

Perceiving Needs

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ABSTRACT

This paper examines the nature of needs and how one goes about recognizing them. In the process, the role of perception is discussed, various needfinding strategies are described, and difficulties associated with the needfinding process are identified. Finally, observations are made about how the needfinding activity might be structured within the corporate arena.

INTRODUCTION

We speak of needs as though they exist in some real or physical way. We say "I need a car," or "I need a house." In actual fact, cars and houses are not needs in themselves, they are but one way to meet certain needs such as mobility or shelter. The need itself is a perceived lack, something that is missing. Needfinding is thus a paradoxical activity—what is sought is a circumstance where something is missing. In order to find and articulate a need, this missing thing must be seen and recognized by someone. As the word itself implies, needfinding involves two issues: needs and recognition. Therefore it is necessary to talk about perception and needs at the same time. It is the intention of this paper to do this and to discuss ways in which needfinding may be accomplished.

NEEDS

While much has been written about individual needs, curiously few authors have devoted much attention to the subject of needs as a whole. Of those who have, Abraham Maslow's thoughts are the most useful. He uses the word need to denote a whole spectrum of circumstances which he calls the Needs Hierarchy. This scale begins with Basic Needs which consist of Physiological needs for air, water, food, shelter, etc. and Defense needs for safety, security, etc. At the next level are Social Needs: Affection Needs for love and belongingness and Esteem Needs for recognition, acceptance, confidence, respect, etc. Finally there are the Self Actualization Needs such as the desire for beauty, goodness, simplicity, playfulness, etc. These Self

Actualization needs or "Being Values" may be summarized as the need to become what one is capable of becoming.

Maslow describes all these various needs as being preemptive, i.e., basic needs must be satisfied before we even become aware of higher needs. If a person is starving he is not going to enjoy an opera. His vision will be involved with resolving his current need, hunger. Everything he looks at, even the opera program, will be seen as a potential meal.

Most persons are uncomfortable with the use of the word need at the top end of Maslow's hierarchy. For example, we are more comfortable describing a man as wanting recognition rather than needing recognition. But we also note a starving person says he wants to live rather than needs to live. For the purposes of this paper there is little to be gained from trying to make a distinction between needs and wants. I shall therefore use Maslow's notion of needs as covering the spectrum of human requirements.

PERCEPTION

Because perception feels automatic we don't question the actual activity. Our impression is that things exist 'out there' and that we passively take them in. The whole process is thought to be like taking photographs or video images. Biological facts refute this notion. Our eyes actively scan our environment, only accurately taking in a small angle of the entire visual field at any instant. Visual signals are highly processed within the retina, and are sent on to the various parts of the brain where they are even more highly processed. Here visual data is combined with kinesthetic data informing us whether we are standing or sitting and balance data telling us if we are upside down. The resulting image is a best guess reconstruction of what we think we are seeing.

Ulrick Neisser in **Cognitive Psychology**, says this reconstruction uses "stuff" which has been stored as previous experience. This "stuff" provides the bulk of what we "see" when we are awake, and also is the material we use to create dreams. In **The Intelligent Eye**, another psychologist, Dick Gregory, addresses the same

issue when he describes vision as a constant testing and upgrading of hypotheses about what is 'out there.'

Words also play a powerful role in what we see. Words provide the value system and categories which we use to classify experience. We can't see what we don't know and for which we have no name. After learning about something we become sensitized to it, and see it everywhere, whereas before we literally never saw it.

Perception may then be seen for what it is: a creative act which treats currently arriving bits of information as clues to what is being seen. What we do see is the result of both our current mental slate and physical context and also our language and previous experience—we see what we expect to see. Perception is inductive, jumping from the clues we recognize to a larger conclusion. Most of what we see is a confirmation of previous stereotyped learning. For example as we walk in the woods we unconsciously scan our path in order to confirm that it is solid. This process becomes conscious only when something triggers a danger signal, as when a stick resembles a snake.

PERCEIVING NEEDS

This discussion has several implications for perceiving needs. The first is, if needs are something that are missing, they will be difficult to see, especially as one moves higher up the needs hierarchy. Needs are obvious after the fact, not before. In this, needfinding is similar to creative problem solving. Both require reordering the facts in order to see something that did not previously exist and was therefore unseen. Both rely heavily on subconscious mental activity to create this new ordering of information.

Needs are perceived in one of two ways: by the same person who is experiencing the need (the Needer), or by a person who is observing another person's or group's needs (a Needfinder). We have learned that seeing is an active creative event. Experience shows that needfinding requires empathy or a feeling of involvement with the needer. It is rare that a person will see a need if he does not relate to it in some personal or professional way. A doctor is more likely to identify a medical need, a mother is more likely to hear a crying baby. Needfinding is therefore a very personal activity which is profoundly influenced by the finder's current state of being, motivation, point of view, and personal needs.

Learning a profession involves learning about one way to see a certain class of needs. Indeed, professions define needs, claim sovereignty over them and fight off encroaching professions with legislation, licensing and legal action. For example, the medical profession claims childbirth as a health need requiring hospitalization and tries to outlaw midwives who have helped with the same need for thousands of years. Policemen, butchers, preschool teachers all have specialized learned perceptions in addition to their innate human ones and each will see needs in a different light. Of more concern to needfinding is the fact that each function within a corporation will view needfinding differently. Engineers, accountants, marketing personnel, production people and designers will each have a different view of the needs

which their organization's goods and services should address.

NEEDFINDING STRATEGIES

If needs are to be actively sought, there are a variety of approaches that may be used. The following annotated list is not exhaustive but is offered to provide an idea of the range of possible techniques.

Marketing Approaches

Market Pull

The customer requests something, or asks "Why didn't you do this?"

Market Analysis

Existing markets are analyzed for missing opportunities.

Demographic Analysis

Profile the consumer population by age and ethnic patterns, examine statistics on the baby boom, geriatrics, etc.

Psychographic Analysis

The Stanford Research Institute has a program called Vals (Values and Lifestyles) which examines consumer patterns according to motivation categories derived from Maslow's hierarchy.

Consumer Preference Testing

Advertising

Creates an awareness of a real or imagined need.

Technology Based Approaches

Technology Push

Given a new device, material or process, what else can it be used for? How can the quantity be made to go up so that the cost will come down?

Technology Forecasting

Studies of the future such as the Delphi Project done at the Rand Corporation.

Technology Assessment

Examining engineering applications for positive and negative side effects. Other social events can be examined as well. For example, new legislation often impacts needs.

Criticism of Technology

Reading critical books and articles often reveals how technology creates problems. For example all of Ivan Illich's books comment strongly on human needs, especially those of the third world.

Personal Approaches

Self Analysis

A careful self evaluation can provide insight into the sorts of things that an individual would like to work on. A hard look at motivators like fear, love, greed, guilt, or peer approval is particularly useful. The book **Values Tech** provides many thoughtful exercises. After a series of needfinding exercises has been done a second look to reveal personal fascinations also generates insight.

Personal observation

One simple exercise that can work surprisingly well is for a person to keep a list of everything that bothers him (a bug list). The first hundred entries or so will be commonplace, but after that the list becomes increasingly useful.

Spend time with a needergroup

Spend a day or more with someone who represents a class of needers like air traffic controllers, or persons over 80. Try to actually perform the tasks involved. Document observations with a 35mm camera.

Personal experience

Natural life experiences like birth, weddings, pregnancy, etc., or handicaps or injuries, etc. often provide insight or motivation to solve a need. Also experiences shared with others, such as disasters, fires, earthquakes etc., often reveal needs. Hobbies and sports often generate the kind of involvement that lead to good needfinding.

Professional Experiences

Professional observations, or events filtered through professional vision are a common source of needs.

Travel experiences

Travel, especially the culture shock after returning from travel, provides an interesting vantage point for examining how things are or could be done.

Extensive Reading

Needfinding benefits from broad based reading which is not aimed so much at gathering information as it is intended to gain a gestalt understanding of current events. Files of clippings and other materials can become a rich source of needfinding inspiration.

TEACHING NEEDFINDING

I teach a course in needfinding each year at Stanford University in which students are asked to find needs using a sampling of these approaches. This class precedes the student designer's Senior Thesis Project and Masters Project the following year. The presence of a genuine need has been seen to be the major ingredient of successful projects. Identifiable needs provide guidance during the design process and criteria for judging the success or failure of a project when it is done. They help marshal energy and provide year long motivation. Good problems also generate enthusiasm with students' colleagues who provide encouragement when the going gets hard. It would be a mistake to imply that needs are clearly defined at the beginning. We encourage our students to use design as a research tool in which the need and the design evolve together in an iterative and interactive way.

Over the years most of the approaches listed above have been used to teach needfinding. While no needfinding strategy has proved to be totally successful, two of them yield sufficiently insightful results to warrant being continually repeated. The first is a thorough self appraisal. We ask them to do things like diagram themselves or write their own obituary. These tasks are done to make the students externalize current perceptions of themselves, their own needs and values. Thoughts about what careers they are planning or where they would like to be in ten or twenty years indicate possible areas of inquiry. By the end of the course the motivation behind these thoughts are often brought into question.

From the standpoint of the class the best actual needfinding exercise is the needergroup project. This assignment generates empathy with users through direct experience. Students have spent work days with surgeons, commercial fishermen, pet groomers, the ASPCA, state patrolmen, helicopter paramedics, disabled persons, tattoo artists, etc. The result of this exercise is only

occasionally a great project. But it does an excellent job of opening students' eyes to the world of needs, especially in the workplace. They are amazed at the situations they can talk their way into. After this experience some students even begin doing similar things during vacations—they just say they are doing a class project! It also gets them into the habit of carrying a 35mm camera to record problems whenever they see them.

A similar approach has been used professionally to study what it is like to be black (**Black Like Me**), elderly (Patricia Moore), or a street person (Beulah Lund). In each of these well publicized examples the persons disguised themselves to actually look like the needergroup and then spent a long time living their role. Such an experience inevitably results in appreciation for the integrity and humanity of the needergroup and also often fosters a lifelong passion to help these groups meet their needs.

BLOCKS TO PERCEIVING NEEDS

If anything has become clear in teaching a course in needfinding, it has been that needfinding is a very difficult activity. The following list discusses some of the issues that regularly surface among my needfinding students.

SELF AWARENESS

The observer has to be aware of his own personal state, his own location on the needs hierarchy. If you are to see for others then you must be in a state of relative calm.

EMPATHY

Similarly, a needfinder must identify or empathize with large numbers of other people. In the case of survival needs, this involves opening up to pain and suffering, seeing ugliness instead of beauty. Needless to say this can be unpleasant and depressing.

GUILT

Then, if you see and don't act, you feel guilt. Perhaps it is better not to see needs in the first place.

LACK OF SUPPORT FROM NEEDERS

Above the basic need level, needers seldom admit that they have a problem. In fact, they will often insist that they have don't have a problem. The needfinder can thus feel like he is being intrusive and presumptive, rather like a missionary insisting that the natives need clothes.

PROFESSIONAL PETER PRINCIPLE

The way in which actions intended to help can be harmful instead is explained in Ivan Illich's **Tools for Conviviality** and **Towards a History of Needs**. In these books and others he describes how professions and helping organizations tend to go through two thresholds: the first where the profession begins to do more good than harm, the second where it dictates need solutions to such an extent that it becomes more harmful again.

FEAR OF DISRUPTION / RELUCTANCE TO SIGN UP

Seeing needs can easily disrupt one's personal life. We appreciate Dr. Schweitzer and Mother Theresa, but don't want to take their place. We are happier thinking in terms of having a job, or possibly a career rather than a calling. Many people would rather observe life than live it first hand.

LIMITED CONCEPTION OF REALITY

What is often involved here is an objective conception of reality, that is, the belief that there is a real and fixed reality 'out there' that is separate from me, and I have to adapt myself to it rather than create it for myself. From the discussion of perception we have learned the extent to which we do create our own reality through our perceptions. At each moment each of us is creating reality both for ourselves and others. Truly understanding this is not easy. It almost requires enlightenment.

SELF DEFENSIVE PERCEPTIONS

Overall, what we see tends to provide justification for what we are doing. We choose to see things in a light that makes us feel good, that helps support our role. This is related to several other needfinding problems.

LIMITED RESPONSIBILITY

"It's not my job" is a mindset often encountered. In large organizations it is not uncommon for leaders to see their role and responsibility as looking out solely for their corporation's balance sheet and to ignore the often large effect their decisions have on society.

INVESTMENT IN THE STATUS QUO

The elders of society typically have their power and interests tied to the status quo. In our society, as people become older they typically become less interested in change for benefit of people and more interested in 'law and order,' i.e., the preservation of property. This is natural in a society that sees accumulation of goodies as an indication of success in life. Curiously, many students are already in this mindset.

LACK OF POWER

On the other hand many young persons who do see needs feel powerless to address them. See **Beyond Freedom and Dignity** by John Holt.

DIFFICULTY PERCEIVING ENVIRONMENTS

Marshall McLuhan describes the environment as being invisible to its occupants. For instance, a fish is unaware of water, and a scientist fish would have a hard time discovering it. Environments are simply taken for granted. Significant needfinding requires that something be seen which is outside of our general state of awareness and for which no name currently exists. In a sense, the need must be invented.

NO REWARD

Needfinding is, in fact, a creative act, and while lip service is paid to creativity, it is actually quite unappreciated. Creativity creates hassles in everyone's lives and most people are not interested in more hassles. Much has been written on this subject so I will not dwell on it.

USE OF INTUITION

Needfinding involves the use of intuition. Needfinding often involves jumping out of left brain thinking into a nowhere land of pure sensing. To use Professor Bob McKim's expression, when a good need is found there is an "aha" reaction similar to the feeling one gets when he solves a problem. But this occurs at the gut level—the needfinder must have sufficient confidence in his intuition to continue without firm evidence. Most people

aren't trained in the use of intuition, certainly not technical people.

THING ORIENTATION

Our value system and segmentation of professions encourages us to think about physical objects rather than satisfying needs in a broad or all encompassing sense. As has been mentioned in the example of cars and houses, we rarely talk about needs, but rather talk in terms of previous solutions to needs.

DEGREE OF DIFFICULTY

On the one hand, it is easier to fix an immediate and often trivial need than to tackle an underlying need. This creates a tendency toward shallowness. On the other, we live in a time when rewards in business and politics are keyed to short time frames. This sometimes encourages action which is too strong and creates even more long term problems.

CONFLICTING MORAL CODES

Ultimately needfinding involves morals and ethics, and, in our confused times, clarity of purpose is rare. What is good and what is worthwhile are difficult questions that ultimately each person must answer for himself.

NEEDFINDING IN THE CORPORATE ARENA

The primary corporate concern is to provide goods and/or services that will provide a net profit for the corporation. While markets are occasionally created and manipulated artificially by means of clever advertising and salesmanship, the long term health of most organizations requires that their goods and services address significant human needs.

It is crucial that organizations know what business they are in and what needs they are addressing. The recent failures of numerous startup companies in Silicon Valley can be traced to products that were hot based on clearly defined needs but rather were manufactured because they were technically feasible. The engineers involved assumed that because they personally would like to own and use such state of the art devices, everyone would. They were wrong. Of course the technology issue can cut both ways. It is not uncommon for established firms to become so married to existing technologies that they don't consider new technologies which might be better suited to their product. The failure of the manufacturers of mechanical adding machines and cash registers to consider becoming involved with electronics is a good example.

A clearly defined need also attracts talent and provides motivation for employees. Thus needs are not just a sales issue, but significantly affect the entire health of the organization. Just as they do for students, good problems generate energy: they attract the best people and the best efforts of the entire organization.

With whom should a company entrust the needfinding role? Since initiating and assigning problems is a leadership function, one might reasonably expect that the highest executives would assume this task. Yet needfinding appears to be a rather humble activity, and does not require the huge budgets needed for research, design, development or manufacturing. To my knowledge, there are no vice presidents of needfinding. Needfinding is most

often assumed to be a marketing responsibility.

Locating needfinding in marketing is not without problems however. The marketing task is to maximize sales. Satisfying real needs is one way to accomplish this, but there are other ways that have little to do with needs. Also a corporation's customer is often not the end user or the person with the need, but rather some middle man. This retailer has his own commercial needs, and the corporation is sure to fill these requirements first.

Engineers might reasonably be asked to assume the needfinding task, but their job is seen as delivering a set function at the lowest cost. If any need is considered, it is safety. As has been mentioned engineers are fond of new technology which can also affect their perception of needs. On the other hand, designers could be asked to handle this task, but design is seldom involved in the conception of the product unless it is in a fashion area. Manufacturing is concerned with cost and quality, but at this point it is too late in the cycle to consider other customer needs. Sales hears about complaints with existing products and services. This can be instructive and useful, but complaints are not the same as needs and can be very misleading. Also basing needfinding on customer complaints short circuits leadership in the business arena.

Another problem that all these groups share is the nature of professional education. Most professional educations focus on learning the skills of the trade at the expense of a thorough discussion of needs and overall purpose. For example, despite engineering often being defined as the application of science to meet the needs of society, little is said about needs in a typical engineering education. Likewise, designers are taught to give a lot of thought to the people who will use their products but tend to stop when aesthetic and human factors concerns have been satisfied.

In short, it isn't clear that any corporate division is the logical place for the needfinding function to reside. Each group we have discussed could conceivably handle the task. Since needfinding is a company wide task, I think a good case could be made for creating an interdisciplinary needfinding team reporting to a senior executive. No matter what group undertakes it, the difficulties I have discussed must be recognized, especially the difficulty of going beyond the provincial perceptions built into each discipline.

Successful products result from the coupling of a significant need with innovative technology. When this happens the corporation will soon be asking, "What do we do for an encore?" An organized creative needfinding effort is one way to provide answers to this question.

