Winter 1988; Hugo, 1994) use formative processes to produce visuals for communication material. This process can range from limited pre- and post-testing of the material to where the targeted audience develops, designs and produces the material.

The last decade saw an increase in informal settlements, or shanty towns, around the major cities in South Africa. People moved from rural areas and farming communities to cities to seek a better life and possible improved employment opportunities. The level of illiteracy is high in these informal settlements, sanitation is poor, water supply is limited, and medical and educational services are inadequate. These informal settlements range from unplanned structures on riverbanks to wood and iron structures erected in pre-designated areas with pit toilets and electricity. Poor ventilation in these structures combined with poor nutrition and close living conditions resulted in a tuberculosis epidemic in some areas. Health workers must supply a health education service to people who come from informal settlements and from the adjoining formal suburbs.

Background to the problem

Medical staff from tuberculosis clinics in the Bloemfontein area, a city located in the centre of South Africa, reported that their patients with a low level of literacy had difficulty in understanding existing tuberculosis posters. These items were colourful visual aids that health workers used when they spoke to their patients. One of these items was a simplified drawing of a skeleton holding a newspaper with the words "*Ek het ook te min van TB geweet*" (I also knew too little of TB) on the front of the newspaper. The latent message is that the person, now dead, represented by a skeleton, knew too little about tuberculosis, and died because of his or her lack of knowledge. The viewer is supposed to infer that he or she must obtain knowledge about tuberculosis in order to avoid dying from the disease. Clinic personnel also reported that it appeared as if some patients could not identify themselves with the image as they said that they did not look like the skeleton and that they were not dead.

The aim of the project was to evaluate existing tuberculosis posters and to develop a new series of display cards that would be suitable for people living in the informal settlements. Health workers would then use these cards in tuberculosis clinics when discussing symptoms, treatment and the prevention of tuberculosis with their patients. The term *display cards* is used instead of the word *poster*, as the new visual aids were to be used during a discussion with tuberculosis patients and not as a free-standing visual aid.

Methodology

Health workers used a structured interview to determine 22 patients' comprehension of 7 existing posters. Five of these posters consisted of black line illustrations with blocks of colour superimposed over the illustrations. The 6th poster consisted of typography with blocks of colour. The last poster was a black and white surrealist photographic image with a caption. Health workers questioned each patient on the graphic elements, the use of colour and the message of each poster. The health workers recorded the patients' answers and comments for analysis. The patients' answers were then used to classify the

comprehension level of each poster. A similar method was also used by Hugo (1994 & 1995) to determine the comprehension level of picture material.

The first author designed twelve new display cards, based on the results of the evaluative process of the existing posters. These new designs were pre-tested amongst tuberculosis patients, modifications were made, the cards were tested again and only then were the designs finalised. There was also a continuous interaction between the designer and medical staff regarding graphic elements and the message of the cards. The new visual aids were photographs, composite photographs, and colour photographs superimposed on black and white photographs.

Twenty two subjects participated in the pre-testing or the evaluative process of the existing posters. Their ages ranged between 17 and 52 years and they had a mean age of 30 years. Thirty patients participated in the formative process of the new cards. Their ages ranged between 15 and 49 years with a mean age of 32 years. The subjects used four different languages as their mother tongue, namely Afrikaans, Sesotho, Tswana and Xhosa. The subjects had attended, on average, seven and a half years of school. Eight of the subjects received no schooling.

The results

The subjects indicated that the layout of the existing posters was too complex and that they preferred more realistic images. There were objections to the Afrikaans language being used in the display cards. The captions were confusing and too long, and symbolic and abstract graphic shapes in the cards were not understood. Some patients, for example, saw rectangular blocks next to a person that indicated symptoms of tuberculosis, as objects injuring the person. See Figure 1. The patients appeared to have difficulty in comprehending the messages that were depicted in the posters. Patients with lower levels of education had more difficulty in interpreting latent messages and abstract images. The mean comprehension of the existing cards ranged between 39 to 59 percent. Three main areas of difficulty were highlighted by the patients,



Figure 1 An example of one of the existing display cards “simptome” (symptoms). Some patients saw the rectangular blocks as objects injuring the person. The type and line drawing is black, the rectangular blocks are yellow and the rest of the poster is red. The language in the poster is Afrikaans.



Figure 2 An example of one of the final display cards “unusual coughing”. The background is in black and white, whilst the figure is in full colour. Unusual coughing could be a symptom of Tuberculosis.

namely the use of the Afrikaans language in the posters, the lack of realism and difficulty with the symbolism in some of the posters. Photographs formed the main element of the new display cards. Background scenes from the environment of the target audience, namely, houses and streets were added to the display cards. People from the community were used as models in the photographs. Captions underneath the display cards were kept to a minimum; the language in the cards was changed from Afrikaans to two languages namely English and Sotho, an indigenous South African language. See Figure 2 for an example. The cards were tested again at the Tuberculosis clinics. Smaller changes, based on the second testing at the clinics and on recommendation by a panel of medical staff, were made to the cards before they were finalised. The post-test showed a general improvement in the comprehension of the twelve new display cards. Ten cards obtained a comprehension score of 70 percent to 100 percent. One poster obtained a score of 39 and one a score of 53 percent. The subjects’ comments focused more on specific graphic aspects in the photographs, for example, sweat on the body of a person in a photograph was not recognisable enough and cigarettes and liquor bottles were not prominent enough

in one photograph. The food in one card was unacceptable as it did not represent the local brands and familiar food items. The final card displayed locally available branded food items. See Figure 3.



**HO FEPA KA TEKANO PHEPO E NEPAHETSING
BALANCED DIET**

Figure 3 The final display card for the “balanced diet” card. The food items in this card are locally available branded food items. The card is in full colour. The type is in black.

The objections to the use of the Afrikaans language in the posters were expected, as this language is seen by some communities as the

language of the oppressor. There were no objections from the Afrikaans patients to the use of English or Sesotho in the new display cards. The patients enjoyed the colour in the cards and were able to interpret the colour images superimposed on the black and white backgrounds.

General guidelines

It would be difficult to generalise these results to a wider audience of tuberculosis patients, because the sample in the evaluative and formative process is not representative of a wider tuberculosis population. The following are, however, some general guidelines that visual communicators can consider when designing material for developing communities: These guidelines are in agreement with those of others (Brouwer, 1995; Cook, 1980; Eade, 1993; Holmes, 1968; Jordaan *et al.*, 1986).

- A formative research process is essential when developing messages for an audience when the communicators are not congruent with the audience.
- Trained fieldworkers who are familiar with the audience's language, customs and cultural practices should preferably conduct pre- and post-testing.
- Abstract imagery and latent messages must be avoided. Subjects with lower levels of literacy appear to have difficulty in understanding symbolism and in interpreting visual images literally.
- Incorrect interpretation of small details in a picture could cloud the correct interpretation of the visual as a whole.
- Knowledge of the intended audience's level of visual and verbal literacy and their physical and visual environment will help a designer to choose more appropriate visual imagery for a message. It is advisable to include imagery from the subjects' environment, as this will introduce an element of familiarity to the audience and could possibly aid in the acceptance of the message.
- Realistic colour is better than black and white, and black and white is better than the use of unrealistic colour in visuals.
- The legend in visual material must be easy to understand, must communicate the

same message as the visual and must play a supporting role.

- Subjects with a lower level of literacy appear to rely more on the pictures than on the typography in a message.
- A visual aid should preferably contain one central visual image with one literal message.

True-to-life colour (Pettersson, 1993) is one factor that can increase a picture's comprehension or readability. Colour is also an element that can be used to emphasise or attract attention to an aspect in a picture (Lamberski & Dwyer, 1983). Two of the twelve new display cards used a single full-colour photograph of a person superimposed on a complex black and white background. The tuberculosis patients had no difficulty in understanding the message or in reading the picture. This process can be used to draw attention to a part of a picture without having to delete a background or having to simplify the image as a whole.

- Placing a colour image on a neutral black and white background is another effective way to emphasise an important part of a visual message.

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