

Effective print material for low-literacy populations: Literature review and guidelines:

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Literature Review

Overview

This review provides a summary of the academic and grey literature on how low-literacy populations understand and can learn from print materials. The focus of the initial search for literature was on how illiterate women in developing countries interpret, understand, and learn from print materials. Also, during the initial search, emphasis was placed on finding sources related to farming and agriculture. However, very few sources were found on these topics, thus the search was expanded to look for literature in general on how print materials can assist learning and training in low-literacy populations. While the research available on this topic was also limited, some key themes could be drawn from the available literature.

Overall, findings from the literature suggest that in general pictures can help those with low-literacy better understand messaging and instructions. However, picture-based materials may be interpreted differently by users and should not be presented as the only mode of instruction. Rather, spoken instructions should be presented along with the related picture-based materials. In terms of the best understood formats, pictures (e.g. cartoons) that are simple and do not consist of a lot of detail are better at facilitating comprehension than complex drawings or elaborate photos. Furthermore, locally produced print material that is culturally relevant is easier for local populations to accurately interpret and recall than foreign produced materials.

Pictures Facilitate Comprehension in Low-Literacy Populations

The literature indicates that pictures in general facilitate comprehension of information in low-literacy populations. For example, Houts, Doak, Doak, and Loscalzo (2006) examined the effects of the use of pictures on health communication messaging to patients. They concluded that adding pictures to supplement written and spoken instructions can increase attention, comprehension, recall, and adherence to messaging. The authors reviewed the literature available in peer-reviewed health education, psychology, education, and marketing journals that compared the effects of just text (written or spoken) and text plus related pictures. They found that all patients benefitted from the use of pictures, but that low-literacy patients were the most likely to benefit.

Similar results were found in a study conducted by Mansoor and Dowse (2003) that explored the effects of pictograms in low-literacy patients' comprehension of information on a medicine label and a patient information leaflet. This study was conducted in South Africa using an experimental design where 60 low-literacy participants were randomly assigned to the control group (text only) or the experimental group (text and pictograms) and then tested on their comprehension of material. It was found that participants in the experimental group who saw the leaflet with the pictograms demonstrated greater comprehension of the more complex information.

The study by Moll (1986) on patients' comprehension of information about osteoarthritis also showed that participants demonstrated better comprehension and recall of information when they had been exposed to educational booklets that included text and illustrations. It was found that participants that were exposed to the education booklets that had text and illustrations

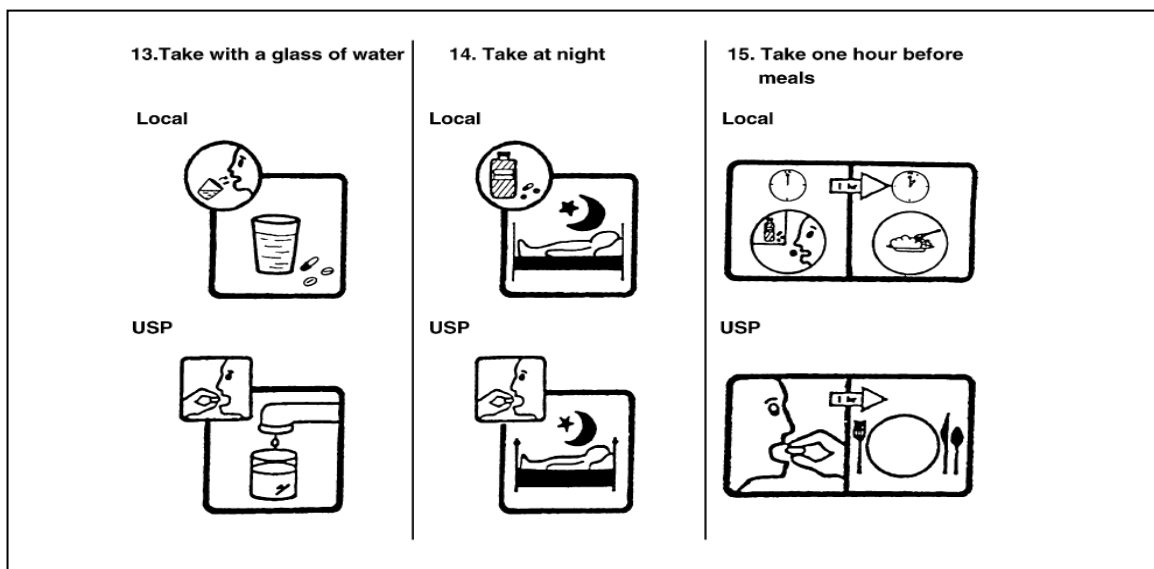
versus text-only demonstrated higher scores on a questionnaire about the information that took place several weeks later.

Interpretation and Comprehension of Pictures by Low-Literacy Populations

While the literature demonstrates that in general pictures play a key role in supporting comprehension and recall of information by low-literacy populations, it is important to note that not all forms of pictures are equally effective. Arbuckle (2004) in her review of research on visual literacy draws attention to the fact that educational picture-based materials for illiterate populations are not always interpreted in the same way by users. She emphasizes that reading visual images requires visual literacy, a cognitive skill that requires understanding of certain visual pictorial conventions. She notes that in many developing countries exposure in daily life to illustrated educational material can be low and thus visual literacy may be low as well. Thus, the impact of pictures to support learning and instruction may be limited if target populations have difficulty interpreting the material.

Research also indicates that locally developed pictures are easier for low-literacy populations to interpret and remember than foreign developed pictures. For example, Dowse and Ehlers (2001) conducted a study in South Africa with 46 low-literacy participants (mainly women), examining comprehension of foreign versus locally developed pictograms of medication instructions. Participants were initially tested for their interpretation of 23 locally developed pictograms and 23 developed by the United States Pharmacopoeia (USP), and then tested again three weeks later to measure their level of recall of the meaning of these images. It was found that participants demonstrated more accurate interpretation and recall for the locally developed versus foreign developed pictograms. Participants also indicated that they preferred the locally developed pictograms. The results from this study along with the points made by Arbuckle (2004) about visual literacy highlight the importance of using locally produced pictures to facilitate comprehension and training amongst low-literacy populations in developing country contexts.

Exhibit 1: Example of local pictograms and pictograms developed by the USP (Dowse and Ehlers, 2001)



At the same time, there are some studies that have examined which types of pictures are the most effective in supporting accurate interpretation and comprehension of messaging. For example, in Moll's (1986) study patients were exposed to different picture-based education booklets about osteoarthritis, either the cartoon, matchstick, representation, symbolic, or photographic version. It was found that cartoons were the most effective images at facilitating comprehension. Participants were assigned to one of the picture-based booklet groups and then tested for comprehension and recall of information through a multiple choice test 2-4 weeks later. Results indicated that those that read the cartoon booklet demonstrated the highest scores, followed by those in the matchstick and photographic groups. The results from these studies suggest that when working with low-literacy populations, simple drawings such as cartoons may be more effective at conveying information than more complex, detailed illustrations or photographs.

Exhibit 2: Different versions of pictures from Moll's (1986) study



Cartoon



Matchstick



DON'T do this!



DON'T do this



DON'T do this!

Photographic

Representational

Symbolic

Case Study: Producing visual materials for illiterate populations in agroforestry

The Department for International Development (DFID)¹ funded a project conducted by the Institute of Ecology and Resource Management (1994-1996) at the University of Edinburgh to create a methodology for producing visual materials and manuals to aid in the training of illiterate women in agroforestry. First, the researchers consulted with a group of 62 illiterate and low-literacy women farmers from The Gambia as well as NGO and government staff to determine which agroforestry techniques could be depicted effectively in these picture-based manuals. A local artist was employed to help develop the illustrations for these manuals. Because the women were not used to interpreting illustrations, it was necessary during these consultations to develop relevant images that were easily and accurately interpretable by local farmers. When the agroforestry manual was developed, it was tested for nine months by local extension and community workers from NGOs all over the country. The manuals were also sent to a number of agencies both in The Gambia and other African countries to solicit feedback.

Since its creation, the agroforestry manual has been used to help women farmers in The Gambia, Ghana, and other West African countries to introduce tree planting in their farming activities.² In addition, these women also learned to plant and fertilize tree seedlings, make tree fences, and make foods from the fruits of the trees. By integrating the knowledge they learned from the manual into their farming practices, this increased the productivity of these women small holder farmers.

The technique for creating these manuals was termed illustrated manuals for development projects (IMDP).³ IMDP involves creating a sequence of pictures that convey instructions without using words. The aim was to provide an easily replicable technique that development organizations could use to cheaply produce visual training materials that would complement practical in-person training sessions. After the technique was developed by the Institute of Ecology and Resource Management, a pilot study was conducted (1999-2001) to train 58 local staff from twelve development organizations in Ghana and Gambia on how to create their own manuals based on IMDP techniques. Most organizations that received the training were able to successfully create their own manuals on a variety of different subjects beyond agroforestry. Although the manuals have only been used on a small scale thus far, feedback from rural farmers has been positive from those who have seen and in some cases used the manuals.

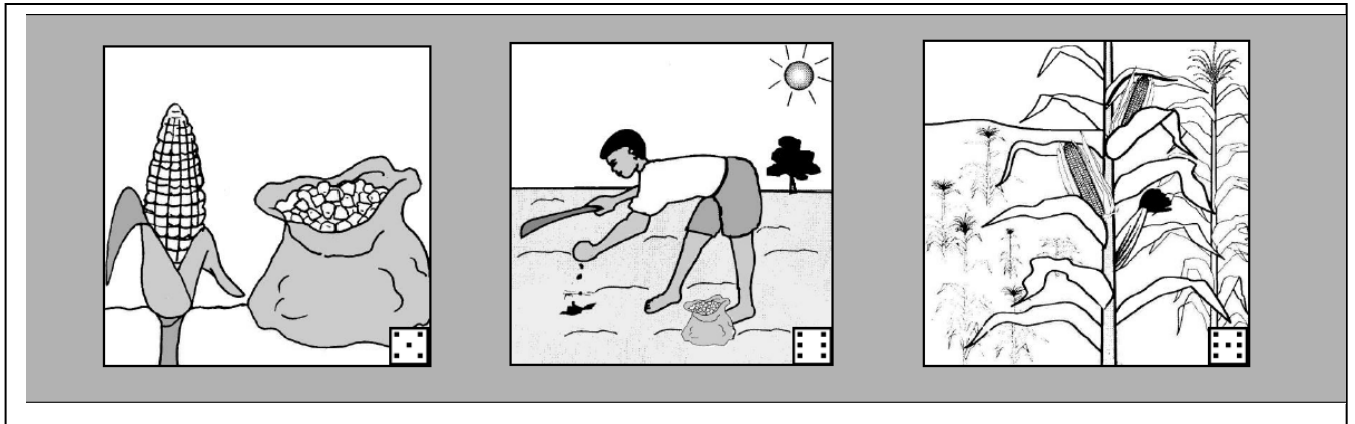
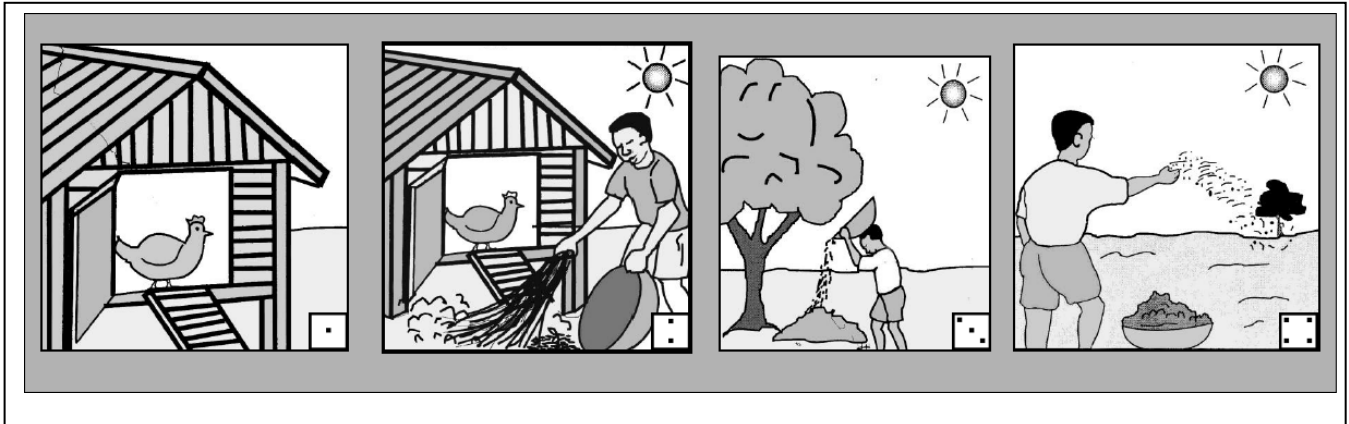
The link to examples of locally produced training manuals on a range of different subjects can be found here: <http://www.imdp.org.uk>

¹ Clarkson, R. *Simple agroforestry manuals and a CD-ROM help non-literate farmers*. Research Into Use. Forestry Research Programme. <http://www.researchintouse.com/nrk/RIUinfo/PF/FRP12.htm#L4>. Accessed March 12, 2013.

² Department for International Development. 2003. *Learning through pictures: a resource for women farmers*. Forestry Research Program, research summary 004.

³ Clarkson, R. *Simple agroforestry manuals and a CD-ROM help non-literate farmers*. Research Into Use. Forestry Research Programme. <http://www.researchintouse.com/nrk/RIUinfo/PF/FRP12.htm#L4>. Accessed March 12, 2013.

Exhibit 3: IMDP Manual on using chicken manure for crop growth (Ministry of Food and Agriculture, Kumasi, Ghana, 2012)



Guidelines and best practices: Developing print material for low-literacy farmers

- Create print material that includes related pictures with minimal text. The print material can be used to supplement practical face-to-face training sessions as follow-up or reference resources for farmers. Picture-based print materials can only be used to convey simple sequences of actions, thus should not be used as the only form of instruction/training provided.
- Employ a local artist to develop relevant and locally appropriate illustrations for the print materials. Illustrations that are simple and do not provide a lot of detail are more comprehensive. Black and white free-hand line drawings with computer enhanced shading are easy to photocopy and thus more likely to be made available to smallholder farmers by local agencies responsible for reproducing and distributing materials.⁴
- Consult with local women and men smallholder farmers and local NGO and government workers when developing illustrations. These local groups can help determine which illustrations are easily interpretable and provide a clear message. At the same time, these groups can provide feedback on the appropriate sequencing of pictures in the instructions. Illustrations and print material should be modified based on feedback to create the clearest picture-based form of instruction possible.
- Test print material in the field with local smallholder populations and local NGO and government staff before producing and distributing print materials on a large scale. Feedback and responses from testing should be used to finalize the print material to meet the needs of the local providers and end-users.
- Ensure you have the resources and appropriate time-frame to develop effective print materials. In terms of resources, you will need access to local contacts, including farmers, local NGO and government workers, and extension staff to help you produce the material. As well, you will need to reserve time to consult these local groups and test and modify the print materials based on feedback.

⁴ Devries, K. 2011. *Illustrated Manuals for Development Projects*. The Communication Initiative Network. <http://www.comminet.com/?q=global/node/116280>. Accessed March 27, 2013.

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