

## Learning with a Website for the Textile Industry in Botswana

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### ABSTRACT

This paper reports on a locally initiated investigation into the suitability of the Internet in helping to meet the information needs of women in small, medium, and micro enterprises (SMMEs) in the textile industry in Botswana. The background is the stated government policy to encourage the development of SMMEs and the Internet infrastructure. The question is, how likely are women entrepreneurs to use a website as a resource? We considered two barriers to the use of technology by women in developing countries, socio-cultural and physical. To determine the extent to which these could be overcome, a design experiment was conducted in which an information website was created and its use evaluated on a target population consisting of women entrepreneurs in the textile industry in Botswana. Data collection occurred in two phases. Firstly, interviews were conducted and conferences were attended to determine the information needs. Then a website was developed and evaluated by think-aloud protocols, focus groups, and interviews. Initial results indicate that the site was both useful and usable to the target population and that it made some work easier for them. Nevertheless, they need to use the Internet not only to receive information, but also to provide information in order to trade and sell their own goods. This has implications for government policy in terms of enabling credit card-based international trading using the Web.

### Keywords

Lifelong learning, Internet usage motives, Computer attitudes, Perceived usefulness; Perceived ease of use

### Introduction and background

There are many calls for (and studies reporting) the use of the Internet to speed up the development process in developing countries (World Bank, 1998; Kgegwenyane, 2000; Thaphisa, 2000; UNDP, 2001). The International Centre for Research and Development (IDRC <http://www.idrc.ca>) of Canada has funded several such studies (IDRC, 2004). Duncombe & Heeks (1999) carried out a study into the use of Information Communication Technology among small-scale businesses in Botswana. The Association of Progressive Communication (APC) and Femnet (2000) conducted a study to establish how African women were using the Internet. Mbambo (1999) did a study on Internet connectivity in Botswana. However, there are few reports of initiatives taken by the people themselves, without any outside financial support.

This paper reports on a study initiated in Botswana to investigate the usefulness of the Internet mainly for women in the textile industry working as small, medium, or micro entrepreneurs. The research population belonged to the Gaborone chapter of the Botswana Textile and Small Business Association (BOTSBOA). The principal investigator was a librarian at the University of Botswana. We sketch the background, give a brief summary of the literature, explain the design and evaluation methodology, and then discuss our findings.

The World Bank and UN agencies have all cited the Internet as a key factor in the development of emerging countries because it offers opportunities for storing and exchanging large quantities of information. In developing countries, however, the cost of the Internet makes it inaccessible to most individuals. "The monthly connection cost of the Internet far exceeds the monthly income of a significant portion of the population" (United States Internet Council, 2000). Other factors that inhibit the use of the Internet in Africa are the very small number of people who own computers, poor telephone infrastructures, a lack of understanding of what the Internet does, and illiteracy (Kole, 1999; Ngwainambi, 2000; United States Internet Council, 2000). In light of such problems and difficulties,

what is needed to make the Internet a usable information storage and retrieval tool for people in Africa and other developing areas, and to encourage lifelong learning from unstructured information sources?

Botswana is a relatively rich developing country with a gross domestic product of US\$3.5 billion and growth rate of 6.7% for 2003 (Gaolathe, 2004). Its foreign-exchange reserves are enough to pay for imports for the next 26 months. Its telephone density is 17.95% (Government of Botswana, <http://www.gov.bw>), and the telecom infrastructure includes a subsidiary Internet Service Provider (ISP) called Bosnet, so that an economic and telecommunication infrastructure exists to support Botswana's participation on the Internet. Small, medium, and micro enterprises (SMMES) have been identified as a primary growth sector and engine for economic development in Botswana (Gaolathe, 2004).

Where Ayden & Tasci (2005) developed a quantitative measuring instrument to measure e-readiness in Turkey, we followed a qualitative, participant observation approach. In this case study we investigate the extent to which new users of the World Wide Web (WWW) find an Internet site useful in learning about their business. This paper is predicated on information as a resource in the development process. We focus specifically on the textile sector and investigate the extent to which the WWW can be useful to it. The main question driving the study is: "What are the issues that need to be considered in the use of the Internet for entrepreneurs in Botswana to deliver just-in-time information for learning?" The purpose of the study was not to determine the value or quality of our site, but to use it to investigate the feasibility of the Internet as an information resource for lifelong learning. Any positive or negative comments the users made about the site itself were interesting, but not the point of the study. The point of the study was to ascertain what information needs they had, and the extent to which a Website could meet those needs.

## **Literature survey**

### **The value of information**

The 1948 United Nations Universal Declaration of Human Rights calls for freedom of access to information. It describes such access as one of the basic freedoms of humans. However, information in itself is of questionable value. Although Schram (1964, p. 49) says, "information availability and the wideness of its distribution is directly related to the level of development," Bell (1979) argues that it is content rather than the amount of information that is crucial to the development of society. Rao (1963) and Bell (1979) note that while it is true that economic development leads to an increase in the flow of information through the greater purchasing capacity of people, increased information furthers economic development. On the other hand, Menou (1993, p. 4) contends that "information is no magic recipe for development," as it is erroneously assumed that all information is good for development and that information is free. He concludes "the value of information may lie more in its versatility ... than in its straight application to the activities for which it was originally meant" (Menou, 1993, p. 25). In other words, information is valuable, not primarily because it enables one to solve a particular problem, but because it has potential for multi-sectored application. We believe that information should be useful for business and learning.

### **The Internet as medium for sharing information**

According to Schram (1964), the capacity of a medium to spread information efficiently affects the degree of development. The more widely available and accessible information is, the more development may be facilitated. If information is restricted, controlled, highly priced, limited, censored, and constrained, development is unlikely. The availability of information provides a "climate for national development" (Schram, 1964, p. 43). Availability of information is not enough. The information must be used, and people must learn from it. Schram (1964) first demonstrated the relationship between socio-economic development and the type of medium for disseminating information by asserting that every stage of development has its own appropriate media for transmission. Ngwainmbi (2000) argues that there is a relationship among medium, information, and socio-economic development. Cuadrado-Roura and Garcia-Tabuenca (2004, p. 72) put this even more strongly when they write of "[t]he undoubted relationship between ICT development and a scenario of strong urban concentration, high supply of qualified personnel, business head offices, development of business services, etc."

Many have hailed the Internet as the technology that will bring developing economies into the information society (Simpson, 1990; World Bank, 1998; Heeks, 1999, Kirkman & Sachs, 2001, UNDP, 2001), while the United Nations asserts that the Internet will hasten African development (*The Economist*, 2000). Kirkman and Sachs (2001, p. 61) contend that the IT “revolution offers powerful weapons to foster economic growth. It is time developing countries benefited from them.” They note that email has proved effective in transmitting vital information about diseases in Africa, and that electronic commerce is fast extending to developing countries. Nevertheless, they also cite many difficulties that hinder the expansion of the Internet in developing countries, such as the lack of national strategies (i.e., neither governments nor private sectors are taking the lead in devising policies for the use of the Internet), inadequate telephone services, a lack of skilled IT workers in African countries, the exclusion of computer education from school curricula, and inadequate resources in schools and universities for IT education. Ochieng (2000) concludes that the possibility that the necessary infrastructure, equipment, education, and attitudes will arise suddenly in the African context is somewhat unrealistic in light of the crippling deficiencies and problems that beset most African countries. While we accept these limitations, this study is aimed at those people in developing countries who are already economically active and could learn to improve their existing businesses, given appropriate access to information.

### Information need

In considering the use of the Internet in facilitating lifelong learning, one must determine the information needs of owners of small businesses in developing countries. Table 1 presents an overview of relevant needs assessments by Mchombu (1996), Briscoe (1994), and Heeks (1999).

*Table 1. Information needs of owners of small businesses*

Mchombu (1996)	Briscoe (1994)	Heeks (1999)
1. Business management	1. Sources of finance	1. External Financing
2. Technical skills	2. Training	2. Trained personnel
3. Financial information	3. Market	3. Management training
4. Legal information	4. Education	4. Source of skilled personnel
5. Marketing information		5. Information that would lead to increased sales
6. Sources of raw materials		6. Existing customers
7. Nursery schools		7. Land or premises
		8. Laws and regulations

From the above table we can see that the needs focus on business, finance, education, and policy.

Since participants in our study were women entrepreneurs, their preferred sources of information (Mchombu 1996) should be considered.

*Table 2. Information needs of women entrepreneurs (Mchombu, 1996)*

Type of adviser	Percentage of satisfaction
Dedicated advisers	55%
Field-service advisers	37.5%
Radio	25%
Local newspapers	7.5%

Table 2 shows that human advisors are highly preferred, while audio is preferred to print. These aspects come into play when considering the Internet, a primarily text-based non-human resource, as a suitable information conduit for women entrepreneurs.

## Barriers to accessing information

We must consider what barriers prevent access to information. Not all of these can be overcome by simply putting information onto the Net. We consider two types of barriers, socio-cultural barriers and physical barriers.

For the purpose of this article, we restrict the discussion of socio-cultural barriers to issues of gender, language, and education.

Mchombu (1996) reveals that 40% of the women studied in Botswana did not know where to go for information. Alexander et al. (1983) indicate that the majority of extension service providers were men, which made it difficult for women to freely consult one another when they were intimidated by the presence of “powerful” male advisers. Hopwood (1989), however, indicates that the work and family relationships of women are so intertwined that they leave little time to concentrate on business issues that might be separate from the family. Women have consequently developed informal networks for sharing information. Mbambo (1995) and Mchombu (1996) argue that information provision for women should not be isolated from women’s multiple roles but should be related to them in a meaningful way. Sunny and Babikanyisa (1996) indicate that women in the small-scale sector need skills. The proliferation of information advice centres will not provide information for women entrepreneurs (Raseroka 1990). A mechanism that is less male-dominated and therefore not threatening to women should be developed and located in places frequented by women.

However, the literature seems to demonstrate that women are disadvantaged in terms of access to the Internet and that they are largely functionally illiterate. Fewer women than men have access to ICTs (FLAMME, 2000). Marcelle (1998) notes that ICT in Africa is a male-dominated domain, that women are excluded from all levels of employment in the field of ICT, and that women also tend to possess ICT equipment far less frequently than men. Marcelle calls on African countries to re-examine their ICT policies and to make them gender-inclusive. Kole (1999) agrees when she says that limited access to ICT leads to limited access to the Internet and its resources. Schramm (1966) states that education creates a desire for information. Ngwainmbi (2000) shares this view when he states that in Africa, education levels increase in direct proportion to access to computers, the Internet, and current information.

While most of the business literature in collections in Botswana is available in English, the majority of the owners of small businesses in Botswana are Setswana-speaking. This creates a barrier because whatever information is available is not usable to them (Mchombu, 1995). Thirty percent of the population of Botswana is illiterate (UNESCO, 1997). The same percentage has not received any formal education, and so do not speak English. Most of the development information is available in English (Raseroka, 1995). Thus language emerges as a limiting factor in accessing information. Language is also a barrier on the Internet. A *Futurist* editorial states that most African languages are not found on the Internet (*Futurist*, 2000). Everard (1999) adds that the language of the Internet is English and cautions that even simple translations may distort a message. This can limit the extent to which Africans, who are not native speakers of English, can benefit from the Internet.

Physical barriers to accessing information include the lack of infrastructure in particular geographical locations and the inability to manipulate the interface to extract the information.

The Botswana National Library Service Act of 1962 provides a library in each of the major towns and villages in the country. Reading rooms are provided for more remote areas and book boxes are provided for even more remote areas. Information provision in rural areas is the domain of the Botswana National Library Service (Mulindwa, 1987). All other information centers are in Gaborone and Francistown, the two major cities. Concentration of these services in urban centers and the absence of these services in rural areas create a disparity in information service provision (Boadi, 1992). The University of Botswana’s Small Business Clinic and other small business information providers are concentrated in Gaborone, which prevents those in rural areas from accessing their resources (Mchombu, 1995). Distance from the capital is therefore a hindrance to access to information. Furthermore, Heeks (1999) indicates that there is a higher telephone density in urban areas than in rural ones — a factor that creates a potential disparity in the provision of ICT in rural areas.

The cost of computers and Internet connectivity far surpasses the monthly wage of the average person in Africa (US Internet Council, 2000). The average African neither owns a computer nor has access to a computer connected to the Internet. Mbambo (1995), Ngwainmbi (2000), and Ticoll (2000) agree that there are serious infrastructural

hindrances in Africa. Because telephone communications are poor and the electricity supply is erratic, the Internet is unreliable.

In decoding the interface, literacy, and computer literacy in particular, are important considerations of physical access. However, “in a push-button society a minimum of literacy is needed to know which buttons to push” Galtung (1981, p. 277). Braun (1999) states that illiteracy is the main obstacle to the spread of information in developing countries, but that “Computers and their audio-visual features present great advantages ... a mouse click on a visual and a user can listen to information” (Braun, 1999, p. 79). Braun also cites anecdotal evidence from Guatemala that asserts that women market their products on the WWW. Thus, although they are illiterate, they have an opportunity to hear and be heard on the Net.

### **User acceptance**

Simply removing barriers, of course, does not guarantee that the information will be accessed and used. Luarn & Lin (2000) propose the use of the technology acceptance model (TAM) to include perceived credibility, perceived self-efficacy, and perceived financial cost. Aydin & Taski (2005) point out that it is not wise to use the same measurements of e-readiness for emerging countries as for developed countries. Ng’ambi & Brown call for “non-deterministic qualitative approaches to evaluation” (2004, p. 39) and describe their utilisation-focused evaluation, which “does not advocate any particular evaluation content, model, method, theory, or even use” (Ng’ambi & Brown, 2004, p. 39). We subscribe to this pragmatic approach and agree with Collis & Verwijns (1995), who argue that electronic performance support systems should be evaluated specifically for how likely users are to use them. They identify three characteristics that a system should have: It should be useful, it should be usable and it should make the work easier. Cronjé and Barras-Baker (1999) developed this into an assessment rubric with three questions and a number of sub-questions:

- Is the product useful?
  - Does it fit in with the personal work needs of the users?
  - Does the product support and add value to the content?
- Is the product useable?
  - Is the user interface easy to use?
  - Is the product easy to learn?
- Does the product make the work easier?
  - Does it fit in with the work environment?
  - Does it fit in with working procedures?
  - Do the users have the time needed to use it, and does it save time for them?

If the answer to all these questions is “Yes,” then we have a provisional positive answer for the original question, “Is the product likely to be used by the intended users?”

### **Conceptualisation**

Based on the literature surveyed above, it can be argued that information will only contribute to learning and development if it is used. Developing countries have specific physical, infrastructural barriers to information, while unfamiliarity with the Internet also creates interface-related barriers. For women in a developing country, there are particular socio-cultural barriers related to gender, language, and education. The Internet can only be an appropriate medium to overcome these barriers if the target population is likely to use it. The Internet itself could also be a barrier if it is inappropriate, unreachable or not user friendly. Development research aimed at investigating an Internet-based information resource acceptable to entrepreneurs in a developing country should identify the specific information needed to support development. It should also attempt to overcome the barriers that are likely to exist, and increase the likelihood of user acceptance.

## **Research plan**

Our case study was a design experiment (Brown, 1992; Collins, 1992, 1999) conducted over a period of two months. Design experiments are conducted in real life. They allow us to account for multiple variables. They encourage collaboration between researchers and participants to refine and analyze the design. They provide complex social interaction for their subjects. They are flexible and rules can be revised depending on their practical success. At the same time, we can evaluate different aspects of the design in an authentic environment (Collins, 1992, p. 81, Colb et al., 2003). The investigation assessed the information needs of women entrepreneurs in Botswana, considered the likely barriers, developed a website for them, and evaluated the website's usefulness with a methodology based on "future use in practice" (Collis & Verwijs, 1995).

We followed the first three phases of a four-phase design and development model (Collis & Verwijs, 1995), where the first phase was an "iterative conceptualization of the product and agreement among the design team and representatives of potential users as to what the product should do, be like, and how it will be used" (p. 24), followed by "iterative clarification of the design through rapid prototyping" (p. 24). Phase three saw "beta versions of the product, in a form ready for limited field testing, and formative evaluation of the product" (p. 24). Phase four would have been the releasable version, complete with documentation and support, but for this research only the first three phases were conducted.

We recognize that subjectivity is a constraint in participant research such as this: How do we prevent ourselves from finding what we want to find? In this case, we achieved distance by focusing our evaluation not on the site we built, but on the needs assessment that preceded the creation of the site and on the needs that still existed once the site had been built. Thus, our website is not the subject of the investigation but one of the tools, and we can be objective regarding any information its evaluation yields.

### **Phase one: Iterative conceptualisation of the product**

The first goal was to establish the information needs of the target population and find ways of meeting them. A literature survey was conducted to find out how information is currently being provided. We used a variety of data-gathering instruments such as a questionnaire, interviews, and observations. The questionnaire, developed after the literature survey, asked for demographic information, education level and information needs, and current sources of information.

Much information was obtained by participant observation, as the principal investigator actually joined BOTSBOA and attended their regular monthly meetings. Trade exhibitions were also attended to determine the type of information presented there, as was the launch of the Business Linkages Database (1999) - a joint project of the Fredrick Ebert Foundation and the Ministry of Commerce. The database was created to market the entrepreneurs and their products to government and private organizations.

### **Phase two: Iterative clarification through rapid prototyping**

In applied research such as design experiments, the researcher does not define the problem alone, but in consultation with the participants who say what their problems are (Whyte, Greenwood, & Lazes, 1991). In this case, participants were asked in interviews and focus groups to describe the problems that they experienced in their businesses in trying to gain access to pertinent information. The content of the site was refined, based on their responses. An alpha version of the site was then constructed using Dreamweaver and tested on a few randomly selected individuals for elementary usability. A scaled-down version of the original site can be viewed at <http://hagar.up.ac.za/catts/learner/game/1999/buhle/netpage.htm>.

### **Phase three: Formative evaluation of the beta version**

Following the procedures suggested by Collis and Verwijs (1995), a beta version was constructed by a professional web-design company and then evaluated by members of the target population. The evaluation questions used were

those derived from Collis and Verwijs (1995), and by Cronjé and Barras-Baker (1999) and mentioned in the literature survey. The formative evaluation was done during a regular meeting of the Gaborone chapter of BOTSBOA. Three computers connected to the Internet were made available to members, and the members were observed while they evaluated the site in groups, using a think-aloud protocol to communicate with one another. Afterwards, a focus group discussion was conducted, where the users were debriefed on the value that the site might have for them.

## Discussion of findings

This discussion considers the demographics of the potential users who participated in the study. We will then discuss our findings regarding the information needs of the potential users, and how it led to the design of the site. We then consider the extent to which respondents felt that the site could enable women entrepreneurs to overcome the physical information barriers of infrastructure and interface, as well as the socio-cultural barriers of gender, language, and education. We do not claim that any of our findings are specific to women - only that, by chance, our target population consisted entirely of women. Moreover, we do wish in some way to address the common stereotype of women being technologically less aware than men.

### Demographics

Of the 858 small, medium, and micro enterprises in Botswana, 106 are textile companies. While the textile sector comprises 12% of the manufacturing sector (Ministry of Commerce, 1999), the Business Linkages Database published in July 2000 by the Fredrick Ebert Foundation lists 295 small-scale textile companies in the country, although some of these may not be registered.

The education levels and access to computer communication of the participants are given in Table 3.

*Table 3. Education level and computer access of participants*

Education levels	Number	ICT access	Number
Cambridge (four of secondary-school education)	4	Owns a computer	1
Primary certificate	12	Has access to a computer	2
Junior Certificate (two of secondary education)	8	Does not own a computer	23
Total	24	Has access to the Internet	0

### Information needs

From a literature survey (Alexander et al., 1983; Briscoe, 1994; Heeks, 1994, Mchombu 1996), interviews, and meetings, five key information needs were identified: **Markets**, both existing and new; **materials**, which concentrated on obtaining and storing raw and processed materials; **money**, which involved obtaining funding, making money, and financial management; **management**, which incorporated information about land, laws, and logistics; and finally **skills**, which concerned obtaining skilled people and training others.

In the context of a design experiment, the design follows the needs assessment. Once the needs were identified and compared with the literature, a specification of site content could be drawn up, as shown in the following table.

*Table 4. Information needs assessment results*

Literature synthesis	Stated needs	Site content
Markets	Markets	Markets
Materials	Sources of fabrics	Sources of fabrics
Money	Information on government schemes	Information on government schemes
	Information on writing proposals	Information on writing proposals
Management		Banking
Skills	Information on short courses	Training information

The information needs assessment (Table 4) shows an almost identical mapping between the needs suggested by the literature and the needs expressed by the participants, with the exception of management needs. It was decided to address management needs by incorporating it under training information, and adding information under “Banking” that would include financial management.

Attendance of meetings and participation in the Botswana International Trade Fair and Exhibition led to the realization that a website that simply gives information would not be adequate for our purposes. Entrepreneurs desperately needed places to sell their wares. The website, therefore, would have to include information about any trade fairs in the region to which entrepreneurs could take their products. Similarly, because entrepreneurs stood to gain much if they could market their goods over the Internet, they needed detailed but clear and user-friendly information about how to conduct electronic commerce on the site, although the logistics of making e-commerce possible for them was beyond the scope of this study.

All users said the site covered what they wanted to see - although they added that they would have liked more details about markets in Botswana and the SADC region because these are closer to where they lived and attending such markets would be a viable option. They were disappointed to find that, while all the markets listed on the site were external to Botswana, they could not immediately do business with them.

Users indicated that they would revisit the website for three reasons:

- to get information on markets (60%)
- to advertise goods (20%)
- to learn more about BOTSBOA activities (20%)

When asked what should be added to the site, the respondents all answered together by saying “*e siame*”, a Setswana expression meaning, “It is fine.” None of the users requested any more information to add to this site, but they wanted a site of real commercial value that would enable them to start trading. This has implications for information provision and what type of information is provided on the WWW. It is not sufficient to provide information that informs potential buyers about where material is located. When buyers receive such information, they should be able to act on it immediately. The subsequent discussion inspired us to discuss all the implications of e-commerce and what they could achieve by means of it.

### Physical barriers

*Infrastructure:* Field work in the form of visits to community centers and interviews with potential users revealed that the information holdings of existing traditional providers of information (such as libraries, extension offices, and development agencies) were deemed inadequate in terms of currency, accessibility, and responsiveness to the needs of the information society. Most had printed materials such as books, journals, and pamphlets that were housed in buildings and locations that were not easily accessible, because of either distance or hours of operation. It was thus clear that, should it be feasible, the Internet could well present a cheap alternative for providing sufficient and current information.

During the development phase an initial questionnaire revealed that the participants had very little experience with computers and none with the Internet. All the respondents indicated that they had never used a computer program to access business information before. They were, however, technologically enabled in that they could use a telephone and some other electronic devices.

Table 5. Respondents’ knowledge of computers (Mbambo & Cronjé, 2002)

Use of computers	True	False
I have never used a computer	60% (6)	40% (4)
I have basic knowledge of computers	40% (4)	60% (6)
I use computers often in my work	0% (0)	100% (10)
I have never used an ATM machine	40% (4)	80% (8)
I use a computer for e-mail	0%	100% (10)
I use a computer for accessing the WWW	0%	100% (10)
I use a computer for word processing	20% (2)	60% (4)
This is the first time I am using the WWW	100% (10)	0% (0)



The results show that participants' computer skills were elementary (Table 5). None of the respondents used a computer at work. None had ever used e-mail. A limited number, 40%, had used a computer for word processing, while 60% had never used one at all, although 80% had used an automatic banking machine.

Users complained that the site took too long to load - even though they obviously enjoyed and liked it when it was finally downloaded and they saw photographs of themselves on the opening page. Several factors may have caused the slowness of the downloading process: The Internet, particularly on a dial-up, is slow in Botswana in the afternoons, and the site contained five photographs on various pages.

*Interface:* This site had a drop-down index on every page. A good index facilitates the location of information, and users found the index to the site useful for navigation. The index consisted of buttons that led them to their stated information needs. Observation showed that once they discovered what lay behind each button, the entrepreneurs were more eager to find the answers that were catalogued under each heading than to analyze whether the index comprehensively covered all they wanted to know. Thus, for instance, we saw that most were keen to press the button that opened pages about Markets and Sources of material. They were captivated by the fact that the mere press of a button could link them to markets and outlets abroad. The index therefore served to make navigation easy for the users.

Despite the very short exposure of these users to the WWW, users were able to locate precisely what they wanted on the Internet. They were not just interested in manipulating or enjoying the site for its own sake: they wanted the site to deliver commercially.

### **Socio-cultural aspects**

*Gender:* From observation, it was clear that the participants liked working in groups. The think-aloud protocol revealed that users liked and enjoyed the colors and arrangement of the site. They were particularly amused to see photographs of some of their colleagues on the site. Participant observation revealed that seeing those pictures created a feeling of familiarity and a sense of ownership of the site, which probably helped to eliminate any kind of awkwardness or anxiety that might have accompanied interaction with an unfamiliar technology. Much of this is in keeping with the literature concerning women forming networks to share information, and the call for a less male-dominated information channel (Alexander et al., 1983; Raseroka, 1990; Mbambo, 1995; Mchombu, 1996, Sunny & Babikanyisa, 1996; FLAMME, 2000; Marcelle, 1998). One might deduce from this that when one plans sites for similar groups of people, the inclusion of familiar features on the first page helps to connect people to what is going on and evoke a sense of belonging.

Respondents expressed a desire to have new pictures of their most recent products added to the site (just as photographs of their earlier exhibits had already been included). Because they had been involved in the initial consultation of the site, and had indicated what they would like it to have on the site, they had a degree of familiarity with its content.

*Language:* During the conceptualization phase, it was drawn to our attention that the language used on the site, namely English, could be a problem for the target population. However, one of the dictates of globalization and international trade practice is that people must communicate with each other in one of the leading colonial European languages. Observation and the use of the think-aloud protocol showed that users could understand the language sufficiently to obtain the required information. The observation further showed that when one member in a group around the computer did not understand, one of her colleagues would translate into Setswana, and the group would continue working.

*Education:* These entrepreneurs had a limited knowledge of computing and computer-related technologies prior to this exercise. Most of them (60%) had no prior knowledge of computing at all. None of them had used the Internet before this meeting. There clearly is an urgent need to train people in Botswana to use computers if we hope to enable them to use the Internet successfully, even at an elementary level (as was the case in this study). The problem-solving approach observed to be used by the entrepreneurs during the study indicated that their training would need to be informed by adult education theory principles - and that they needed more than mere skills provision. It is also clear that learning in groups would be a valuable methodology for skills transfer.

## **Conclusions – appropriateness of the World Wide Web for lifelong learning**

In the previous section, the information needs of women entrepreneurs in the textile industry were identified. The resultant website was formatively evaluated to determine the extent to which it was likely to assist in overcoming physical and socio-cultural barriers to information. To conclude, the resultant findings are now filtered through the evaluative question suggested by Collis and Verwijs (1995): “Will the product be accepted by the users?” We use the sub-questions devised by Cronjé and Barras-Baker (1999) to structure the following section: “Is the product useful?” “Is the product usable?” and “Does the product make the work easier?”

### **Is the product useful?**

*Does it fit in with the personal work needs of the users?* The site met the expressed information needs of users. It provided information that users had said they would like to have. However, by exposing users to the web it also created new information needs: in particular it created a need for information about how to trade on the Internet. Users do not merely want to get information. They also want to give information.

*Does the product support and add value to the content?* Clicking icons on the index and finding important information about possible markets made users realize that the website really worked for them. When respondents said, “It works!”, they meant, “This Internet works [for us]!” The users defined what they wanted to see on this site as they went along and used the index to identify each topic and the information that it contained.

### **Is the product useable?**

*Is the user interface easy to use?* All users said that they found the site easy to use. Observing the users and listening to the think-aloud protocol confirms this. The ongoing tutorial on various buttons also contributed to making the site easy to use. One might have thought that a lack of *any* prior knowledge or experience with the Internet may have been an obstacle, but the simplicity in layout and navigation made it easy for participants to use. Because the index appeared on every screen, it helped users to jump to whatever page they wanted to explore regardless of where they were on the site.

*Is the product easy to learn?* Internet use may have intimidated some of the participants and inhibited their individual exploration until they were familiar with the site. They were thus soon sufficiently motivated and confident to explore the site in detail, and they were eager to click on the icons that led to information that interested them (such as possible sources of materials and markets for their products).

### **Does the product make the work easier?**

*Does it fit in with the work environment?* None of the respondents had Internet access in their organizations or at home. This makes it questionable as to whether developing countries should be aggressively pursuing Internet connectivity for the majority. Nevertheless, the benefits of the site (particularly with e-commerce enhancement) might convince users to invest in their own Internet connectivity. The *sharing* of computers in a group obviously helped these users to obtain maximum benefit from the technology. They became one another’s lab technicians and instructors. The sharing did not deter them but enhanced the comradeship that made the exploration easier and more fruitful. (Communal sharing is, in any case, a highly regarded community value among African people.)

*Does it fit in with working procedures?* The site provided access to potential trade partners and to sources of materials in France, Korea, South Africa, and Zambia. Respondents were, however, disappointed to find that they could not immediately trade with those places because they did not have credit cards. The problem here, therefore, is that the working procedures that are beyond the control of the entrepreneurs prevent their continued use of the site. While the Internet can give entrepreneurs ready access to markets and sources of useful raw materials, the population needs to be prepared, through training, access to digitization equipment, and other forms of e-trade readiness, to enable profitable trading and marketing activities. Policy-level cooperation among the Ministry of Trade and Commerce, the private sector and Botswana Telecommunications, and the Bank of Botswana, could pave the path

for successful electronic commerce, which more than anything else, is what these entrepreneurs and others need. If e-commerce is to become fully operational and convenient for small-scale businesses in Botswana and elsewhere, appropriate policies enabling Internet accessible free trade will need to be implemented, and exchange controls will need to be relaxed.

*Do the users have the time needed to use it and does it save them time?* The complaint that the site took too long to load is a valid one, and one that cannot be ignored in web design for developing countries. If a group of users is using a dial-up connection it may not be wise to include too many graphics. Even before one designs a site, one needs to know the about the equipment that the intended audience will be using. The Internet creates a sense of immediacy and anticipation. Users, therefore, are prepared to invest the time needed, but need e-commerce, as it would save them a great deal of time in bringing their products to market.

## Recommendations

It has already been established that Botswana is a relatively rich developing country. Its telecommunication infrastructure is one of the best in Southern Africa. However, this case study has shown that there are pockets of people who are not aware of the potential value of the World Wide Web, or what the world is using it for. The population under study was one such group. They were not aware that the Internet had any relevance or value for their business. Yet we saw that the Internet can be a useful information resource for such groups of entrepreneurs.

The lack of computers at the individual, as well as the organizational, level is an obstacle to accessing the Internet. A well-planned and cooperative partnership should be developed between small-scale organizations, such as those involved in this case study, and information centres - with the latter playing the intermediary role in permitting participants to gain access to the Internet.

We also found that it is not enough to merely provide access to information that entrepreneurs need. It is equally important to design a commercially usable site that would facilitate e-commerce. The site needs to go beyond being an information center to one that enables commercial activity such as local and international trading and marketing. Entrepreneurs will return to a service if it sells their goods or if it provides them with material and information that they need. Thus, while respondents have shown their eagerness to engage in e-commerce, they neither have access to the Internet nor credit cards with which to conduct online business. Government policies need to facilitate these amenities for entrepreneurs.

This case study has shown that it is not enough to use the web as an information source. The web needs to be a commercial platform. It has been demonstrated that entrepreneurs are willing to learn to use the WWW in order to conduct business and make profits.

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