

## Designing for Understanding within a Context of Rapidly Changing Information

By Maureen MacKenzie-Taylor

Senior research associate,

Communication Research Institute of Australia

### Abstract

This paper reexamines what it means to design information on the fly. Traditionally we assume that “designing on the fly” means focusing on the job in hand and creating a visual message with great speed that meets the client's brief. However, while speed is of concern to information designers, it should not be the primary goal. At the Communication Research Institute of Australia our main concern is to use design to help our member clients communicate in ways that meet both their information needs and the information needs of their public.

The need for speed can conflict with certain critical stages in information design methodology, which should never be neglected—even when we are designing on the fly. What we must speed up in our design process is not the creation of an end product per se, but rather a design process that establishes a good relationship between the client and their public. The end product is a tangible part of this relationship. When information design is seen in this broader context of managing the relationship between an organization and its public, we need to change our focus and spend more time and effort in initial development. If these critical stages are well managed, it can establish the potential for more rapid effective communication over a longer term.

The case study presented in this paper illustrates our role as information designers in building a better relationship between a drug company and its consumers. Our initial exploratory research revealed that consumers of a particular drug were so confused by complex and rapidly updated usage instructions that many were unable to manage

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taking the drug. Using a “conversational” approach to information design, we researched why users of the drug were having problems understanding compliance information. We suggested that rather than speedily produce yet another ad hoc information product we develop a system of communication which would establish the potential for an ongoing conversation between the company and consumer. The economy of this design process is that we created long-term efficiencies in terms of improved accessibility and understanding of information, provision for the speedy release of future updates and promotion of a positive and ongoing relationship between the drug company and the people who rely on its drugs to stay well.

## **Introduction**

At the Communication Research Institute of Australia, we take a constructionist view of communication. This constructionist approach is part of a greater tradition, which has its roots in the writings of John Dewey and the later work of Wittgenstein (Cronen and Lang, 1994), and our design process exploits their seminal ideas.

With this constructionist view, the design artifact is simply a tangible element in a much more complex process of meaning construction. The focus of information design shifts from the production of publications or websites per se to the management of the relationship between an organization and their publics (or a company and their consumers). When information design is seen in this broader context of managing relationships, we need to spend more time in initial development. It is managing these stages well, which establishes the potential for more rapid, effective communication over the longer term—communication, which meets the needs of both the client and the user.

I will discuss the methodological implications this constructionist approach has for “designing on the fly” by taking you through a project

the Institute recently undertook for a pharmaceutical company, Merck Sharp and Dohme (commonly referred to as “Merck”). This project continues our four-year research interest in preparing useable information about medicines (see Shulman, 1992; Sless and Wiseman, 1994). I selected this grass-roots project, in contrast to the larger projects that my colleague David Sless has talked about at previous Vision Plus conferences, to detail our methodology in a way that may have practical relevance to your own practice.

Merck came to us with a specific design problem. The objective, as defined by Merck, was to develop information materials for instant use which would help to improve patient compliance in taking Merck’s newest antiviral drug, indinavir sulfate (brand name Crixivan®), for the management of HIV/AIDS. Merck were concerned that consumers must understand how these drugs should be taken if indinavir is to remain effective in controlling the HIV virus, and thus extending life expectancy. For indinavir to be effective, users must follow a continuous 8-hour dosage schedule and various diet restrictions. Another important factor in taking this drug is drinking enough fluid to avoid the risk of developing kidney stones.

Informing people with HIV/AIDS about how to comply with the drug’s instructions posed a major challenge to established medical practices. In Australia, the Therapeutic Goods Regulations 1993 requires pharmaceutical companies to inform consumers about the drugs they supply. The information dispensed with each medicine, the CMI (or Consumer Medicine Information) has to be reviewed by the Therapeutic Goods Authority before the product is registered for marketing approval. The CMI usually remains relatively stable over the life of the drug and it provides all the information a drug user needs in relation to correctly taking and storing the drug. However, in the case of Merck’s drug indinavir, and other newly developed antiviral drugs used in combination therapy against the HIV/AIDS virus, extensive clinical

trials were not completed before the drugs were first released for compassionate use in Australia. As research data from on-going clinical trials is analyzed, dosage instructions and diet restrictions are being continually up-dated, thus changing the way those taking the medications need to act. Consequently, the CMI is already inconsistent with the most up-to-date information about indinavir available in medical journals on the internet. This instability in the information increases the possibility for misunderstanding and confusion.

Merck also suspected, and we later confirmed in our investigations, that it is a common perception amongst people with HIV/AIDS that indinavir is an extremely difficult drug to take. Committing to a strict three-per-day dose regime and dietary restrictions, as well as dealing with the emotional and physical effects of the HIV/AIDS virus, can be too intrusive in a person's lifestyle. Added to these factors, the random dissemination of changing information about the drug was doing little to make people feel confident about managing their disease effectively.

Merck believed that what was needed was an example of a typical patient schedule, showing how easily indinavir can be combined with mealtimes and taking other drugs in combination therapy. Merck were also weighing up the possibility of publishing a nutrition booklet on the advantages of a low-fat diet. Here then was a typical case for design on the fly. The implication was that the quicker we could get this information out into the community, the more lives might be saved—a rather different imperative to the usual commercial pressures.

At the Institute, we did not agree that proceeding instantly to produce the ad hoc information materials suggested by Merck would necessarily achieve improved compliance. Without understanding the information needs and context of use of such information, how could we know that this material would work? Indeed, how could we know whether such materials would not just add to the confusion of indinavir users? These

questions are crucial when you consider the serious implications for people with HIV/AIDS of these materials not being understood. It is in these circumstances that we are reminded that the design profession has ethical as well as commercial obligations.

We saw Merck's "design" problem as part of a much broader "communication" problem—the problem of a relationship between a drug company and users of their drugs, within a context of rapidly changing information. Before doing anything we wanted to ask questions like: What are indinavir users going to do with the information? What problems do they have acting on existing information? How can we provide information in more appropriate ways so that people can make informed decisions about how to act and whether to comply? What kind of information would be more useful to them and help them to fit taking these medicines into their lifestyle?

Communication is contextually bound, and finding the answers to these initial questions should never be overlooked, even when designing on the fly. Knowing whom you are designing for, how they need to act on that information, and what they will find visually inviting are critical factors in providing an appropriate visual solution (MacKenzie 1994). We explained to Merck that carefully investigating the context in which the information is used would allow us to determine the best ways to proceed for all concerned. We needed to step back from the static information products they had identified as necessary, and consider the information on how to comply as the artifact of a dynamic process—the process of an ongoing conversation between Merck and indinavir users. By adding just one extra week to the project schedule, we believed that the expected outcome could potentially be an effective system for rapid dissemination of new and updated information into the future rather than a design artifact that we could not guarantee would be appropriate.

Merck are an innovative pharmaceutical company concerned not just with providing drugs, but also with disease management, making sure people take their drugs “in the right way, in the right dose, at the right time.” They were interested in a genuine customer focus and efficiencies of a design that reflected the real needs of indinavir users rather than assumed needs. Merck extended both the project budget and the time frame so we could undertake exploratory research to widen our understanding.

### **The importance of a conversational approach to information design**

My colleague David Sless (1997) describes what people do with information as the “grammar of interaction,” and spoke earlier of the principle of “politeness” as essential to our method for understanding this dynamic. As a cultural anthropologist and designer, I think about the principles of politeness and position he discusses as being part of a broader approach to information design, which has many similarities to anthropological fieldwork. In both disciplines, we need to understand other cultures and sub-cultures. As information designers, we immerse ourselves in the cultural environment of those who will use the information we are about to design. We momentarily relinquish our own position so we can become sensitive to and understand the position and information needs of both our member client and their consumers. As in fieldwork with other cultures, our information design research method centers around collaborative conversations to understand the position of the “other,” These participatory conversations, in both disciplines, require:

- The mutual participation of both researcher and informant
- Time to engage genuinely in conversations with all stakeholders in the communication environment
- Detailed questioning in the form of relatively unstructured conversations which allows the other to speak openly and us to

follow, explore and confirm our insights concerning ways to proceed

- Active listening
- And watching behavior as well as recording answers

We have found our observations have great analytic power in assessing people’s real needs, for people do not always do what they say they do. Participatory conversation is the key. It is our method, our tool, and it is also our product. We use conversational tools to explore the situation, to open up ways of moving forward, and later, to test the way we present information.

If we are to develop information, which is accessible and useable, in this case by those taking the drug indinavir, we must first become culturally sensitive to the perceptions, lifestyles and issues of people with HIV/AIDS, particularly how these issues affect compliance. We must learn the vocabulary and metaphors used by people with HIV/AIDS so that what we design will make sense to them. This initial research into the cultural context of users does not need to be elaborate, time-consuming or expensive. It seems that many designers have been led to believe that only large-scale quantitative surveys, or focus groups that aim to explain user’s behavior, are worthwhile. On the contrary, our small-scale qualitative research using one-to-one conversations with a handful of potential users, reveals essential data for effective design development. This type of participatory research is within the scope of all small design firms, and ultimately delivers a professional result.

Participatory research is quite different from the conventional scientific quantitative approach to research in which the researcher is assumed to be in an objective, neutral position. Because we engage in communication to understand about communication it is not possible to be neutral and objective. We construct our problem definition out of

the process we are engaged in—that is, out of communicating. Our iterative research process generates information of quite a different sort than that from sociological surveys. We are not concerned with closed questions, tick box answers, quantifying, categorizing, averages or with people’s preferences, but rather with understanding the range of differences, what actually works for people, and exploring future possibilities. Our findings are qualitative rather than quantitative, orientated towards practice, and change.

When using conversation as a research tool it is important to recognize the qualities of a “good” or productive conversation. My colleague Robyn Penman has suggested productive moments only occur when we enter into a special form of conversation which she and others (Cissna & Anderson 1994; Pearce 1996) call “dialogue.” When we achieve dialogue we know our research is good research (Penman 1995). Dialogue is distinguished from other forms of conversation by particular qualities. Dialogue develops when participants are in the here and now and there is a collaborative orientation or mutual concern and respect, when there is a genuineness and authenticity, and an openness to risk or willingness to explore ideas. A good conversation or dialogue can generate the unexpected. This is why dialogue is such a desirable form of communication. It allows the possibility for change.

My exploratory conversations with HIV positive people were the most rewarding of any research I have undertaken for the Institute. Most of these conversations achieved dialogic qualities and were the generative source for our consequent understandings, creating the potential for realizing new ways forward in designing the information for users of indinavir. Within a week we had spoken with 22 HIV positive people, 20 males and 2 females, both gay and heterosexual, ranging from their mid-twenties to mid-sixties. Our conversations were facilitated by state AIDS Action Offices in four Australian state capitals. Of the 22 participants, 14 had experience with taking indinavir and 10 were

involved in either paid or voluntary work for the AIDS Councils or PLWHA (People living with HIV/AIDS) Offices. This meant we had spoken with a high percentage of knowledgeable, literate people with access to the full range of HIV/AIDS related information, who drew not only on their personal experience, but also shared the experiences of many of their peers.

### **Findings and recommendations**

Through our conversations, we understood why indinavir users were having problems translating existing information into meaningful advice on how to act. We also became familiar with the language in which to frame any further information. For example, Merck always use their brand name Crixivan®, but people within the AIDS community talked only about indinavir, using the pre-branding name. People with HIV/AIDS spoke of “commitment” rather than “compliance,” disliking the authoritarian overtones of the word compliance. It is these cultural understandings and perceptions that are the keys to effective design. In discussing our research findings, I will focus on how they lead to very practical recommendations for design artifacts, generated with economy, which open up dynamic conversational possibilities between Merck and indinavir users.

### **Information and feeling in control**

*Problem:* It is clear from our findings that of the people with HIV/AIDS that are aware they are participating in the development of treatments against the HIV virus many spoke of being guinea pigs. They are also aware that the development of treatments against the virus is being continually advanced. However, they are not fully aware which information to trust, or how new research affects them personally.

People with HIV/AIDS want information in order to be able to make decisions and choices so that they can take control of their lives. At the moment, there are many areas in which people are not clear about what

is safe and what is not safe; what is OK and what is not OK. For example, “What are the long-term effects on the rest of my body of taking a triple combination therapy over a long period of time?” and “What are the real dangers of taking other medicines alongside triple combination therapy drugs?”

*Solution:* People need to be told about the limits and holes in current research. They need to know the “why” as well as the “what” if they are to be confident about their ability to manage their disease.

### **Understanding and position**

*Problem:* Even though we were working with sophisticated and “information hungry” people, our exploratory conversations revealed common misunderstandings about how to get the most benefit from indinavir and avoid the development of resistance.

Everyone we spoke with understood the concept of resistance and was familiar with the medical information about indinavir. Yet this knowledge did not translate into “commitment” to take all doses regularly and avoid heavy food around dose times. How can people be well informed yet not able to comply with this information?

The explanation is simply one of cultural position. Merck, like most organizations, is talking about their products from their own medical and legal position: from how the company sees it. But indinavir users do not make sense of information in a medical context only. They need to understand it in the daily context of their own lives. To be able to commit to the most effective use of indinavir they need lifestyle-orientated information; that is, plenty of hints and tips on how to ease the burdens of compliance.

As current information from Merck on these life and death issues is written from the company position it focuses only on “best” practice—

“the right dose, at the right time, in the right way.” This does not allow for human difficulties in achieving best practice. Our research showed that even those fully committed to taking indinavir were too confused by existing information to make an informed decision on how to act in circumstances outside best practice. For example:

- What do I do if I only remember a dose three hours after I should have taken it—do I skip it or take it? If I take it, should I adjust the time of my next dose?’
- What do I do if taking a particular dose would interfere with special social plans—do I take it when it’s convenient, or skip it altogether?
- What can I order in a restaurant if I arrive there close to my dose time?

These very practical concerns, the “what if” situations are the keys to commitment.

*Solution:* We recommended an information structure that would meet the legal and medical concerns from Merck’s position, yet still provide users with the options they needed to decide exactly how to act. We would go beyond the prescriptive explanation of “best” practice (as put forward in the CMI) and also describe acceptable and unacceptable practice. We recommended the labels “ideal practice,” “good practice” and “bad practice.” The word “ideal” implies “something to aspire to which is not always attainable,” while “good” confirms that although this is not the “best” it is still OK. In our subsequent testing of prototype designs, people welcomed our recognition of their difficulties in trying to meet the ideal, and were empowered to take control and make acceptable equally committed choices on how to act.

### **Understanding in a temporal context**

*Problem:* I mentioned earlier that this particular communication environment presents a major challenge because of rapidly changing

and updated information. Our research showed that, in general, indinavir user's misunderstanding and misuse of available information was dominated by their previous experiences and preceding actions. On the issue of food interaction, the original medical information (CMI) recommends fasting around dose times, because early clinical trials showed that high-protein, high-fat, high-energy meals reduced absorption of indinavir. Patients were stuck on this message and were not hearing that further clinical trials now indicate that light meals around dose times do not restrict absorption. Indinavir users were not understanding the temporal sequence of new information.

*Solution:* It was readily apparent that if we were to develop understanding and not confuse people further, we needed to clearly indicate to indinavir drug users the position of each new piece of information in this on-going conversation with Merck. We needed to establish a system of information that would give temporal contextualization to updated information.

### **Understanding and compliance**

*Problem:* The misunderstandings around “what if” situations, particularly around missed doses and food interactions, were the cause of a great many compliance problems.

Some people were confused by contradictory information. For example, many people with HIV/AIDS experience muscle wasting and are advised to eat frequently to maintain their muscle mass. They could not marry this advice with fasting for three hours around each indinavir dose. Others simply misunderstood information. For example, they thought they should not take a dose if they had any food in their stomach, and so were deliberately not taking their evening doses because they preferred to indulge in eating chocolate or a large meal each evening. There were similar commitment problems associated with the uncertainty about what fluids to drink.

If we could clarify the information on food and drink interactions, and provide simple action-orientated solutions to managing pill-taking at meal times, we could go a long way towards helping people understand how to make choices to improve their commitment to taking the drug in the right way.

*Solution:* Our recommendation was to provide examples of specific food and fluids that can be consumed around dose times, and those which can only be indulged in well outside dose times. Simple dos and don'ts lists would make the information easy to access, and allow people to make choices that they can translate into action.

### **Stress and using information**

Another major finding was the diversity between people: between those who are just about to start taking a triple combination therapy and are fighting against committing to a regular pill-taking regime, and those who have accepted that survival means being disciplined. These people look at information differently, have different behaviors and need more information options. This diversity in information seeking and use seems to be related to stress levels. We found common everyday situations which people were particularly stressed by were:

- Remembering multiple dose times within a day—there was a strong preference for a once-a-day treatment regime
- The difficulty of sorting out and carrying around multiple doses when away from home for more than one dose time (interestingly, none of those who use that practical design solution, the
- Uncomfortableness with taking pills in public
- Being caught away from supplies by unavoidable circumstances

### **Information design as an artifact of an on-going conversation**

Despite the urgency of the deadline, taking the time for initial research and not confining ourselves to Merck's brief allowed us to construct two design approaches.

Firstly, we recommended that information about lifestyle options and survival tactics be provided using personal anecdotes spoken in the voice of indinavir users. Articulating the voice of people with HIV/AIDS potentially encourages acceptance of the information as it sidesteps the complaint, "I'm sick of being told what to do."

Secondly, we recommended developing a more dynamic artifact of communication that would engage Merck and indinavir users in an on-going relationship, in which Merck provides continuous information updates in a common format, and the users anticipate and trust those up-dates. New information, when trusted and acted upon, can ease the burdens of commitment.

### **Iterative design development**

We began developing two prototypes:

#### **Prototype one**

A concertina-folded, passport-sized, eight-panel card, dated, each new edition clearly signaled by a different color, to be attached to and dispensed with every month's supply of indinavir Crixivan®.

The prototype contained:

- Action-orientated ideal and good options for taking indinavir
- A personal schedule template: There was a positive response in our exploratory conversations to the notion of a personal treatment schedule template, as adjusting combinations is a common practice. Those we talked with all agreed that filling out a personal

dose schedule would be more helpful than looking at a sample chart (as initially suggested by Merck) because the sample may not be relevant to them.

- A recording/monitoring sheet (a place to record things to talk to the doctor about): The value of personally recording observations and questions with some kind of systematic monitoring system—which is neither a log nor a diary appealed to many (but certainly not all). Recording side effects and progress increased their sense of personal control, enabling them to keep doctors up-to-date on their response to treatments. Our research data clearly indicated that any monitoring system needs to be personal and event-driven; that is, something which the patient controls when the entry is made, without the regimented sense of having to fill it in according to someone else's information priorities (as they had experienced during participation in clinical trials). Maintaining independence was an important theme in our exploratory conversations.
- Research update (to emphasize that current advice may change as a result of further research): As indinavir is dispensed monthly, new editions of the card can be produced whenever there is new information to release. The editions can have variable life spans, and would be dated and color coded to clearly signal when information has been updated.
- Access/contact points for more information and a free Infoline to Merck pharmacists: Users do not at the moment think to call Merck for advice or help, and there is no direct free-call number on any of Merck's literature.

The information attached to the bottle has the potential to open up two new levels of conversation: between Merck and the indinavir users, and, if they use the recording area on the card, between patient and doctor I treatments officer.

### **Prototype two**

Two booklets, passport-sized due to the need to pocket information for privacy, given out with initial prescription.

The prototype contained:

- Nutrition booklet (with advice on what to eat and when)
- Hints and tips anecdotes booklet (which we would write using quotations from our conversations with users): The proposed booklet would not replace the CMI, but be used alongside it. It would start from the premise that committing to taking indinavir as part of a triple combination therapy is difficult, that it is human to not be able to attain the ideal at all times. We would use the voice of people with HIV/AIDS to stress options and choices, empowering those having compliance difficulties to take control and manage their pill taking in a personally effective way.

When creating design prototypes we draw on both our cultural sensitivities to users' needs and our aesthetic and typographic sensibilities to develop an appropriate writing and presentation style. Simultaneously writing and designing the prototypes permits an essential freedom and control over the visual structuring of information. In all our design work we recognize that the visual appearance of the finished product has a vital functional role in inviting reader attention, sustaining their interest and helping them navigate (MacKenzie 1993). In this case we wanted a strong vibrant approach which would encourage interaction with users, an intimate conversational tone, clear typographically differentiation of the different voices, and a contemporary post-modern "quick-grab" feel which would permit "dipping" into the text rather than the sequential reading of continuous text. We also wanted to use humor in our visual presentation, as all three (RIA researchers made the observation that this would be appropriate from the way in which people talked with us.

### **Testing the prototypes**

We made use of contemporary digital direct-to-plate technology to rapidly produce full color mock-ups of the booklets and card on a Xerox docucolour 440. We used the mock-ups in one-to-one collaborative conversations with users, to diagnostically test the effectiveness of our designs before proceeding to production. Again, this is a critical step that there is pressure to bypass when designing on the fly. We have advocated this economic and highly productive investigative method to check performance for over a decade (MacKenzie, 1992). I will visually compare the original prototypes with final iterations to illustrate the power of this simple diagnostic testing process to ensure effective final solutions.

We went through two cycles of exploring how users interact with our prototypes. Initially we tested mockups of the card and two separate 16-page booklets, *Diet, drugs and HIV* with nutrition tips, and *Life, drugs and HIV* with personal anecdotes. We tested the effectiveness of our more economic two-color graphic style against the full-color photographic approach Merck thought they needed. In one-to-one conversations with 20 people we asked performance-based questions to test user's understanding of:

#### *Patient treatment cards*

- The critical things to do to get the most benefit from indinavir
- The relational data on other combination therapy drugs—could everyone fill out a personal schedule template suitable to their own lifestyle?
- The concept of the dated editions of the card as an on-going conversation with Merck
- The importance of the research update as an aid to increased trust in a rapidly changing information environment
- Whether patients might use the recording/monitoring facility as a way of communicating with their doctor

*Nutrition booklet*

- Could users understand when they need to watch what they eat and when they can indulge in high energy foods like fast food and chocolate
- Could they use the information on light food to describe light meals appropriate to their needs at particular times in the day?

*Life booklet*

- Could they use the booklet to find answers to particular questions on ways to make their lives easier?

These twenty conversations provided a very effective return on the time invested, confirming that our proposed size, writing style, visual presentation, simple two-color illustrative approach and the medium of personal anecdote were all highly appropriate and effective. People's high success rates in finding answers to our performance-based questions on how to act outside the conditions of best practice showed a much-increased understanding of compliance options.

However, it was also readily apparent from our testing that:

- The scope of the two booklets was too broad – we had aimed at users of all combination therapy drugs and it became apparent that we needed to focus on indinavir specific information to maintain clarity and confidence in the information
- Some people experienced difficulty navigating through the information, taking longer to find answers to our questions than anticipated.
- The personal dosage schedule was difficult to fill in—no two people approached this task in the same way
- There was still some misunderstanding about what food could safely be eaten around dose times and how long either side of a dose the restrictions applied

**Refinements**

We modified the prototypes to meet these shortcomings.

**1. Credibility**

We reframed the information to be indinavir-specific. Keeping the concept of one page per topic, we combined the two separate nutrition and personal survival anecdotes booklets into one 36-page booklet, re-titled, *Life, food and indinavir*.

**2. Navigability**

Combining the two books into one would increase user's dependence on the visual and verbal devices we had introduced to allow the reader to dip into the text. Neither book nor card is designed to be read cover to cover. Users need answers to specific questions to inform specific actions. The navigational aids we had developed needed to be given greater prominence to meet all users' needs, even those who dislike looking for information.

We made the introductory information "about this book" more graphically arresting on both the card and the booklet; on the contents page we added in the word "page" for clarification and highlighted the parts, and we moved all folios to the outer edges.

For those who use a flipping rather than look-up access strategy we aligned the first word in each of the double-worded titles with the x-height rather than baselines to improve scanning legibility.

**3. Clarity of understanding**

To further clarify the information on the relationship of food and indinavir we introduced the concept of a "dose window." We illustrated this concept in the booklet and on the card, using the graphic of the personal dose schedule and shading the time around each dose when you have to watch what you eat. We also introduced a verbal mnemonic—*Remember "3-2-1:" 3-hour window, 2 hours before, and one hour after a*

*dose*. Having created this device we then stated clearly the relationship of food to dose: *Within the dose windows eat only small amounts of light food, outside the dose windows you can indulge*.

With the personal schedule template, we introduced a 24-hour time frame, to overcome the difficulties people had experienced in the first round of testing trying to insert their personal dose times into the empty template that had no time referent.

We also added step-by-step instructions for how to fill out the dose schedule and indicate the dose windows. As I had watched people struggling in our first round of testing I had noted down the things I wanted to say to them to help them fill out our original template. Giving people the sequence for decision-making was critical in the success of this task. In the second round of testing each respondent was empowered to fill out their own dose schedule unaided. It is interesting to note how this time around all respondents filled out their charts in the same way, very much like the sample.

#### **4. Legibility**

In contrast to early legibility studies (Tinker, 1963; Spencer 1968) our testing of documents over the past eight years suggests that legibility is not in any way biologically determined by the way our eyes are constructed, but is culturally learned and subculturally developed (MacKenzie 1994). People read and understand best what they are most used to (MacKenzie 1993). Contemporary deconstructionist typography, with its surprising juxtapositions and dynamic layering of information would have appeared as meaningless clutter a decade ago, but is now mainstream reading material for our youth culture. As our visual environment becomes increasingly complex and fragmented, it appears that all generations are learning new reading habits (MacKenzie 1994).

Testing our prototypes with people with HIV/AIDS led to three interesting findings concerning legibility. Firstly, the overlapping headings were not problematic for the majority. Secondly, testing sparked innumerable comments on the clarity of text, for example, reversed-out of solid black pages, “It just stands out”.

This was an interesting finding, as testing in other genres, such as insurance documents or billing systems, has repeatedly shown reversed-out text lacks clarity. Here then is further confirmation that optimal legibility is conditional on the context of use and the reading habits of those who will use the information. We chose to exploit this evidence, and reverse out all the critical information pages.

Another surprise, given earlier research findings about peoples’ difficulty to understand tabular matter (MacDonald-Ross, 1977), was the positive response to our way of presenting information in tables. We capitalized on this for the medical information on the severity of interactions of indinavir with other medicines. We simplified the data to remove all text, introduced a key and a more graphic table structure. In the next iteration we simplified even further, removing the symbols and key and graphically highlighting the tabular structure. We also introduced “dos and don’ts” tables to summarize the information at the end of each part of the book.

#### **5. Action-orientated information**

We made use of this highly literate community’s ability to use tables, and created meal-specific menu tables of nutritionally safe meals they can eat in dose windows without reducing drug absorption. We clustered this data in an action-orientated way to reflect how users need to interpret this information to take action in the course of their daily lives.

Our second and final round of testing was with just nine more vulnerable patients who are not associated with AIDS support centers.

These conversations confirmed that our prototypes were fully action-orientated, and appropriate to the information needs and lifestyles of a range of indinavir users. Participants were able to describe to us how they would act in a range of situations. Our prototypes presented the information and options clearly, empowering participants to make rational decisions about commitment and lifestyle issues.

We received unsolicited positive comments on the appropriateness of the size, feel, and visual approach—many commented on the cartoons, identifying with them; on the ease of use and clarity of writing style; and the way users felt their needs were being met and taken care of through the provision of monitoring pages, research updates and the direct information line to Merck. It is this increased consumer confidence which makes it easier for Merck to communicate effectively into the future.

### **Post script**

How people with HIV/AIDS continue to use these materials and the meanings they construct from them will emerge through continued use over the next few months. We plan follow-up conversations in September to monitor progress, fine tune the materials and see whether the editions of the card and the personal anecdotes are effective in helping people to commit to taking the “right doses, in the right way, at the right time.” Our qualitative research will complement a quantitative survey that will be conducted independently by medical researchers at a Sydney hospital. We will also use this opportunity to uncover any unexpected uses that may emerge from people’s interaction with these information materials.

### **Conclusion**

Taking the time to become culturally sensitive to the range of needs among people with HIV/AIDS, and shifting our focus from the design of information materials per se to managing the relationship between Merck and its consumers allowed us to develop an environment for

further conversation (through documents) which can be easily and rapidly returned to at any point in the future.

I have taken you through one particular communication problem, and shown that you can use cultural sensitivity and conversational partnership to speed up the process of one group getting to know another and thus ensure effective information design. So, I wish to leave you with this message: If we set up the relationship between company and consumer properly and create the potential for an on-going mutually beneficial conversation between them, then, much like relationships with a good friend, the conversation can be easily returned to, achieving future objectives in a much shorter time span. Conversely, if we fail to incorporate and manage these critical stages, we could end up producing a short-lived design artifact in a short period of time that creates further misunderstandings rather than resolving them.

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