

Edging Toward Sustainability

John C. Thomas

IBMT. J. Watson Research

PO Box 704 Yorktown Heights

NY 10598 USA

truthable@aol.com

(01)-914-424-2095

ABSTRACT

In this paper, I attempt to begin to integrate a number of powerful but heretofore disparate techniques and processes into a possible (and possibly coherent) method for communities to understand, exchange, and extend “what works” in terms of practices that are locally more fulfilling, economically viable, and enjoyable as well as globally more sustainable. The suggested “style” of “intervention” will be illustrated with one of these; viz., storytelling.

Author Keywords

Pattern Language, Sustainability, Story, Story Telling, Appreciative Enquiry, Cognitive Therapy, Values-Based Design, Bohm Dialogue.

ACM Classification Keywords

H.5.m. Information interfaces and presentation

General Terms

Human Factors; Design; Measurement.

INTRODUCTION

There are at least three major unsolved questions facing humanity today. 1. How can we have a world that is at peace? 2. How can we develop a world that provides for people’s needs while preventing ecological disaster? 3. How can we develop a world that is just in terms of the distribution of goods and services? These three issues, each of which is complex in itself, are also heavily inter-related. Ultimately, a world that is not just will result in violent strife and war. War will exacerbate ecological non-sustainability. Shortages of water and goods that result from ecological disasters will tend to exaggerate the impact of unjust distributions and tend to lead to war. Like other “vicious circles” however, this system can also be run as a “virtuous circle” in that a more just world will tend to reduce war and ecological waste; a more sustainable world will tend to reduce injustice and war; a more peaceful world will tend to promote more sustainability and justice.

So far, much (but by no means all) of the HCI research on these topics has tended to assume that the main issue is to

provide people with better access to information including information about the world, about their own behavior and better ways to communicate information among people. No doubt, these are important pieces of the overall puzzle. Here, however, I explore techniques that attempt, in various ways, to address human beings, not just as information processors but also as *energy* processors. We are biological beings, and heavily social ones at that. In the past, I have had experience with a number of techniques aimed at dealing with individuals and groups as social and emotional beings as well as informational ones. What I would like to do at the workshop is introduce these as potential additional pieces to a solving the complex overall puzzle and present initial ideas about ways that they may be combined, certainly not as a finished and definitive method but in order to gain feedback about both the applicability of the pieces and their potential arrangement into the outlines of an overall “solution.”

In attempting to “support” communities of various sizes, I suggest a “middle road” between two extreme approaches. One extreme is a top-down paternalistic approach which attempts to predict and control how and what a community does from the perspective of an all-knowing technocracy whose only real task is seen as “convincing” people to do what is known to be the right thing. The second extreme approach assumes that people basically know what is in their best interest and know how to change their behavior but perhaps lack only an unstructured electronic commons for information exchange. In this view, people left to their own devices will discover how to behave in a collectively more intelligent fashion over time and through experience if only they have the means to communicate with each other. The middle road approach suggested here is that there are a number of techniques and processes which have been discovered by various cultures over the millennia to be effective at wide spread social change and that some guidance may be usefully provided to communities about what these processes are, and how they may be used and inter-related. This can be provided in a “light-weight” non-obtrusive manner that allows communities to keep control, responsibility and dignity while learning more effectively and efficiently than a completely unstructured communication commons would provide. We briefly review some examples of these processes and techniques

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and then illustrate the approach with one particular technique, storytelling.

PATTERNS AND PATTERN LANGUAGES

A Pattern is the named solution, in outline form, to a recurring problem along with an analysis of the problem. A Pattern Language is an interconnected set of Patterns that attempts to deal with a domain. The concept of Pattern Languages was initially introduced by Christopher Alexander and his colleagues in the domain of architecture and urban planning [1]. Since then, it has been applied in a number of other domains including object-oriented programming [2], human-computer interaction [3] and social change [4]. Patterns are not typically *prescribed* by authority but *described* in order to capture already found solutions within a community. They have the advantage of capturing lessons learned at an intermediate level of generality which allows them to be reused but in a way that is sensitive to the particulars of culture and context. For example, one of Christopher Alexander's Patterns is Local Sports [1] which claims that opportunities to engage in local sports are good for the health of individuals and communities. Exactly *what* these sports would be obviously depends on the specific context and culture in which the Pattern would be applied. Patterns typically include both abstract solutions and a number of concrete examples. They are written non-technically and as such can serve as a kind of *lingua franca* across different occupational groups [5]. A particular community may find that Patterns and Pattern Languages are things that "work" for them and support for how to find, create, illustrate, and write patterns could be incrementally provided. Other communities may not resonate with this approach at all, and in those cases, the "support" for Patterns and Pattern Languages would remain "dormant."

SYSTEMS THINKING

"Systems thinking" is basically simply taking a broad view of the consequences of potential actions and actors in their inter-relations with other actions and actors [6]. We may illustrate this with the "Arms Race." If one side feels threatened, a natural response is to increase their armaments because this makes them feel as though they have lessened the threat. However, this is *not* systems thinking because it fails to consider what the impact of that action is likely to be on the other side. The other side will now feel more threatened themselves and therefore increase *their* armaments. This in turn will again cause the first party to feel more threatened. A systems thinking view looks at this feedback loop and understands the entire loop. Either side can then realize that this "Vicious Circle" can also be run backwards. That is, a unilateral decision to *reduce* arms can make the other side feel less threatened and cause them to reduce their arms and so on.

An example in the domain of sustainability might be the decision of a company to "shut down" their buildings at 5pm every evening to "save energy" while still requiring a

level of work that requires most employees to work another two hours a day. While the decision will undoubtedly save *the company* energy costs, it means that the employees who drive will all be driving home during rush hour thus wasting additional time and energy. When the employee reaches home, they will still have two hours of work to do and thus increase their own energy consumption. Most likely the aggregate energy use in distributed homes will exceed the concentrated use in the office building so that the systemic effect of the "energy saving" move is actually to use more energy.

It might seem that "systems thinking" is just "common sense" but in my experience, people often need to be taught and/or reminded of this kind of thinking repeatedly. For example, in a former job, my boss was a Ph.D. engineer. One day in a meeting, he suddenly said, "It's boiling in here!" He promptly got up and set the thermostat to 60 degrees Fahrenheit. About a half hour later, he yelled, "Now I'm freezing!" He got up and set the thermostat to 80 degrees. Another half hour went by and he screamed, "Now, I'm boiling again! What the h*** is wrong with that thermostat?!"

STORIES AND STORYTELLING

Various writers have argued that storytelling is a powerful and natural way for people to develop and share knowledge [7, 8, 9]. If this is true and all cultures engage in storytelling, then an obvious question is why there is any need for "support" for storytelling. The answer is two-fold as applied to the current situation in the so-called "developed world." First, although the necessary skills of storytelling are fairly simple, they are not part of the typical curriculum. People are exposed to *professional* storytelling in the form of books, movies, and television yet typically not taught explicitly what makes for good storytelling. Alongside this, as people spend more and more of their time being entertained by professional storytellers, they spend less time socializing and sharing stories face to face in situations where they would be more likely to learn by observation [10]. Second, storytelling is natural when it is face to face. In such situations, people can perceive immediate feedback about the effect their story is having and can modify their behavior on the fly. The audience and context of face to face storytelling is known. By contrast, a story that is written into an electronic medium can be re-contextualized and presented to an unknown audience. Thus, while story *telling* is indeed still a natural process widely practiced, story *writing* is a less natural and more abstract process.

In face to face story telling, it is quite natural for the teller to take people through a narrative sequentially and establish empathy and suspense. By contrast, a person writing and posting a story electronically may quite innocently "spoil" the story simply by titling it, "How I found my lost dog", "How I met my spouse" or "How I got in shape by riding my bike to work." We must remember that such stories vie

for attention against stories produced by teams of professionals. What is proposed here is that, for those who so desire it, a little on-line coaching about how to present a story can help level the playing field and make the process of writing a story more interesting as well as making its impact both more wide-spread and deeper.

Examples of books that give practical advice about story structure are McKee [11] and Frey [12]. Two examples of simple principles that can be used as on-line guidance are using “ammunition” rather than “exposition” and “outside in” development of empathy. An inexperienced story-teller often provides the reader with background information by having two characters “reveal” to each other the necessary information. This is sometimes referred to as “feather dusting” as when two long-time members of a household staff “discuss” the background of the family in order to provide the audience with the needed information. In real life, however, these two already know this information and would not be discussing it. Such “exposition” forces the audience to be faced with the fictitious nature of the story and helps ruin the suspension of disbelief. Instead, McKee [11] suggests presenting this information incidentally in the course of displaying a conflict between the two characters. The current conflict is something that they might reasonably talk about and in the process they can reveal the needed background information, which in this case is selectively used as “ammunition” in their argument.

Frey [12] suggests that empathy for characters is typically best developed gradually from the outside in. First, one describes external events and then the actions, sensations and perceptions of the character. Then, one can proceed to emotions and finally to internal conflict. A simple and somewhat foreshortened example might be: “It was a cold, windy night. Joe buttoned his coat against the chill but still found himself shivering. Despite the cold, his face flushed with anger. ‘Damn. Why do I let Susie talk me into these stupid adventures anyway?’”

In storytelling courses that I have given in a variety of settings, the quality of narrative can be improved quickly with a few examples and principles. Rapid improvement is largely possible simply because most people in our culture have no explicit training and yet have many common examples which can be used to illustrate the points. Naturally, in the spirit of the “middle road”, there is no plan here to “prescribe” how a story must be, but to provide principles, guidance, and examples for those who would like it. Having a story be retold by a sequence of people, each focusing on a different aspect of making an effective story is another technique that students have found useful.

APPRECIATIVE ENQUIRY

In my society, we are typically taught to solve problems. The medical profession is a prototypical example. A patient comes to a doctor and the doctor first engages in diagnosis. They need to find out what exactly is wrong. After finding out what is wrong, they prescribe a cure. In

many cases, this is a drug while in more extreme cases, it may be surgery. There are several things to note about this approach. First, what is commonly not considered at all is that there are often consequences, usually negative, to the diagnosis process itself. For example, the patient needs to get blood drawn or have an X-ray. But these processes themselves are biologically and psychologically stressful and generally involve an outlay of time and money for the patient which is additionally stressful. Obviously, this is not to say that diagnosis is a bad idea, but to point out that the *cost* of diagnosis is generally not considered since it is a “prerequisite” to proper treatment. Second, the treatment itself, whether chemical or surgical, also typically has unintended consequences. Again, this is not to say that treatment is bad but only to point out that the benefits of treatment are valued over the costs. More importantly, this entire process is focused on what is *wrong* with the patient. Even when one goes for an annual “physical”, the emphasis is on screening to see what might be *wrong* with the person. There is little emphasis in medical practice on what is *right* with the patient. The same is true of medical research. For example, there are scores of studies on surgery to correct back problems, but the most important finding is that most back pain “resolves itself.” Resolves itself? What? How? You might think that how and why this happens would be the subject of thousands of studies. After all, having back pain “resolve itself” is much less costly and prone to negative side-effects than surgery. Largely, the medical literature is silent here.

One might conclude from the foregoing example that I am picking on the medical profession, but a similar bias toward what is wrong is found in virtually all endeavors. In organizations, for example, much more managerial and executive time and energy is typically spent on preventing, finding, and fixing problems than on finding, celebrating, and extending what is successful. A tennis instructor is much more likely to try to find the “weaknesses” in your game and then try to “fix” them than on trying to find the strengths of your game and then coach you on how to structure the points so that you have every chance to use your strengths.

Understanding and fixing problems is not “wrong” but it can be balanced by another, quite different approach, which is try to understand what is working, how and why it’s working and then look for ways to extend that success further. This is the essence of “appreciative enquiry” [12] and although there is an entire field here, I am not suggesting that every community needs to become versed in that field, but that becoming aware of this general approach as an alternative to finding and solving problems would be of great benefit. If a particular community finds this approach useful, there should be a way to learn incrementally more and more about how to go about it.

To illustrate this further, a typical approach to home energy consumption in a community might be to determine which

homes are least energy efficient and then try to analyze why these homes are not energy efficient and then fix the problems. An alternative would be to determine which homes are the most energy efficient and then try to understand why these homes are so energy efficient and see whether the practices, designs, or behaviors might be extended elsewhere.

One way to help understand these positive situations is by encouraging storytelling. The stories themselves can be useful for motivating and teaching others. When a sufficient body of successful cases has been collected, the community may decide that it is possible to encapsulate some of what has been learned in the form of Patterns. Systems Thinking can help contextualize what is discovered. For example, it may turn out that some houses seem very “energy efficient” because the residents only live there for six months of the year and live in a different house for the other six months. Before deciding that this is a positive case to be extended, one would have to understand the impacts on the larger system.

BOHM DIALOGUE

David Bohm was a quantum physicist who turned his attention later in life to human communication [14]. He did not feel that he “invented” dialogue but pointed out that “dialogue” was a common way of communicating in many so-called primitive societies and that it was a useful but largely forgotten method in modern society. The word “dialogue” does not come, as most people believe, from the Latin root “di” meaning “two” but from the Greek “dia” meaning “through.” Thus, dialogue is not meant as a synonym for a two-sided debate but for a way of finding meaning collectively through a reflective and collaborative group process.

In a typical business meeting, as one person begins speaking, most people try to determine as quickly as possible whether they are “pro” or “con” what is being said. As soon as this is determined, the person then tries to marshal their own arguments to support or shoot down what is being said. They look for an opportunity to “jump in” and present their own arguments to make sure that the “best” side (namely, their side) “wins” the implied debate.

By contrast, in Bohm Dialogue, people attempt collectively to build a common understanding of a larger picture by adding questions as well as information. As one person is talking, the others actually listen with respect and then reflect on what is said rather than rehearsing their own arguments. Dialogue can be particularly useful as an adjunct to Systems Thinking in cases where each individual has a view of a part of the overall system but no-one initially understands the complete system.

A portion of a “debate” about Global Warming on a community electronic forum might look something like this.

A. Well, first of all, scientists do not even agree that Global Warming is real.

B. Yes, they do.

A. No, they do not.

C. Maybe they do not all agree, but 90 percent or more agree.

A. So, is this science or a popularity contest?

D. Well, we had a really hot summer. The hottest on record. Sounds like Global Warming to me.

E. Have you stepped outside today? It’s freezing. Where is the Global Warming?

F. Let’s vote.

By contrast, a Dialogue about Global Warming might look something more like the following.

A. I wonder whether Global Warming has even been established as a fact.

B. I wonder whether “Global Warming” is really such a good term. For those of us who live where it’s cold in the winter, it sounds like a good thing.

C. Good point, B. “Global Warming” also makes it sound as though everywhere is getting warmer all the time. It might be better called “Global Climate Change.” It is possible that some places may even end up colder, wetter, or drier as well as some places being warmer.

A. Have any of these changes been proven? How do we separate long-term change from short-term fluctuations?

D. That’s an excellent question. Does anyone know the answer to that?

E. Well, we do know that carbon dioxide is building up and that the build up is not just a cyclical variation. We know that more carbon dioxide in the atmosphere will trap more heat.

C. Well, the other thing is that putting more carbon dioxide in the atmosphere typically also means we are burning more fossil fuel and that is being used up much faster than it is being replaced.

B. So C is saying even if Global Warming or Global Climate Change isn’t proven, we are still facing a problem with running out of conventional energy sources. Is that right, C?

SOCIAL COMPUTING AND COMMUNITY BUILDING

Although each of the techniques mentioned above can be taught individually, the proposed method suggested here is to provide on-line guidance for each of these “tools of thought” in the context of a social computing platform [15]. Such a platform can be constructed to support conversation, dialogue, storytelling and the construction of Patterns.

COGNITIVE THERAPY

The term “therapy” unfortunately suggests that there is something “wrong” with a person and the therapy will fix that in line with the overall medical model mentioned above. What I do think is useful to draw on from my experience as a therapist is that the social computing milieu could provide a way to help people separate what is said and done by others from their emotional reactions to what is said and done [16, 17]. One example guideline here is the Iroquois “Rule of Six” [18] which says that when someone does something and you (quite naturally) have a presumed motive for that action, before you react, if time permits, you generate five additional possible motivations and contexts for that person’s actions and try then to find evidence as to which one might be correct. For example, I am in a neighborhood meeting on how to respond to a proposal for shale fracking in the area. I look at my watch and notice that it says 10:10 while my calendar entry says the meeting is to start at 10 and yet Joe, who promised to be here, is not present. My immediate reaction is to think, “Well, Joe doesn’t really care about the environment.” According to the Rule of Six, however, I might also consider other possibilities such as: 2. My watch is wrong. 3. Joe comes from a culture in which ten minutes late is not really late. 4. My calendar entry may be wrong, 5. Joe was unavoidably detained. 6. Joe wants to make a dramatic entry.

AN OVERALL PROPOSAL

The foregoing techniques are seen as potentially useful aids for communities to help themselves understand and evolve their behavior in ways that are conducive to meeting their goals. Obviously, much work would be needed to determine how these suggested resources would best be integrated and presented as well as whether the entire approach is reasonable. Hopefully this could begin with feedback from other workshop participants.

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