

## THE NATURE & PURPOSE OF VIRTUAL COMMUNITIES

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Virtual communities can be described as a modern extension of traditional communities, through a new medium -- information technology. The mediation of communications through computers does, however, have systemic effects on the behaviors of the members of the community. Many of the shortcomings of virtual communities may be resolved through a better understanding of their nature and purposes.

This paper outlines some of the differences between virtual communities and traditional communities which result from use of the intermediating technology. The purpose of the virtual community as a social system is then described in terms of the four ideals suggested by Ackoff & Emery (1972), applied both to the community in its parts (i.e., the members) and of the whole (i.e., the community). The "five ways of knowing" -- categorizations of inquiring systems, as suggested by Mitroff & Linstone (1993) -- are then applied to describe the interaction, development and maturity of purpose for virtual communities.

Keywords: virtual communities, knowledge, computer-mediated communications, purposeful systems, inquiring systems

## **1. Introduction**

Virtual communities are generally conceptualized as being like traditional communities, except that social interaction primarily takes place electronically, rather than face-to-face. Whereas industrially-based communities have traditionally exploited land, labor and capital for the production of material goods, the primary purpose for virtual communities is the generation, development and transmission of knowledge. Through the understanding of purpose for both the virtual community as a whole as well as for its individual members, a greater understanding of effective models for structuring the social interaction to promote development may be gained.

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## 2. Virtual Communities Are Extensions Of Traditional Communities

In this section, we begin with a look at the definitions of “community”. We discuss characteristics of traditional communities, and then discuss the implication of computer-mediated communications on the structure and function of virtual communities.

### 2.1 Communities are networks of people with common values and practices

We begin with a few interesting definitions of “community” from the dictionary:

- 1 **a.** all the people living in a specific locality. **b.** a specific locality, including its inhabitants.
- 2 a body of people having a religion, a profession, etc., in common (the immigrant community).
- [.....]
- 8 *Ecol.* a group of animals or plants living or growing together in the same area.<sup>1</sup>

The first two definitions of community are in use most commonly. Physical proximity is typically presumed in traditional communities like in the first definition. The eighth definition describes an ecological view of a community and actually states a physical proximity. In contrast, a group of people who do not know who each other would generally not be called a community.

Apart from physical proximity, the key idea behind communities are the connection of two or more people with an attribute in common such as an interest, a goal, or a custom. Members join a community voluntarily, and can feel responsibility or attachment to the community- a sense of belonging. As applied in the field of sociology, communities consist of a grouping of human beings who have similar values and practices. Communities may also demonstrate an attribute of reciprocity, based on the interactive nature of communication.

Communities have existed since the dawn of mankind, creating an extended relationship model for the purposes of the individual. Since prehistoric times, people in close geographical proximity bonded together in communities with a purpose of creating an environment for survival against the elements of nature. The need to survive created stronger bonds, and more durable behaviours in the people. Today, rural communities exhibit some of these characteristics to a greater extent than urban communities.

### 2.2 Although fashioned after traditional communities, virtual communities have some unique aspects

Virtual communities are a concept that has become popularized only in the mid-to-late 1990s, as use of the Internet has become widespread. Although there has been much debate as to whether online groups can be termed communities, the use of the term is

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<sup>1</sup> <sup>1</sup>Concise Oxford English Dictionary

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increasingly being accepted. In 1993, Howard Rheingold provided some definitions of terms specific to the networked electronic environment of the Internet and described online communities in the following manner:

Virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace.<sup>2</sup>

To gain an understanding of “virtual”, the dictionary provides two interesting definitions:

**1** that is such for practical purposes though not in name or according to strict definition (*is the virtual manager of the business; take this as a virtual promise*).  
[...]

**4** Computing not physically existing as such but made by software to appear to do so (*virtual memory*).

Using these definitions in the context of “virtual communities” makes the following definitions of “community” from the dictionary more salient:

**3** fellowship of interests etc.; similarity (*community of intellect*).

**4** a monastic, socialistic, etc. body practicing common ownership.

**5** joint ownership or liability (*community of goods*).

**6** (prec. by *the*) the public.

**7** a body of nations unified by common interests.

With these alternative views, physical presence may not be the most important attribute for communities. Globalization and a faster pace of life have created a demand for the structure and function of communities in society to evolve. Constructed on a base of information technologies, virtual communities can support functions not previously possible. Computers, networked together with growth at an exponential rate, mediate larger and larger volumes of human communication. Since the information can be stored and retrieved in a digital form, it can be made available for an increasing number of people today and in the future.

Electronic, digital technologies and network information structures form the foundations of computer mediated communications (CMC) on which the living web of virtual communities exists. Individuals in virtual communities inhabit this cyber landscape of computers and networks. There is no requirement that individuals within a virtual community have met “in real life”. An individual may be only known by his or her name (or pseudonym), the way in which he or she represents himself or herself, and by the style and content of communications.

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<sup>2</sup>Rheingold (1993)

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### 2.3 The evolution of communication media has effected a trend away from face-to-face interaction

The advent of communications via computer networks is not the first instance of the use of technology to extend human interaction. Correspondence via written letters, or conversations by telephone have been adopted by traditional communities. Media has always had a very direct impact on how humans interact with their world and each other. As Marshall McLuhan said:

“Media, by altering the environment, evoke in us unique ratios of sense perceptions. The extension of any one sense alters the way we think and act - the way we perceive the world. When these ratios change, Men Change”<sup>3</sup>

The movement of communities to cyber-space, however, is a shift to a media with significant impact. In a virtual community, physical interactions are replaced by abstract representations that transcend time and space. These representations are nearly costless to transmit, disseminate and reproduce. Nevertheless, the functions of a community may still be evident. Some characteristics that the medium has on interactions are, however, unavoidable. These include: the reduction in the number of social cues, the visibility of the participants to other members of the community, and the timing of exchanges of information.<sup>4</sup>

Communications through electronic media are subject to rules that can support effective interpersonal communications. Since human beings are accustomed to personal interactions in the physical world, similar rules can be applied to virtual communities, and the appropriate use of electronic technologies. The building of trust between community members is paramount to the ongoing functioning of the community. Clear expectations on privacy, cultural distinctions, and contextual differentiation need to be set. Issues with risk aversion to “speaking up”, the loss of proximity of participants, and decreased face-to-face communication need to be handled. The appropriateness of off-line private real time discussions, and peer support networks.

### 3. The Primary Purpose Of Virtual Communities Is To Enable The Exchange Of Knowledge

Although virtual communities share much with traditional communities, the limited means of social interaction makes the exchange of knowledge the primary purpose of the community as a whole.

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<sup>3</sup> McLuhan, M. *Counter Blast* (1969), pg. 41

<sup>4</sup> Online Social Network Analysis, JCMC June V3 (1) (1997) Garton, Haythornthwaite & Wellman (1997)

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### **3.1 The structure of knowledge is key to the community's interactions**

The definition of “knowledge” is controversial. The ancient books of knowledge, the Vedas, deal with many aspects of knowledge from which we can extract the main structural components: circumstance, time, and object.

- Circumstance is the space or context of the knowledge being imparted.
- Time or span of attention or focus is the period in which knowledge exists.
- Object is the structure and function of the ideas.

The virtual nature of computer mediated communications has an impact on these components.

Communications in a virtual environment need to be clear about circumstance. Context is expressed through linguistic expression, and the categorization of discussions. With more divergent cultural and social backgrounds of the “global village” proposed by Marshall McLuhan, clarity of context is paramount yet increasingly harder to convey across a non face-to-face environment.

The asynchronous nature of electronic communications changes the perception of time in communications. In addition, the span of attention available to either the sender or recipient of knowledge has an impact. A given experience or skill may not only be applicable in some context but also within a given span of time.

The object of discussion changes as a result of community members communicating in a network pattern. Knowledge may no longer simply be handed down from one individual to another, but instead transferred across interactions from any numbers of participations in a virtual communication.

### **3.2 The lack of physical cues makes the understanding of roles and purpose in the community key**

The primary feature of virtual communities is the absence of physical, ‘face-to-face’, human to human contact of traditional communities. This causes aspects that affect how members relate and identify to the community. Non-physical communication decreases verbal, auditory and visual social cues. This loss creates more superficial relationships and looser sense of belonging. Members’ actions and language may vary according to the way they identify with the group and whether they have actually ever met face to face. The moral and ethical nature of the behaviour may also vary from face to face type of interactions. The fact that the intermediating technology is the connecting force between geographically dispersed and asynchronous activity creates a change in the behaviour of the members. This relates back to the fact that circumstances may be different in the current context and time of the different members.

For these reasons, a greater understanding of context must be amplified to the members of the community. Increasing the context requires a common understanding of the roles played in the means to achieve the ends of the community or its purpose. Purposefulness

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is an important property of all social systems as we shall discuss in the later sections of this paper.

### **3.3 The exchange of knowledge through a virtual faceless medium flattens social rank and governance**

In traditional communities, hierarchy is a solution towards reducing information loads on individuals. Decision-makers at the top of an organization have information filtered through “reliable” interpreters, so that the quantity of information does not become overwhelming. This hierarchy unfortunately accentuates inequality in status, as individuals become more and more removed from direct communication.

When face-to-face interaction is replaced by communications through an electronic medium, virtual communities can promote a greater level of visibility to individuals removed from the center of power. Loss of rank, title and power cues create a field of competition based on ideas, not position.

### **3.4 Electronic communications more naturally permit the sharing of information and knowledge**

The technological nature of virtual communities brings about unique mediums to develop knowledge. The ability to store information and make it available over a greater amount of time increases the memory of the community as a whole. The ability to transmit information across great distances and at an increasingly faster speed allows for a larger set of connections that can be maintained for longer. Sustaining the connections or networks of communication is also increased by the ability to communicate when face to face is not practical. Intervening technology operating at a tireless pace can also enable more diversity by acting as an intermediating force as in the case of translation software. The reciprocal nature of the connections between members is based on generating, developing and imparting knowledge. The computer mediated interaction allows for asynchronous activity, so that although one may be asking a question, the answer may come back after a longer set of activity can occur than would be feasible in a physical face to face setting. Sharing of thoughts, ideas, information, and experiences through discussion, debate, and breakthrough-thinking become the levers by which the community achieves its goals of the development of knowledge. Development in this case is an increase in capability and competence (Ackoff, 1986) of the individual community members and thereby of the whole.

### **3.5 Information networks not only support but shape interactions**

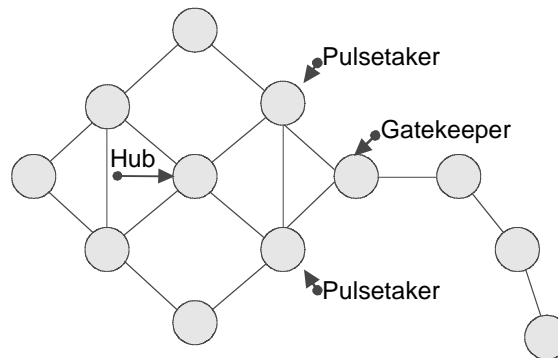
The structure of virtual communities is founded on a technology that supports the acquisition, structuring, storage, and dissemination of explicit knowledge. It readily supports the communication, tracking and widespread access of that knowledge. Networked patterns of the community occur dynamically as the community interacts. Change and growth of the patterns are facilitated by the ability inherent in the pattern to



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store and distribute knowledge to it's members and externally through the containing whole.

In a virtual community the interacting members can create chaotic organizations which may or may not be advantageous. In trying to define patterns in social networks which both mimic traditional communities and have been found to increase the effectiveness of the interactions, Karen Stephenson suggests a network structure which includes three roles: hubs, gatekeepers and pulse-takers<sup>5</sup>. The hub is a person or role effectively acting as a centralizing force for the community. The Pulsetaker is a role which uses it's large number of optimal connections to keep abreast of the community. The gatekeeper maintains boundaries and links to other communities. See Figure 1 below.



**Figure 1: Culture carriers: the hub, gatekeeper, and pulsetaker  
Stephenson (1999)**

### **4. A Primary Purpose Associated With Knowledge Has An Impact On The Pursuit Of Other Ideals**

In this section, the implications of categorizing virtual communities as social systems is explored. The pursuit of knowledge is one purpose for a virtual community, but it is not the only function which it (as a system) supports. The section ends with a discussion of maturity of a virtual community, within a framework of inquiring systems.

#### **4.1 Social systems are purposeful in the parts and in the whole**

Russell Ackoff & Jamshid Gharajedaghi categorize systems by their ability to act purposefully (i.e. demonstrate "choice", or free will) in their parts or as a whole (See Table 1). Social systems are unique in having choice both in their parts and the whole. Examples of social systems are for example: corporations, universities, and societies which contain other parts and are part of larger social systems.<sup>6</sup>

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<sup>5</sup> Stephenson, Karen (1999)

<sup>6</sup> Ackoff & Gharajedaghi (1996), p.14

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Systems and models	Parts	Whole
Deterministic	Not purposeful	Not purposeful
Animated	Not purposeful	Purposeful
Social	Purposeful	Purposeful
Ecological	Purposeful	Not purposeful

**Table 1: Types of systems and models  
[Ackoff & Gharajedaghi (1996)]**

Communities like cities and neighbourhoods can be categorized as ecological, where the parts are purposeful, yet the whole is not. Virtual communities are communities of interest, communities of practitioners, and communities of transaction. In such modes, they are social systems where the purpose of the whole is to explore or develop a specific interest, but the parts or members also have purpose. In the case of a virtual community around a professional body, the purpose of the whole may be one of providing for and maintaining a developmental environment for the profession, The purpose of the part or each individual member may be to both contribute new ideas for the profession or to get new understandings.

### 4.2 Purposeful systems increase variety and choice in their environments

Ackoff furthermore defines the differences between types of systems to show that a purposeful system is the only system which exhibits behaviour that is variable and chosen but also accomplishes an outcome which is variable and chosen (see Table 2). A purposeful environment then can be described as one with choice in the behaviour and outcome.

Type of System	Behaviour of System	Outcome of Behaviour
State Maintaining	Variable but determined (reactive)	Fixed
Goal Seeking	Variable and chosen (responsive)	Fixed
MultiGoal Seeking and Purposive	Variable and chosen	Variable but determined
Purposeful	Variable and chosen	Variable and chosen

**Table 2: Behavioural Classification of Systems[Ackoff 1999]**

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A system that allows for choice of behaviour (means) and choice of outcome (ends) is one which increases variety in the system. A purposeful system has free will to change its goals under a constant state and is therefore able to provide more choice to the members and whole. Virtual communities require this variety increasing model because it is the most enabling environment towards learning, adaptation, inquiry or development of knowledge. If there was no choice in outcome, a virtual community would be state-maintaining and would stagnate. This usually causes disintegration of the community especially in virtual communities which lack the close human bonds and social cues.

### 4.3 Ackoff & Emery suggest purposefulness as the pursuit of four ideals

The very nature of having multiple members(parts) of a community with multiple choices, creates an play between goals and purposes. Emery proposes this is the very reason why ideals emerge and are natural attributes to groups. To understand the characteristics of purposeful behaviour, Ackoff and Emery(1972) proposed man as an ideal-seeking system. Ideals being unattainable but approachable through choosing objectives that are consistent with the purpose. They proposed the four ideals of plenty, truth, good, beauty as shown in Table 3.

<i>Ideals and function of society</i>
Plenty- economic function
Truth- scientific and technological function
Good- ethical and moral function
Beauty - aesthetic function

**Table 3: Ideals Ackoff and Emery (1972)**

### 4.4 The primary ideal which virtual communities pursue is the development of perfect knowledge or truth

Communities founded on territorial or space-related claims reduce both variety and choice. This is as a result of converging perspectives due to isolation and the strong adherence to local beliefs. Virtual communities have to provide more choice in pursuing the ideal of Truth.

In the more modern industrial times, human ideals came from the perspective of achievement, independence, self-control, endurance of distress (Emery & Trist 1973) see Table 4.

People's concepts of ideals were now based on individual perspectives, interests, philosophical or religious segregation and political affiliations. These ideals created a belief that the parts were more important than the whole. A move away from philosophy to science, from a systemic view to one where a change to one part did not affect a

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change to the whole. The result were designs of systems which were apparently independent and closed.

Globalization, a shift towards a networked, knowledge based economy, and increased acceleration of technological advancements and adoption are creating social changes. Emery proposes a new perspective and synonyms for each ideal based on Trist's post industrial concepts of human ideals: self-actualization, interdependence, self-expression, and capacity for joy<sup>7</sup>. The original and proposed list of ideals follows:

- Truth becomes Nurturance
- Plenty becomes Homonomy
- Good becomes Humanity
- Beauty remains Beauty

The new terms for the ideals try to recognize an increasing determination and understanding of the interconnected nature of the world as an open system. The key ingredient is the significance of relationship in the definition of the ideals. In this paper, we are concerned with knowledge and the ideal of Truth which is defined as the increase of production of information, knowledge, and understanding required by individuals to select and develop the most efficient means.

However, this must be tempered by our understanding that all things are interrelated. Therefore, even pursuit of one ideal such as the ideal of Truth, must be balanced by choices made towards the others. This is the premise of using Nurturance for the ideal of Truth, since we need to now make choices allow for the interconnectedness and relationships in our community. Nurturance now is more than the independent creation of scientific and technological knowledge. It becomes the cultivation and development of other people's knowledge, truth, and competence.

### **4.5 Knowledge as an ideal can not be pursued without implication to the other three**

Pursuit of the truth cannot be pursued without sacrifice, effect and implication of the other ideals (Emery 1997). A concentration of focus in a virtual community to develop knowledge may lead to isolation of people, isolation of choices and even greater problems. It is important then to recognize that although virtual communities, through their inquiring nature will develop Truth, a social conscience is still necessary with respect to the other ideals. This is further compounded by the nature of the virtual community environment such as the loss of social cues that we've described herein. Choices made must incorporate bringing a harmonious balance between the ideals.

For example in the pursuit of Truth, could be that although the pursuit of knowledge is occurring and progressing well, the lack of action to treating all community members with ethical and moral behaviour (ideal of Good/Humanity) may result in adverse effects

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<sup>7</sup> On the ideal-seeking individual, see Emery (1997)

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.The lack of visibility and the greater anonymity of non face-to-face interactions allow members to disconnect from their ethical behaviour and engage in this kind of behaviour.

Likewise the drive to focus on the development of knowledge could isolate members if there is no concern to address accessibility or maintain a common level of understanding (ideal of Plenty/Homonomy). This may also work along with loss of focus on the ideal of Good so that the knowledge may be used for personal gain, in detriment of others. Or the knowledge developed could be used by external members against humanity itself as in the case of nuclear technology.

As virtual communities mature, the interactions to develop knowledge are freed from effort to ‘get to know one another’ or more appropriately, to have a common context. The inquiring process can proceed on the foundational history of the members that are part of it. Care must be taken to ensure that the needs, motivations and desires of all members must be considered so that the whole is maintained and entropy of parts is decreased(ideal of Beauty). Again, the sole focus on the pursuit of knowledge can sacrifice the overall sustaining value of creating an ideal seeking environment for its participants.

It is in light of adverse results created by the virtual communities focus on the Truth, that decision making must be carried out with a harmonizing balance of the other ideals. Therefore, more consideration with regards to the relationships and co-development of the social beings in the community must be a part of the actions taken by community members, designers and planners. This is the premise of Nurturance and the other ideals described above .

### **4.6 A measure of a community’s purposefulness may be the number of “ways of knowing” supported**

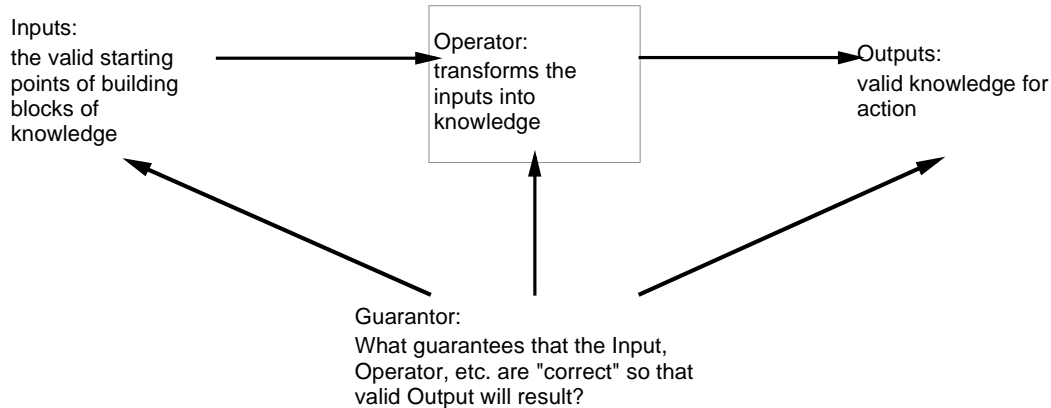
In the pursuit of Nurturance then, we need to ensure perspectives which allow for the cultivation of the competence of all members, so they have a higher probable effectiveness to pursue their ends. To understand how we can increase choices of these purposeful systems, we propose looking at the ways that communities interact in the pursuit of knowledge. We can classify these interactions in the number of "ways of knowing," or modes of Inquiry as expressed by Mitroff & Linstone and as attributed to historical proponents of each.

<b>Way of knowing</b>	<b>Inquiring System Type</b>	<b>Thought Leader</b>
First	Inductive - consensual (agreement)	John Locke
Second	Analytic-deductive(fact nets)	Gottfried Wilhelm Leibniz
Third	Multiple realities (representations)	Immanuel Kant
Fourth	Dialectic (conflict)	Georg Willhelm Friedrich Hegel
Fifth	Systems approach (progress, sweeping-in)	Edgar Singer/West Churchman

**Table 4: Ways of Knowing / Inquiring Systems**

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An Inquiring System, or IS for short, is a system of interrelated components for producing knowledge on a problem or issue of importance. These components : input, operator, guarantor, output are described in Figure 2 below.



**Figure 2: Inquiring system components (Mitroff & Linstone 1993)**

The level of purposefulness of the community may be reflected by the existence and coordination of these ways of knowing.

As a virtual community reaches for its ideals, its\_ inquiring nature helps to maintain its community or sense of belonging by creating valuable interactions amongst its members. This results in greater harmony of the community towards reaching it's purpose by maintain its focus on a common agreed upon end. The presence of the different ways of knowing in the interactions and communications of the community, therefore, give an indication of it's purposeful nature.

The first and second ways are initially necessary to maintain a community by bringing together the divergent perspectives on some common ground. This creates a sense of identification and meaning with the community. They also help to sustain members who may not agree with progress but can still find themselves in agreement with some semblance of their ideas.

The third way of knowing brings in multiple perspectives of a community. This inquiring form is necessary for inclusion of new ideas, self expression and to involve more peripheral members. This likely enables the community to see value in a different representation setting up for the fourth way of knowing.

In the fourth way of knowing, the choices of objectives continue to develop. The community is now ready to accept the progressive value of multiple perspectives. Critical mass has been reached for the recognition that the community should thrive on diversity. Debate is considered healthy and desirable.

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The fifth way of knowing does not only allow for divergent points of view and debate- it is structured around multiple perspective types: technical-scientific, organizational-social, personal-individual. Singer's "sweeping in " of interdisciplinary perspectives ensures greater levels of inquiry are available to the community resulting in greater level of adaptation in unpredictable environments.

We do not assert that any of these ways of knowing is\_ better than the other or that a sequential progression must occur. As discussed previously in Section 2, the nature of virtual communities, results in loss of face to face communication. Therefore, it becomes more imperative for members, designers and planners of virtual communities to leverage, support and provide close coordination of the five ways of knowing. This creates a variety in creasing nature which is an essential part of a purposeful social system.

### 5. Conclusion

All communities give man a sense of belonging. Virtual communities naturally benefit from the advantages of technology mediation, for the pursuit of knowledge, but face other challenges that may hinder pursuit of human ideals. Therefore, it is key that virtual community members and designers understand the purposes and effects of the virtual landscape. They must make systematic efforts to increase choice and variety for the community, leveraging multiple levels of inquiry and behaving in a purposeful manner to strive for the ideal of Truth while maintaining harmony with the ideals of plenty, good and beauty.

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