INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600



Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/457

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

EMBODIMENT, TECHNOLOGY AND COMMUNICATION: A PHENOMENOLOGICAL EXPLORATION OF COMMUNICATION IN THE TECHNOLOGICAL MILIEU

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

In partial fulfillment of the required for the

degree of

Doctor of Philosophy

By

Sang Ho Kim
Norman, Oklahoma
2002

UMI Number: 3045835

UMI®

UMI Microform 3045835

Copyright 2002 by ProQuest Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

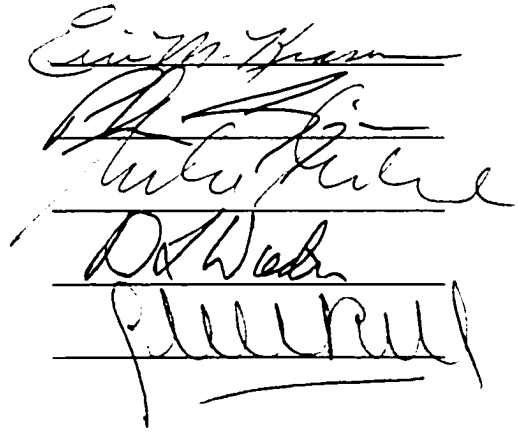
ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

© Copyright by Sang Ho Kim 2002
All Rights Reserved.

EMBODIMENT, TECHNOLOGY AND COMMUNICATION:
A PHENOMENOLOGICAL EXPLORATION OF COMMUNICATION IN THE TECHNOLOGICAL MILIEU

A Dissertation APPROVED FOR THE
DEPARTMENT OF COMMUNICATION

BY



Acknowledgements

I am very grateful to everyone who made my flesh and my horizon.

I would like to express my gratitude to my committee, Dr. Kramer, Dr. Wieder, Dr. Roudriguez, Dr. Lujan, and Dr. Nedeljkovich. Their assistance and thoughtful criticism contributed to this project in ways that are immeasurable. Especially, I wish to thanks Dr. Kramer, my guru, for being here and for his steadfast advice and encouragement. Were it not for his unceasing help and counsel, I might not finish this project. And I wish to express my gratitude to my Korean mentor, Dr. Sang-Won Lim who leaded me to the academia. I am not able to thank enough for his encouragement and concern.

I would like to thank Chasu An and Masaki Yoshitake, my 'spiritual' friends during all my life in Norman. I want to express special thanks to Sandy Larsen for her elaborate editing and friendship. She made this dissertation more readable.

Lastly, I would like gratitude to my family. I thank my wife, Jeong Do Lee for her sacrifice and patience. My son, Jae In and my daughter, Hae In, they provided me incessant inspiration for my study.

I dedicate this dissertation to my parents, Jeong Yeon Kim and Guen Yi Kang. Without their love and sacrifice, I am not here.

Table of Contents

Chapter I. Introduction. 1

Rationale of the study 9

Purpose of the study 12

Outline of the study 13

Chapter II. Theoretical Background 15

Merleau-Ponty 15

Merleau-Ponty's phenomenology, the body 15

Critiques of Cartesian dualism as a biased view 16

Primacy of perception 19

Body and "optimal (maximum) grip" 20

Horizon and silence 21

Field and focus 23

Silence and Speech: 23

Gebser 25

Perspectivity in Gebser's thought 27

Five structures of Consciousness 29

The Archaic structure of consciousness 29

The Magic structure of consciousness 31

The Mythical structure of consciousness 33

The Mental structure of consciousness 35

The Integral structure of consciousness 38

Systasis and *Synairesis* 40

Chapter III. Literature Review 44

Critical assessments on "objective-biased" paradigm 44

Husserl's critique on the crisis of modern science 44
Merleau-Ponty's notion of perception as
a critique on objectivistic bias 52
Gebser's critique on dualism as objectivistic bias 58
Objectivistic-biased view and technological utopia 62
Technological utopia 67
Mutation, not "progress" 72
Reviews concerning the dangers of modern technological milieu 77
Three approaches concerning the views on technology 77
Ellul's exploration on technological system and society:
Technological imperative 82
Heidegger's *Question concerning technology* 90
Ge-stell (enframing) 92
Mumford: Myth of the technological complex 96
Communication theory and technology 103

Chapter IV. Methodological Approach 108
The nature of communication and sign-action (semiosis):
process and transformation 109
Theory of dimensional accrual/dissociation (DAD) 113
Peirce's Semiotics 115
Semiosis and its components 116
Trichotomies of sign 117
Ten classes of signs 126
An example analysis for understanding of Peirce's sign system 129

Chapter V. Embodiment and technology 136
Peirce's notion of habit 143
Merleau-Ponty's Habit-Body 146

Merleau-Ponty's body and technology 149
Embodiment and Institution (Co-constitution) 150
Technology and perception 152

Chapter VI. Visiocentrism and Overdetermination 161
Scale and fixation of space 163
Perspectivism and modern technological perception 164
McLuhan's misunderstanding of the sensorium, 'visual.' 171
Merleau-Ponty's embodied vision 175
Overdetermination and communication (semiosis) 181
Referentiality of sign: A broken arrow 186
Metric and Topological characteristic
of communication technology 190
Examination of example advertising picture 203

VII. Conclusion 213

Reference 225

List of Illustrations

Diagram 1. The components of semiosis 124

Diagram 2. Ten types of signs 127

Diagram 3: The relationship between technology and embodiment based on Merleau-Ponty's notion of body, embodiment and flesh 160

Diagram 4. Perspective from pre-perspectival to perspectival world 167

Diagram 5. Semiosis/communication process in technological milieu 202

Advertising picture 1-3 133-135

Advertising pictures 4-10 206-212

Abstracts

Our potential for communication depends on a mutational characteristic of the consciousness structure as embodied, and not on the conscious subject as claimed by the objectivistic- or subjectivistic-biased theories that are based on Cartesian dualism. This study criticizes the absurdity of the objectivistic bias, as illuminated by Husserl, Merleau-Ponty's notion of "embodiment," and Gebser's philosophy of "plus-mutation." After exploring the modern technological milieu as the inevitable consequence of objectivistic-biased tradition, the dangers of this milieu are illustrated with Ellul, Heidegger, and Mumford's arguments. Thereafter, this work considers how the annihilation of space results in the annihilation of communication. For that purpose, Peirce's semiotics, Gebser's "plus-mutation", and Kramer's dimensional accrual/ dissociation theory are used as a methodological framework. This study shows the topological characteristic of the lived body that is rooted in habit and that develops through our embodiment within a social and cultural world. Through this phenomenological account of communication in the technological milieu, the fact that institutional, not constitutional, process between technologies as world and lived-human is integral to existential understandings of our relations to technology is indicated.

I. Introduction

We do not simply accommodate ourselves to our technology: we confine or limit our desires and so ourselves to them. It is undeniable that we tend to become our tools, i.e., project ourselves into them and hence, we find ourselves in our things. Not only because of such technology as the Internet, television (TV) or VR (Virtual Reality), but also because everything about us is registered; such reserve technology becomes, as a resource, the veritable mirror of ourselves. As a further extension of ourselves via technology, we are reflecting our bodies with the idea of the genetic code, the "genes" that make us who we are. Like the plastic promise of cosmetic surgery, the ambition of the Human Genome Project demonstrates that we are *literally*, not merely metaphorically, to be *tooled* by our tools.

The Human Genome Project and the cloning of an adult sheep help to recall the force of Heidegger's original insight into the issue of the mechanization of nature and the calculation of life itself. Media technology and communication technology are not merely part of this mechanization tendency. Communication technology is the main driving force in the sense that modern new communication technology is shrinking the globe, erasing spatial, temporal, and cultural boundaries, serving ultimately to erase space, time, and culture (Kramer, 1997).

Communication technology (or information technology)[1] repeatedly attracts those who work in the field of communication. Communication technology is also of

---

[1] 'Communication technology' and 'Information technology' can be used interchangeably. In this study, the term 'communication technology' fits better than 'information technology (IT).' Because, in using the term information technology, people show a tendency that they regard technology as a mere technique, not as an enframing power. This tendency of tacit, yet somehow intentional, non-discrimination is one important part of this study. We can notice this tendency in the hyperbolic slogans of many countries concerning information technology and future.

interest to scholars in such fields as linguistics, philosophy, and education. In spite of such multifarious interest, the question, "what exactly are media technology and communication technology?" remains full of meaning.

The deployment and development of what is called new communication technology, more specifically of electronic equipment for linking computers and telecommunications systems into networks, is seen to be at the foundation of this new society. The computer is no doubt the single most important element in the field of new communication technology. It is the machine upon which everything else, such as increased productivity and efficiency, telecommunications hookups, networking patterns, data storage and transfer, depends. Given its centrality, it might also be granted that there can exist a number of ways of talking about the computer. Further, it would produce an endless debate to dig deeper into the meaning of technology. However, as Carey (1981) suggests, the current debate about technology and its assessment are dominated by the two perspectives that demonstrate the principal difference.

One could insist that the computer can programmed with the capacity to handle certain uninteresting tasks in order to free our lives for more leisure time. People with this perspective generally regard the technology as an instrument for self-realization, i.e., a liberation from the constraints placed upon us by our nature. Therefore, technology will enhance the quality of life for those people in any number of fields, such as health care, education, or banking. This perspective is an optimistic ideology of technical determinism that would liberate society in McLuhan, similar to that found in Pool (1983) and Bell (1970).

On the other hand, another could adopt a Luddite position and condemn the machine for what it will do to existing social structures. One could say that the machine is fundamentally irrelevant because it has nothing to say about the important existential questions of the lifeworld. Some people in this position believe that humankind must restrain the self-propelled dynamics of technological development. This viewpoint is guided by the apocalyptic nightmare of the possible destruction of humankind. This is a more pessimistic cultural determinism in Mumford (1970) that increasingly found communication technology that tool of oppression and the means of elevating an elite minority of 'remote-controllers.'[2]

As Carey (1975) indicated, the problematic points of the modern technological milieu are not the mal-function of technological applications, but rather, the nature of modern technology and the viewpoint that technologists, scientists, and communication theorists share. Modern computer enthusiasts such as Sola de Pool, may be willing to share their data with anyone. What they are not willing to give up so readily is the entire technocratic worldview that determines what it is that qualifies as valuable fact. It is not the data they wish to monopolize; instead, they cling to the approved, certified, authorized mode of thought, indeed the very definition of what it means to be reasonable, because, as Heidegger (1977) noted, technology is not some collection of artifacts but, in fact, a "way of seeing or a mode of revealing," or a kind of being (p. 3). Therefore, technology can be better understood in the sense of a language-analogue rather than a thing-analogue. When we consider technology in the

---

[2] The Mumford's critique of the concentration of power, profit and prestige of the preexistent hegemony through control of communication technologies closely allied with the perspectives of Carey (1989), Schiller (1989), and Mosco (1989). And the concept of "control" is prevalent in Innis (1951).

sense of a being, rather than as a thing or tool, the nature of technology is much closer to us.

Some people who regard technology as a mere tool frequently repeat this cliché: "Guns don't kill people, people kill people." Ellul (1964) warns there is danger in this kind of reasoning, because it leads to the "attractive notion which would apparently resolve all technical problems: that it is not the technique that is wrong, but the use men make of it. Consequently, if the use is changed, there will no longer be any objection to the technique" (p. 96). However the problem is that the use of technique is ontologically inseparable from technique itself. The being of technique is its use.

Some critics (e.g., Roszak, 1969; Toffler, 1970) rejected Heidegger and Ellul for their "extremely pessimistic" conclusions; in particular, Toffler accuses them of being a "technophobes." Regrettably, however, much of these futurologistic disputes have not preceded public awareness. Instead of helping to shape and inform the public's consciousness of what technology is and where the threat lies, futurologistic approaches have, in many cases, reflected the public's unrefined mechanistic notions of technology and the groundless optimism that whatever the problem is, man can solve it. Toffler's *Future Shock* is one such example. In spite of many futurologists' promising technological future, this study sides with the so-called 'pessimistic technophobes' such as Ellul and Heidegger, in the sense that this study fully appreciates the depth and the latitude of the warnings presented by both philosophers regarding the seriousness of the modern technological milieu.

Heidegger's intuition is that treating everything as "standing reserves" makes possible endless disaggregation, redistribution, and reaggregation for its own sake. In this respect, information, and especially digital information is truly endlessly transformable in nature. When everything becomes standing reserves or an endless resource, people and things will no longer be understood as having essences or identities. In this sense, as Kramer (1997) indicates, Heidegger's view, then, suggests that in the modern technological world, "the whole world is identified as a system of operations and functions" (p. 85). As a consequence, communication becomes rationalized and reduced to being a sequential exchange, and strictly informative.

Further, as Gebser (1985) and Mumford (1963) illustrate, technology supplied the final metaphor of the rational cosmos: nature as a gigantic machine, performing like clockwork. Since, as Ellul (1964) indicates, the human body was a part of nature it too came to be looked upon as a mechanical thing, an automaton, like a robot. In other words, "the efficiency in the pursuit of a system's interests threatens to transform humans into cyborgs" (Kramer, 1997, p. 136). In the same vein, Heim (1993) argues that "the danger of technology lies in the transformation of the human being, by which human actions and aspirations are fundamentally distorted" (p. 61). It means that with the use of computer technologies, in particular, the hypertext structure of the Internet and multimedia, a radical change of our everyday thought and work takes place such that everything, including human beings, becomes resources. This tendency toward mechanization of nature and lifeworld is conceptualized as 'the Cartesian-subject biased' viewpoint in this study.[3]

---

[3] The Cartesian subject-biased view is the same as the Cartesian object-biased view. Both terms indicate the same subject-object dualism that influenced almost of all modern, rationalistic

The first argument of this study begins with the critical investigation of the Cartesian subject-biased viewpoint of technology. The position that conceives of technology as instruments to transform something can be regarded as a Cartesian and subjectivist bias. From this biased standpoint, it is supposed that a self or a subject can use a thing as an instrument to effect a desired result in the outer world. This argument will be outlined in chapter II and further elaborated in chapter III. Within this context, the clear-cut differentiation between subject and object is absurd.

In his late work, *The Crisis of European Sciences*, Husserl (1970) develops a strongly critical attitude towards modern science and technology. He diagnoses a great divide between physicalist objectivism and transcendental subjectivism. In reconstructing modern mathematics and the technical use of formulae in the sciences, Husserl comes to the conclusion that the process that he calls technicization (*Technisierung*) is the central cause of the division and of the consequent crisis of modernity.

Technicization connotes the narrowing of experience by abstraction from other meanings, the oversimplication of focus on method instead of deep sense-making, and following empty rules instead of working toward full understanding. This pathological form of technicization turns reality into a resource for possible worlds. According to the later Husserl, the process of technicization achieves an increase of efficiency at the price of loss of meaning.

---

perspectives. Even though there are much differences in the specific topic or areas Postmodernism and Deconstruction critiques aim at, what they share in common is this bias. In this study, the concept, 'present-obsessed way of thinking' indicates the same bias of different aspects. (Kramer, 1988, 1997; Culler, 1982; Seung, 1982) Heidegger insists that the last stage of this bias is that everything is regarded as standing-reserve, resource and he called it the end of thinking; calculation (Heidegger, 1977). In detail, Chapter 3 of this study.

Under Husserl's influence, Merleau-Ponty (1962, 1964) suggests the notion of 'embodiment' of technology. The material relation between humans and the world should be conceived as a symbiotic and mediated relation instead of a divided and instrumental one. Humans are the only agents who can experience and reflect this relation. They cannot reflect the relations from outside with a god's view; they must do it within the relations, with a navigational and embodied view. This view recognizes the human body as a center that always finds the "maximum or optimal grip" (Merleau-Ponty, 1962, p. 302; see also 1964) in its relations with technology in particular and with the existential world in general. In a different description, thus embodied relationship, Ihde (1990) suggests, "technics (technology) is a symbiosis of artifact and user within a human action" (p. 73). In his book, *Technology and the Lifeworld*, Ihde (1990) focuses on human-technology relations and the cultural embeddedness of technologies. Following a relativistic ontology, he draws a distinction between the "direct bodily and perceptual experiences of others and the immediate environment" and "technologically mediated experiences" (p.15). Based on the notion of embodiment, he suggests that we look for different degrees of mediation in our technologically textured world. Ihde (1990) argues:

> There is . . . . a deeper desire which can arise from the experience of embodiment relations. It is the doubled desire that, on one side, is a wish for *total transparency*, total embodiment, for the technology to truly "become me." .... The other side is the desire to have the power, the transformation that the technology makes available. Only by using the technology is my bodily power enhanced and magnified by speed,

> through distance, or by any of these other ways in which technologies change my capacities. These capacities are always different form my naked capacities. . . . The desire is, at best, contradictory. I want the transformation that the technology allows, but I want it in such a way that I am basically unaware of its presence. I want it in such a way that it becomes me. Such a desire secretly rejects what technologies are and overlooks the transformational effects which are necessarily tied to human-technology relations. This illusory desire belongs equally to pro- and anti-technology interpretations of technology. (Ihde, 1990, p.75)

This description of the connection between human and technology well demonstrates one of the arguments of this study: 'technological embodiment' or 'embodied vision.'

To understand the meaning of communication technology, it is crucial to understand the notion of 'embodiment' based upon the critique of 'subject-biased' perspectives. In addition, it should be obvious that there are no grounds for supposing that the technological revolution takes place in one moment at a specific time. Instead, this transformation occurs over a long period of time. Further, we should also take into account the following consideration: the influence of our use of media on the structures of our mind should not be interpreted as a one-way street and vice versa.

Are we doomed to be merely a ready-to-use resource? Does communication end as thinking has arrived at the final stage: the calculation? It is not necessarily so. The development of modern, state-of-the art communication technology 'relieves'

physical, not communicative, effort. The aim of this study is to investigate a way to grasp the meaning of communication technology in the context of this modern technological milieu. Along the efforts to find a way, Gebser's (1985) philosophy could serve as an exceptional guide.

Gebser (1985) does not side with the prophets of doom, nor does he believe that our civilization's progress is inevitable as many futurologists propagandize. For Gebser, technology is a projection of the rational consciousness which needs to be understood and "retracted" from a position that transcends the inherent limitations of the rational consciousness. Gebser argues that this retraction need not entail an annulment of technology: this would only amount to a denial of the constitutive structures of consciousness and a mere dissolution of existing civilizational forms. Rather Gebser argues for a perspective that recognizes a balance based on the actualization of an intensified consciousness: aperspectivity. This study suggests aperspectivity can be utilized to grasp the meaning of communication technology, as it offers a means to appreciate the technology of systematization as well as pre- and unperspectival forms of truth/reality (e.g., taste and smell, though difficult to share "objectively," are shared nonetheless).

Rationale of the study

According to country, climate, and population, the definition of "one best way" will undoubtedly vary, thereby creating the illusion of substantial differences. Nevertheless, Ellul (1964) argues that "all those differences will have been calculated by some technician with the same automatistic logic[4] " (pp. 130-131). Under these

[4] What Ellul calls 'automatistic' logic is 'modern', 'scientific,' 'Cartesian-subject biased', 'present-obsessed,' '*pensee* objective' and 'rational' logic as is called by different scholars.

modern technological cultural conditions that regard any difference as "deviance", "deviation" implies more than mere difference. The central difficulty is that technology's current mode of rational-scientific legitimation encourages a style of intercultural delivery and implementation that is insensitive to cultural exigencies and, thus, subverts existing social meanings and practices (Pilotta and Widman, 1986, p. 161).

Through the mediation of now omnipresent information, communication, and image technologies, there is no more "country," because the "global village" is not a village, but rather an urban complex of global diversity, including all the ethnic neighborhoods contained within the city. As Kramer (1997) suggests, "the call for monoculturalism is a consequence of this fundamentalistic reductionism. The empirical reality of multiculturalism is not conducive to the values of utility, efficiency, and profitability, which are held supreme by modern paradigm"(p. 120; also see in press).

With the context of the recognition described above, this study will explore and criticize the modern paradigm from which the problematic understanding of communication and communication technology stems. Rooted in this exploration, the second aim of this study will be to investigate the notion of "embodiment" through the comparisons between modern notion of vision (visiocentrism) and Merleau-Ponty's "embodied vision." This comparison illustrates the absurdity of the Cartesian viewpoint and provides a different way of seeing the relationship between human and technology.

In addition, this study will explore the transformation occurring in the process of semiosis or communication in the technological milieu and will explain the meaning of that transformation: semiosis/communication as a mere "calculation," at the same time communication/semiosis as a form (process) of aperspectivity. Finally, the implication of explorations mentioned above will be discussed in terms of the critical situation of intercultural communication and the meaning of alterity (Otherness), e.g., the encounter with alterity in the modern technological milieu.

This study will support this contention through the use of examples. Zimmerman (1990) offers a sagacious recognition of the technological situation that he calls paradox:

> Instead of trying to "solve" the problem of modern technology by furious actions and schemes produced by rational ego, then, Heidegger counseled that people learn that there is no exit from the "problem." We are cast into the technological world. Insight into the fact that there is no exit from it may, in and of itself, help to free us from the compulsion which characterizes all attempts to become "matters" of technology---for technology cannot be mastered. Instead, it is the destiny of the West. We can be "released" from its grip only to the extent that we recognize that we are in its grip: this is the paradox. (Zimmerman, 1990, p.220)

Hence, our understanding of our technological dilemma is constrained by our situatedness within the context of technology. Therefore, the first step on the path to freedom is to realize the paradox of freedom in the modern technological milieu.

Acceptance of the paradox does not necessarily guarantee that one will be free. However, it does remove the concealing shroud from the illusion of the essence of modernity's technological "mode of revealing," thereby creating an "opening."

Central to this study is the exploration of how we are to live with and in the technological society without becoming another component in its machinery. However, theorizing about communication will never be more than an exploration, in the sense that exploration does not entail end. The purpose of this paper, therefore, is not to provide a solution but rather to question the meaning of communication and its technology in this technological milieu, because, as Heidegger (1977) suggests, questioning builds *a* way (p. 4).

Purpose of the study

Among the various elements in the communication process, this study focuses on the setting (conditions) of communication. Changes in communication technology usher in transformations of time and space consciousness; as a consequence, there are alternations in the communication process (semiosis). Similar to many critical communication theorists, especially Habermas, the primary consideration of this study is how the technization of the lifeworld results in the colonization or mechanization of communication. In this sense, this study lies in the realm of critical communication approaches.

The investigation is based on the phenomenological perspective, rather than Marxist or (post-) structuralist perspectives. It offers a critical assessment of the modern technological drive as it imposes transformations on the communication process in a unilinear and uniform way. The unilinear way of communication and

semiosis results in the crisis of communication, as merely a transmission of "object." Therefore, as a critique of this dangerous tendency in the communication field, this study can be regarded as one of the necessary investigations for intercultural and international communication.

Hence, this study has three specific purposes. First, it provides a critique of Cartesian dualism (subjectivism or objectivism) as an inadequate, unsustainable foundation for communication study. Second, the dangerous situation contextualized by modern technological milieu as the process of technization of lifeworld communication is examined. Third, it investigates changes in the mode of communication (semiosis) as a result of technological change with some examples that illustrate the change.

Outline of the study

Chapter II describes the theoretical background for this study. To criticize the materialization or mechanization of *Lebenswelt* (lifeworld) in chapter III, chapter II emphasis the work of Merleau-Ponty and Gebser. The goal of this chapter is to offer solid philosophical argument in order to criticize the Cartesian subject-biased tradition as a whole and more specifically, to criticize the mechanization of communication in the modern technological milieu in specific.

Chapter III provides a review of the literature. The literature consists of two parts. First part is the critiques on Cartesian dualism including the works of Husserl, Merleau-Ponty and Gebser. Second part deals with various literatures explaining the nature and tendency of modern technology such as Ellul, Heidegger and Mumford.

The last part of this chapter explores the relationship between the basic communication theory (mathematical theory of communication) and technology.

Chapter IV presents the methodological reviews. This methodological reviews consist of two theoretical approaches: Peirce's semiotics and Kramer's theory of dimensional accrual/dissociation. Charles S. Peirce's semiotics offers a valuable means for explaining the changes in the semiosis of signs within the modern technological context from a Gebserian standpoint or perspective. Peircean semiosis is a method which would not be a victim of Cartesian subjective bias, and, therefore, it will show the absurdity of that bias and metaphysic. In the complete methodological approach, Kramer's dimension accrual/dissociation theory and Gebser's frame of different consciousness structures will utilized within the framework provided by Peircean semiotics.

Chapter V will investigate the different aspects of technology based on Gebserian perspective and the Merleau-Ponty's notion of body. This chapter will explore 'the relationship between the objectivistic-biased paradigm and technological utopia, 'technology and perception,' and 'embodiment and technology.'

Chapter VI will explore the 'visiocentrism' and 'overdetermination' as the implication of Merleau-Ponty, Gebser, and Peirce's philosophy on communication phenomena in the technological milieu.

Chapter VII will be the conclusion of this study.

II. Theoretical Background

This study focuses primarily, and not exclusively, on the works of Merleau-Ponty and Gebser, as proponents of the phenomenological tradition, not because they alone are the dominant figures in the tradition, but because they are the two figures in this tradition who were most concerned with the task of critiquing the Cartesian objectivistic-biased paradigm of reason and, at the same time, with the task of providing a new, or rather a different, way of understanding that would be grounded ultimately in an understanding of the underlying different consciousness structures of human experiences and the human world.

Merleau-Ponty

Merleau-Ponty's phenomenology, the body

The starting point for Merleau-Ponty's (1962) analysis is Husserl's (1982) phenomenology. Husserl suggested that the Kantian world *an sich* (thing itself) should be perceptually enclosed in parentheses, as a means of shifting the focus to the ways in which the world takes shape and is organized by the self. For Merleau-Ponty, reality is most engrossing in the form in which it appears to people, as a phenomenon (Madison, 1981; Low, 2000). Merleau-Ponty (1964) does not consider human perception to be analytical or to progress in stages in the sense that one first observes something and then brings discrete elements together on the level of thought, intelligence, belief, or emotion. In other words, humans interpret elements as an entity. Every perception is thus automatically significant. Different perceptions constantly open new horizons for people in their world of experience, and it is through these horizons that our relation to the world takes shape. In describing the

experience of perception, Merleau-Ponty seeks to divorce himself from the view that he terms "*pensee objective*" (p. 86). From the perspective of this so-called objective thought, an observed space is a system of mathematical coordinates in which objects are clearly defined. In contrast, Merleau-Ponty (1962) asserts that "visual observation is perhaps better described as a landscape on a foggy day; the objects we observe are always blurry to some extent" (p.12). Because, perception occurs with the world that has the characteristic of "overdetermination"; the things-in-the-world have their own eloquence, not a mere object waiting to be perceived as objectivistic biased view presupposed.

From his speculation about "perception," Merleau-Ponty arrived at conclusions directly contrary to those found in Cartesian philosophy: "givens" are in fact constituted by a complex process and not simples. For phenomenology, intuitions are constituted, not given. Only already constituted intuitions are "given" within an already sedimented context. The subject of perception is not a Cartesian consciousness; rather it is the body as being-in-the-world or existence (Madison, 1981; Langer, 1989; Matthews, 1999).

Critiques of Cartesian as a biased view

Merleau-Ponty (1964) criticizes objectifying thinking (he alternately calls it "scientific thinking" or "operational thinking") because it reduces everything to a shallow state of being. Objectifying thinking considers the object-in-general and claims to view things "as they really are," the notion of things as related to a universe of being disappears, leaving us merely with objects of an independent shallow being to be manipulated (Kramer, 2000; in press). The loss of a sense of ontological depth

also turns human into mere "human material:" resources waiting to be used. Objectifying thinking, then, creates an existential crisis. In his warning against objectifying thinking, Merleau-Ponty (1964) states:

> Thinking 'operationally' has become a sort of absolute artificialism . . . . where human creations are derived from a natural information process, itself conceived on the model of human machines. If this kind of thinking were to extend its reign to man [*sic*] and history; if, pretending to ignore what we know of them through our own situations, it were to set out to construct man [*sic*] and history on the basis of a few abstract indices (as a decadent psychoanalysis and a decadent culturalism have done in the United States)—then, since man [*sic*] really becomes the *manipuladum.* (p. 160)

The most critical implication of the reduction of things to shallow being is that they are meaningful only insofar as they are susceptible to manipulation based on mechanical, calculative law. Thus, "'objective human' turns him- or herself into an instrument, a 'self-polishing mirror' of Reality, as if this is an end itself, indeed the salvation of man [*sic*] from himself [*sic*], achieving the *caput mortuum* of all virtue"(Kramer, 1997, p. 94).

In clarifying what Cartesian bias is, two phenomenological critiques will be helpful. First, for phenomenology, there can be no such thing as a "worldless" subject. Doubt may be cast upon how to interpret the world; that is, the question remains open as to whether the world is basically "material" or "mental" or whatever

other claims may be expressed in the metaphysical tradition. However, the fact that there is a world as that which is present constantly to experience cannot be doubted.

Second, there is no subject without a world, and neither is there any immediately self-transparent subject. The subject, within the phenomenological correlation, is deprived of its singular immediacy and of its presumed self-evidence. In other words, the subject now can know itself only by means of the world.[5]

Heidegger's (1962) concept, '*Dasein*', can explain both points indicated above, because *Dasein* is not to be known "directly," but rather "indirectly," by means of its world. As the world of *Dasein* changes, so does *Dasein.* Differently said, more is meant than is intended in each expression; thus, a hermeneutic process is needed to explicate the unsaid. The subject knows itself in terms of its world, its "Other" (Kramer, 1997; 1988).

Obsessed with presence, objectifying thinking believes that meaning exists in self-presence and, hence, that to speak is to put a ready-made signification under each thought. On the contrary, Merleau-Ponty's (1962,1968) notion of being as horizon suggests that what generates meaning for a sign is not the sign itself; it is an invisible differentiation between itself and others. Merleau-Ponty's "the situated subject," whether seen as the practical actor upon the world or as the expressive subject, is no master: the situated subject is always already involved in a historically finite system of instrumental and expressive capacities. For example, as Heidegger (1962)

---

[5] In an interview, Derrida clarified his views on subjectivity from a similar attitude.
"I have never said that the subject should be dispensed with. Only that it should be deconstructed. To deconstruct the subject does not deny its existence. There are subjects, 'operations' or 'effects' of subjectivity. This is an incontrovertible fact. To acknowledge this does not mean, however, that the subject is what it says it is. The subject is not some meta-linguistic substance or identity, some pure cogito of self-presence; it is always inscribed in language. My work does not, therefore, destroy the subject; it simply tries to resituate it." (Richard Kearney (1984), *Dialogues with Contemporary Continental Thinkers*, Manchester: Manchester University Press, p.125).

illustrates, in using a tool, the body acts upon the world with extended capacity; in so doing, the body is itself modified, and defined by the tool (Dreyfus, 1995; Zimmerman,1990).

Primacy of perception

In the preface to *Phenomenology of Perception*, Merleau-Ponty (1962) explicitly situates his work in the context of the phenomenological philosophy as it issued earlier from Husserl. Merleau-Ponty, particularly the early Merleau-Ponty, radicalizes the perceptualism of Husserl, and so he insists that "the perceived world is the always presupposed foundation of all rationality, all value, all existence" (Merleau-Ponty, 1964, p. 13; also see preface of 1962). Merleau-Ponty sees his own development of phenomenology as a nuanced divergence from certain aspects of Husserlianism.[6]

Three distinguishing points of Merleau-Ponty's (1962,1964, 1968) critiques on Cartesian ideal subjectivism could be suggested as below (Madison, 1981; Langer, 1981; Low, 2000). First, the primacy of the perceptual world is the base from which one must begin and the primitive field which must be thoroughly explored. It must be understood that perception here means the perception of phenomenology ("lived body," "lifeworld," "time consciousness," etc.) and not that of Cartesian or Modern, neo-Cartesian physicalism. Second, the examination of this field will yield certain essential ambiguities about man and his relations to his world that are revealed better by a focus on the genesis of meaning than by attaining a description of stable

[6] In this respect, that "the greatest lesson which the (Husserlian phenomenological) reduction teaches us is the impossibility of a complete reduction" (p. xiv) is not so much a negative comment upon Husserl as it is the affirmation of what Merleau-Ponty understands an existential phenomenology to be (Merleau-Ponty, 1962 ; also see Madison, 1981).

essences. Third, the generic emphasis will result in the development of an existential as contrasted with a transcendental idealist philosophy.

Body and "optimal (maximum) grip"

Merleau-Ponty's (1962) argument that perception has primacy expresses an understanding of the centrality of the body. Furthermore, the way body responds directly to the world inspires Merleau-Ponty to introduce the concept of "maximum grip" (p. 302). Dreyfus (2001) succinctly suggests Merleau-Ponty's point that "when we are looking at something, we tend, without thinking about it, to find the best distance for taking in both the thing as a whole and its different parts. When grasping something, we tend to grasp it in such a way as to get the best grip on it" (p. 56; also see Madison, 1981, pp. 22-37). Returning to Merleau-Ponty (1964), he explains:

> My body is geared into the world when my perception presents me with a spectacle as varied and as clearly articulated as possible, and when my motor intentions, as they unfold, receive the responses they expect from the world. This maximum sharpness of perception and action points clearly to a perceptual ground, a basis of my life, a general setting in which my body can co-exist with the world (Merleau-Ponty, 1962, p.250).

This notion of lived body is meant both to contrast with the objectified sense of body used in the sciences and to refer to a primary, nonreduced sense of living being as embodied being (Madison, 1981). The embodied or incarnate subject is the perceiving counterpart to the perceived world. The lived body is the perceiving

subject in a perceptual world, and the concrete finitude of the body corresponds to the perceived presence of the world.

There is no perception without embodiment. In addition, all embodiment is culturally and praxically situated and saturated, because the lifeworld appears between the subject and the world within the focus of perception. Thus, the lived body, the embodied subject immersed in a world pregnant with significance, becomes the basic theme of the existential version of the primary perceptual situation. In this sense, relational ontology is held to transcend the dualism of Cartesianism and provides the perspective of multiculturalism.

According to Merleau-Ponty (1964), in reality an observed space is not a set of coordinates but rather, a situation that takes shape in experience (pp. 12-13). The positions of observed bodies are not points of equal value in a system of coordinates. The observed space is divided into areas of different value, such as right and left, up and down, far and near. Thus, objective reality is an inadequate abstraction to Merleau-Ponty. Rather, the perceptual experience of embodied subject must have preeminent primacy.

Horizon and silence

The notion of being as horizon brings to light another important insight into the nature of meaning: meaning is a matter of differentiation. If what makes visibility possible in the world is not an opposition between subject and object, as objectifying thinking assumes, but rather an object-horizon structure in which something is seen as well as what it is seen against. One perceives objects by reference to differentiation, though one does not perceive differentiation itself. Hence, differentiation is the

invisible ground of all perception, the unperceived phenomenon on which one's seeing rests (Seigel, 1991).

There is one characteristic feature that takes Merleau-Ponty's (1964) analysis beyond the Husserlian context. In addition to perception being multidimensioned, it becomes ambiguous or polymorphic. For Merleau-Ponty (1964), it is a remarkable fact that the uninstructed have no awareness of perspective and that it took a long time and much reflection for human to become aware of the perspectival deformation of objects (pp. 74-75). This opening to the macroperceptual is, in one sense, made even more explicit in Merleau-Ponty's later work (1968), and yet in another sense, perception becomes enigmatic in relation to "cultural" factors (Low, 2000). In *The visible and the Invisible,* Merleau-Ponty (1968) asserts;

> I say that the Renaissance perspective is a cultural fact, that perception itself is polymorphic and that if it became Euclidian, this is because it allows itself to be oriented by the system . . . . What I maintain is that: there is an informing of perception by culture which enables us to say that culture is perceived. (p. 212)

Here we have macro-perception. The spatiality of being-in-the-world clearly describes the bodily existence of perception. However spatiality takes its shape in a much broader macro-perceptual context. Perception here is strongly relative to culture. Following Merleau-Ponty, the field of implicit silence, or macro-perceptual context, is always broader than the focus of explicit speech, or perception. This notion reveals much similarity with Gebser's (1985) notion of "consciousness structure" and

"plus-mutation." The comparisons between "field and focus" and "silence and speech" make that likeness clear.

Field and focus. The field is the totality of presence that may be differentiated according to the question addressed to this totality of presence. Thus, if our question is visual, the field is the whole of the visual field before us. Focus is the region within the field to which we attended. Again, if the example is visual, the focal center may be a certain object that stands out against the background of the visual field. When we extend this, the notion of field is the phenomenological world, and focus is the phenomenologically explicit attention within the world (Madison, 1981; Low, 2000).

Silence and Speech. Silence, as Merleau-Ponty (1962) utilizes it, is the field of pregnant, latent expressiveness always already present to the living subject. Speech is the focal center, the explicit foreground of meaning that floats, varies. However, it always stands out against the background of silence. Therefore, the clarity of explicit meaning is a relative clarity, i.e., relative to the implicitness of the background:

> The clearness of language stands out from an obscure background, and if we carry our research far enough we shall eventually find that language is equally uncommunicative of anything other than itself, that its meaning is inseparable from it. (p. 188)

Based on Merleau-Ponty's (1960, 1968) sense, meaning appears in the non-present movement of differentiation that is rendered present through the body in a temporal duration. In other words, meaning emerges as the invisible movement of differentiations is rendered present. This occurs as differentiations are combined in a temporal duration. Therefore, what makes an object visible and meaningful is not the

object itself; it is an invisible difference between the object and others. Merleau-Ponty (1960) calls it "silence" (p. 43). Silence is, therefore, the realm in which meaning originates (Merleau-Ponty, 1960, pp. 39-47; also see, 1968, pp. 149-152).

Phenomenologically, the relational distance is the intentionality distance that must include both referent object and perceiving, perspectival "lived" body, though not in the same way as in Cartesian-Newtonian frames. This phenomenological measurement must be reflexive and must utilize means that determine the (apparent) distance within the correlation. As Ihde (1998) indicates, what must be avoided is the ideal observer or god's eye simultaneous sight. In its embodied situatedness, this space-time method is reflexive and avoids the Cartesian-Newtonian implied external perspective. In this sense, Merleau-Ponty's notion of 'horizontalization' implies that there are no privileged language games, no disciplines, no privileged activities.

Hence, there are only appropriate or inappropriate contexts and a diversity of fields. Our power to perceive is interwined with linguistic and cultural interconnections that are distinctly human and all too human. It is an inadequate argument that perception is a "lower" or more "primitive" action than linguistic action as such. Quite the contrary, perceptual-bodily activity is both the basis for and implicated in all intelligent behavior. This point well demonstrates the reason why this study begins with the ideas of Merleau-Ponty and Gebser. Stated differently, the impulse to create mathematics, science, and technology cannot be explained by mathematics, science, or technology per se, because the impulse is neither mathematical nor scientific; indeed it is not logical.

To briefly summarize Merleau-Ponty's phenomenological approach, it can be suggested as these three major points. First, Merleau-Ponty rejects all notions of pure data, sensory or conceptual. Rather he accepts an essential ambiguity of the perceptual object, an incompleteness, an openness to multiple possibilities; for Merleau-Ponty, those are true to the actual perceptual experience. Second, Merleau-Ponty rejects both the objective (mechanical) body and a transparent intelligent (mind) as immediate interpretations of experience. He accepts the embodied subject whose every action is subject to an initial movement from the unformed to the formed, whose gesture precedes any later attained clarity of intellection. Third, Merleau-Ponty rejects an objectively given world whose reality is merely to be discovered (constructed) by the right method of formal, abstracted geometrization. On the contrary, he insists a world which is always pregnant with significance, but whose meaning must be emerged through an interrogation of its presence.

To sum up, Merleau-Ponty argues that the lifeworld appears between the subject and the world within the focus of perception. Thus, the lived body, the embodied subject immersed in a world pregnant with significance, becomes the basic theme of the primary perceptual situation. This unitary and relational ontology is held to transcend the dualism of Cartesianism.

Gebser

Consciousness for Gebser (1985) is primarily an expression *of* something. In any expression, specific structures of consciousness are visible in their differing modes, such as language, art, and so forth. Therefore, consciousness is correlated with the experienced world, and this correlative nature may be expressed as

"consciousness-world," in which world as experienced, lived "reality," is manifested through or by an event, object, expression, context or horizon.

Every expression is to be traced as an expression of a particular consciousness. Gebser's project, then, is to gather expressions/phenomena of a culture and discover what kind of a consciousness would make such expressions. The expression/phenomena share a common field of implications into which others fit, and by this means, a structure in consciousness is rendered visible. Gebser's usage of consciousness embraces such concepts as the Cartesian ego's consciousness, or biological consciousness and more, including the term "unconscious," which is assumed, silent, tacit, unseen and unfelt, but nonetheless operating, and which can be made transparent or visible.

The consciousness dimensions did not/do not evolve in the sense of developing along a path, by slow degrees, across time. Rather, the change in consciousness structures occurs in a quantum-like, discontinuous leap, not in a slowly developing and changing framework as is postulated for Darwinian evolutionary theory. Gebser concluded that consciousness mutates in an unforeseen manner to a new intensity or dimension that cannot negate the previous structures. The importance of Gebser's idea lies in the fact that all expressions of consciousness are intimately tied to space and time, though not in a linear progression. Thus, expressions, beliefs, attitudes, behaviors, etc., are somehow interpretations through the space-time "lens" of the current consciousness.

Perspectivity in Gebser's thought

Following Gebser (1985), we find an aperspectival awareness revealed in modern physics no less than in fine arts and poetry; a first basis of manifestation of the new reality is the inclusion of time within spatial perception as a fourth dimension. We should not take "aperspective" as contrasting with, or as a mere negation of "perspective." The opposite of perspective is non-perspective. Among the three formations, i.e., non-perspective, perspective, and aperspective, there exists the same meaning-relationship as, for instance, among non-logical, logical, and alogical, or among non-moral, moral, and amoral.

According to Gebser (1985), the designation "aperspective" will allow people to see clearly that human beings should overcome the mere dualism of affirmation and negation. Here, the prefix *a* has a *liberating* character. Gebser's designation does not attempt to unite the non-perspective and the perspective, which per se are co-existent, nor does it represent an experiment in synthesis; neither is it a reconciliation of what has become irreconcilable by becoming defective (pp. 2- 3).

The "pictures" of the non-perspective period were painted, as it were, at night-time, when things are shadowless and flat, when darkness absorbed space so that only its immaterial psychic component remains to be expressed. This recognition illustrates that a comprehension of man as subject is conditioned by a comprehension of world as object. By virtue of the perspective, space is made visible and brought out into the daylight of waking consciousness. As a result human self attains visibility.

The gradual possession of the perspective, which became a principal concern of Renaissance man, had the effect of expanding the world image, while

simultaneously narrowing it through the spatialization. To see or to think perspectively means to see and think with spatial fixation. Today, human beings are suffering from the consequence. Ellul (1964, 1980), Heidegger (1977) and Mumford (1963, 1967) have expressed concerns regarding the very consequence of this spatialization from the overpowered and yet deficient perspectivism.

Human, who her- or himself is merely part of the world, makes room for her or his own part and provides a dominant position for the partial, i.e., perspectival view to which human alone has access. In consequence, the part predominates over the whole. For this reason, it is important to consider those incisive events that Gebser (1985) calls mutations in the consciousness of humankind. The possibility of such mutations is latent within each of us in the form of different structures of consciousness. These possibilities both are constituted by and constitute our own being, as they are at work in us to become manifest.

Overall, Gebser (1985) describes four mutations of consciousness that have occurred in the history of man. These mutations are not merely changes of perspective; they are not simple paradigm shifts. Rather, they are fundamentally different ways of experiencing reality. These four mutations reflect five separate eras that are not distinct and isolated from one another, they are interconnected such that all previous consciousness structures are found in subsequent ones (Kramer, 1992). Each of these structures are associated with some degree of dimensionality, beginning with the zero and as latent structures are manifested, allowing the fourth dimension to be experienced, which is the structure that we are experiencing at this time. Gebser identifies these five different structures as constitutions; in other words, five different

experienced world-contexts known as the Archaic, Magical, Mythical, Mental, and Integral stages, respectively.

Five structures of Consciousness

In Gebser's (1985) explanation of these five different consciousness structures, the conception of "mutation" occupies central significance. Essentially, following him, something new can only be discovered if one becomes aware of the old. Therefore, to Gebser (1985), the adage that there is nothing new under the sun is only conditionally true. Everything has, indeed, already been, although in another manner, in another light, under different value systems, in some other realization, in another manifestation.

Gebser's work (1985) has a strong historical-evolutionary component; however this must be understood within the appropriate context, as he has always emphasized that the various structures of consciousness are not merely a matter of the past. Rather they are co-constituents, essential features, of our modern consciousness. That is to say, we are as much archaic, magical, and mythical beings as we are mental-rational. This is an important insight that has great practical relevance. Gebser does not regard the rational consciousness as the culmination of the evolution of human consciousness. On the contrary, he considers the rational consciousness, which should not be confused with logical thought, as the deficient form of the mental structure of consciousness that is inherently balanced.

The Archaic structure of consciousness. "Archaic" is derived from the Greek *arche*, meaning "beginning" or "origin." "Origin," according to its nature, is ever-present, a quality not contained in the word "beginning." Because, the word archaic,

it derives from the Greek root *arche*, means "beginning" in the sense of "origin" and not in the sense of a specific moment in history or time. In the sense using archaic origin as ever-present, Gebser (1985) asserts:

> It is our task to presentiate the past in ourselves, not to lose the present to the transient power of the past. This we can achieve by recognizing the balancing power of the latent "future" with its character of the present, which is to say, its potentiality for consciousness. (p. 43)

For this structure, very little evidence of the direct and tangible kind is available. As Gebser applies the term, "conscious is neither knowledge nor conscience but must be understood for the time being in the broadest sense as wakeful presence."(p. 42) This state of presence or being present does not overpowered or delimited by the past (past-orientation) or any future-oriented finality; the notions of past, future, or finality imply change toward an end without suggesting encompassing character of the mutations. Hence, the archaic or original structure is not something "in the past:" it is a present possibility. Even though we may not be aware of this or of other structures of consciousness, they still operate tacitly.

Within the archaic structure, the consciousness is quite undifferentiated. The process of individuation of consciousness, in any sense of the word, has not taken place. Hence, this is not consciousness in any sense that we understand it today. Instead, it can be linked to a state of deep sleep; as Chinese philosopher Chuang Tzu says, "The pure man of old slept without dreams" (Chuang Tzu, 1961, p. 72). It is the structure when the soul still sleeps; thus, it is the dreamless age, the period in which where is a complete lack of separation or distinction between the individual and the

whole. In the unperspectival world, human is sheltered and enclosed in the world of the "we," where outer objective space is still nonexistent.

The Magic structure of consciousness. The mutation from the archaic to magic structure is the mode of human's emergence from the zero-dimensional, archaic structure of identity into a one-dimensional structure of unity. The ideal symbol for one-dimensionality, the point, is illuminating and significant as a reference-characteristic of magical human. The point, indicating the first "centering" in human consciousness that will later lead to the realization of self, is an expression of the one-dimensionality of the spaceless and timeless condition in which human lives in the magical period.

The magic consciousness has neither a rational structure nor a psychic one; it is a fundamental vital structure that permits the world of things, of time and space, only to be experienced, not to be thought about nor to be "seen" as in a picture or symbol.

In the magic structure, human becomes dissociated from the "harmony," i.e., from his or her identity with the whole. Magic structure is a state of becoming aware, and thereby, there emerges the necessity for magic human not only to be in the world but also to possess it. The magical human detaches self from identity with the whole, thus, becoming "conscious" of this identity; becoming a particular being.

At first they are not capable of recognizing the world as a whole. They are conscious only of its particulars or "points," and thus, take those particulars for the whole. The magical world is, hence, also a world of the *pars pro toto*, in that the part can and does stand for the whole. This structure is characterized by five primary

characteristics: (a) its egolessness, (b) its spacelessness and timelessness, (c) its pointlike-unitary world, (d) its interweaving with nature, and (e) its magical reaction to the world that gives power and makes magical human a creator.

A rudimentary self-sense emerges and language is the real product of this change. Words as vehicles of power are typical of this time and structure; incantations as precursors to prayer emerge. Consciousness, in this phase, is characterized by human's intimate association with nature. Human, at this time, does not really distinguish self apart from nature. There is no individual ego, only an "ego" of the group or clan. The "I" is not a factor; the "we" is dominant. In other words, responsibility is lodged in the external world and its objects, a sure sign of egolessness. The point-related unity is grounded in a vital nexus in nature, not a rational causal nexus.

Another feature of this structure that should be explicated is its spacelessness and timelessness. The magic consciousness is not yet awake to time and space coordinates and, consequently, does not "manage" the world well at all. The archaic no-dimensional identity has given way to one-dimension magical unity. Thus, the magic consciousness experiences reality as objects, deeds, or events, which are separated from each other as points in an overall unity. Each point may take the place of or take on the value of any other point. This consciousness process is one of equating, one of sensing an unintentional association in which things that seem to be similar are mutually sympathetic, i.e., that is a vitally felt connection. Therefore, the magic structure is the most vital and emotional of all structures.

With relation to this study, in the magic consciousness structure, it is crucial to understand that magic, which is etymologically related to "make," is the essential means of fulfilling needs. Thus, spell-casting and rituals are ways, among others, in which basic vital connections are made. It is important to note:

> All magic, even today, occurs in the natural-vital, egoless, spaceless and timeless sphere. This requires, as far as present-day man [*sic*] is concerned, a sacrifice of consciousness; it occurs in a state of trance, or when the consciousness dissolves as a result of mass reactions, slogans, or 'isms'." (Gebser, 1985, p. 49)

Stated differently, one point may with full validity and effectiveness take the place of another. Exchange in the magical sphere is by no means deception; it is a genuinely valid expression of what is "equal." In this equal validity of the whole and the part, there appear two further essential features of the magical world, which consist of the perspective equality of place and equality of value. Equating one thing with the whole has as its consequence what we could call analogical or associative thinking, which is less a "thinking" than an accidental association supported by the analog. Herein lies the root of magical human's feeling that things which seem to be similar are mutually "sympathetic." The magical human connects them by virtue of the vital nexus, not the causal nexus. Gebser (1985) indicates that from these magic roots arise our machines and technology and all attempts to rule nature and others.

The Mythical structure of consciousness. If becoming aware of nature is the characteristic feature of the magical structure, then, becoming aware of the soul, of

the essence of human, is the characteristic feature of the mythological structure. Natural time, which became conscious in slumbering magical human, is a prerequisite for a dawning awareness of the soul in mythical human. Whenever we encounter seasonal rites, in the later period of the magical structure, the mythical structure is in preparation. These facts signify the close of the period during which human became aware of nature. Thus, the rhythm of nature became time-laden in a natural way. This is the decisive step which magical human took upon emerging from the womb of nature.

The mythical structure is the expression of a two-dimensional polarity. If the archaic structure led, through loss of wholeness, to a unity in the magical structure, foreshadowing an increasing awareness that was dawning in humans through a process of individuation, the magical structure brought about their extrication from nature through their struggle against it, which made them aware of an external world. The mythical structure led to an awareness of soul, that is, of an interior world. Its symbol is the circle. The circle symbolizes the awareness of repetition, i.e., the consciousness of the polar relationship of cycles.

If we look upon myths from the point of view of a growth in consciousness, surprising and illuminating results become evident. The mythical structure is typified by imagination and thus, is distinct from the magical structure, which is characterized by emotion. In the magical structure, the felt connections become conscious and externalize themselves in emotional forms and in activities. The mythical structure, on the other hand, has an imaginative awareness of image that is reflected in the symbolic character of the myth and is responsive to the soul and to heaven, the

cosmos of the ancient. It is still remote from space-awareness, though already close to time-awareness. The symbolic consciousness still fluctuates between the magical timelessness and the cosmic-natural time-bound sense that is by degrees becoming conscious. The more remote from awareness a myth, the more timeless it is.

Human is beginning to recognize self as distinct from others. Not the ear, but rather the mouth is important in making transparent what is involved in being and in life. Thus, for example, the mythic consciousness is attuned to such polarities as light-dark and life-death, and it reflects these in symbolic imagery. The mythic structure also tends to emphasize mystery and the feminine maternal aspect. However, female and male are related just as polarities rather than logical opposites. Until to the mythic structure, the "I" of human being is not yet fully developed; however, it has developed to that point that it recognizes and demands a separation from nature, from its environment. This can be regarded as evidence of an increasing crystallization of the ego. Human beings are on the way to selfhood.

In connection with the current investigation, one important aspect of Gebser's study is that the embryonic consciousness of time lies in the mythic structure as a natural phenomenon in the world; this aborning consciousness will eventually become abstracted as clock-time, via the technology of calendars and water clocks. In spite of the mutation, the mythic consciousness is still vividly alive in many aspects.

The Mental structure of consciousness. "Mental" characterizes the structure of consciousness still prevailing. Gebser (1985) choose the term mental because of its ties to the original Sanskrit root-cluster *ma-me* and its derivatives, all of which express mentalness (Gebser, 1985, pp. 74-82). The word harbors an extraordinary

abundance of relations in its original root, which in Sanskrit is *ma*, and from which secondary roots such as *man-*, *mat-*, *me-*, and *men-* have been derived. All the words formed from this root express definite characteristics of the mental structure.

In the mental structure, there comes directional thinking, which reaches tentatively out into the open. If mythical thinking (insofar as one may designate it as a "thinking" at all) was an imaginative, symbolic projection, which took place within the confines of the circle with its polarity, directional thinking is radically different. In the mental structure, thinking is no longer polarized; then, it is object-oriented and hence, turned toward the objective world. Deriving its power from the individual self, it establishes the self-world duality.

This transformation was an occurrence so extraordinary that it literally shook the world. By means of this event, the protective circle of the soul, i.e., the incorporation of human in the embrace of a world-soul, wherein human lived in polar relationship with nature, cosmos and time, has been blasted. Human steps from the plane into space, which they will attempt to conquer in thought. Something unheard of has happened, something which has changed the world in its very foundation.

It is in the mental consciousness structure that human, to use Gebser's image, steps out of the mythical circle (two-dimensional) into three- dimensional space. This is the consciousness in which we become aware of our ability to think. As the ability to imagine within the polarity of the circle correlates to the mythic structure, so thinking, with its directional attitude toward the world of objects, is related to the mental-rational structure.

In reaction to the deficiency of mythic consciousness, Socrates, Plato, Aristotle, and Pythagoras stepped out to counteract this trend. The mental structure was inaugurated, and this coincides with the "discovery" of "causality." Abstraction becomes a key word to describe mental activity, and we find humans using their minds to overcome and "master" the world around them (Gebser, 1985, p. 84). In this structure, philosophers employed the term "rational" to describe human thinking; yet rational does not encompass all that "mental" includes. Thus, to Gebser, the term rational signifies the deficient aspect of this consciousness.

The deification of rational thinking almost universally replaces the plethora of gods; dogma, in both allegory and creed, replaces the symbols of previous times. Method replaces the mysteries as human develops an ever-increasing desire to penetrate and, of course, to master nature. Galileo, for example, demonstrates this when he attempts to measure everything that is measurable and to make everything measurable that has not been made so. This has given rise to the idea of science as the dominant religion of today.

The quantitative aspects of the world, matter and space, become all-important. As Gebser (1985) indicates,

> Whereas the preoccupation of the early Renaissance was with the concretion of space, our epoch is concerned with the concretion of time. The fundamental point of departure, the attempt to concretize time and thus realize and become conscious of the fourth dimension, furnishes a means whereby human being may gain an all-encompassing perception and knowledge of our epoch. (p. 16)

As a result, time has come to be represented primarily in spatial terms, such as the clock, in that time itself is conceptualized (spatialized) as an "arrow" that points from the past to the future by way of the present (Kramer, in press; Feuerstein, 1987, p. 98).[7] When time is thus spatialized, it can be divided and is itself the great divider and measurer.

The Integral structure of consciousness. The designation "aperspectival," in consequence, expresses:

> a process of liberation from the exclusive validity of perspectival and un-perspectival, as well as pre-perspectival limitations . . . . Aperspectival is a definition which differentiates a perception of reality that is neither perspectivally restricted to only one sector nor merely unperspectivally evocative of a vague sense of reality. (Gebser, 1985, pp. 2-3)

Even the bare mention of the mutation from the mental to the integral consciousness structure can cause misunderstanding, because what we have thus far is inadequate to make it intelligible. The mental process of time-concretizing may "lead beyond" a mere synthesis of time and space. For if we synthesize, we lapse back into duality in spite of all our efforts toward unification.

Concretization is one of the fundamental principles of the integral structure. Anyone who wishes to integrate must not merely have concretized phenomena, be they of a material or mental nature; one must have the ability to concretize one's own structure. That means, among other things, that not only do the different structures

---

[7] As Kramer (in press) points out, we can find this characteristic feature of the mental consciousness in a nice diagram including stick figures and arrows in a page (p. 59) of the March 2001 edition of the *Journal of Communication.*

become diaphanous (or transparent) and conscious in that person, but also that the human becomes aware of the structures' effects upon that individual's own life and destiny. Furthermore, it means that by virtue of one's own insight, a human being must acquire mastery over the deficient elements working within him- or herself, so that the individual may attain that degree of maturation and equilibrium that is a precondition of every concretization. Only those components that have thus become equilibrated, i.e., matured and mastered concretions, are capable of becoming building stones in integration.

One difficulty which many will deem insurmountable consists of the fact that no "idea" of the aperspectival world can be formed. That world transcends our ideas. In like manner, the rational world at one time transcended the capabilities of mythical man to experience it. Nevertheless, our mental world became a reality. Those who object to the aperspectival world as incomprehensible and indemonstrable founder only because of the limitations of their own ideas of the world, fettered to comprehension and visual perception. Apart from that, it may irritate some that we speak of arational possibilities and that this arationality is to be confused neither with the irrational nor with the pre-rational.

Gebser (1985) says the aperspectival structure is appearing now; however, there is no manifested structure or paradigm as yet in our consciousness. He devoted his life's writings to this subject. For Gebser, this structure integrates those which have come before and thus, enables the human mind to transcend the limitations of three-dimensionality.

The integration in the integral structure of consciousness is not simply a union of seemingly disparate opposites; rather, it is the "irruption of qualitative time into our consciousness" (Feuerstein, 1987, p. 130). A comprehensive understanding of time, rather than the currently fragmented inadequate, limited conceptualization, is a theme that will play an extremely important role in this structure. In fact, the ideas of arationality (as opposed to the rationality of the current structure), aperspectivity (as opposed to the perspective, spatially determined manifestation of the current structure), and diaphaneity (the transparent recognition of the whole, not just parts) are significant characteristics of this new structure. Stated differently, the tensions and relations among things are more important, at times, than the things themselves; how the relationships develop over time takes precedence over the mere fact that a relationship exists.

The integral structure is difficult to describe, as it depends a great deal on experiences: not just that we have them, but also on how intense they are and what we collect from them for now and the future. Intensity is a key characteristic of this mode of consciousness. By intensity, it is not meant simply an emotional relationship to experience or the feeling or deepening of emotion itself, because this would be a magical response rather than an integral one.

Systasis and *Synairesis*

It is difficult to separate Systasis from Synairesis, for they are intimately related to one another. What is more, such an artificial separation is indicative of a mental-rational approach, to which we are trying not to fall prey. Up until now, particularly within the scientific community, the necessary, sometimes forceful,

separation of subject and object has been required. It is this dualism that must be transcended if we are to arrive at a more comprehensive, intensive understanding of the world around us and of ourselves.

Systasis (*systase*) is not identical to system, which belongs to three-dimensional consciousness. Yet *systasis* and system are not antithetical either. Each belongs to its own structure: system to mental-rational structure and *systasis* to aperspectival, integral consciousness. Therefore, Gebser's approach should not be considered the building of a system in our current understanding of the term, for such would also be a product of a three-dimensional mentality. Kramer (1997), hence, states that:

> *Systasis* is not causally determined. *Systasis* is neither a modern mental-rational concept, nor a mythical image, nor a magic presumption that all things are interchangeably identical. *Systasis* is not integral, but integrating. (p. 142)

System deals always with parts, not with the whole. Also, system deals primarily with the product rather than the process. Gebser (1985) indicates that:

> *Systasis'* acategorical element is the integrating dimension by which the three- dimensional spatial world, which is always a world of parts, is integrated into a whole in such a way that it can be stated. This already implies that it is not an ordering schema paralleling that of system. We must especially avoid the error of considering *systasis* -- which is both process and effect -- as that which is effected, for if we do we reduce it to a causal system. We must be aware that *systasis* has

> an effective character within every system. *Systasis* is not a mental concept, nor is it a mythical image (say) in the sense of Heraclitus' *panta rei* ("all things are in flux"), nor is it a magic postulation of the interconnection of everything to and with everything else. And finally, it is not integral, but integrating. (p. 310)

As Feuerstein (1987) phrases it, "*Systasis*, in contrast to systematization, deals with the proper 'arrangement' of intensities (rather than quantified 'extensities')." On the other hand, synairesis is that "which is an integral understanding, or perception, of reality" (p. 194). More specifically, Gebser notes,

> *Synairesis* comes from *synaireo*, meaning "to synthesize, collect," notably in the sense of "everything being seized or grasped on all sides, particularly by the mind or spirit." Whereas synthesis is a logical-causal conclusion, a mental (trinitary) unification of thesis and antithesis (and falls apart because it becomes itself a thesis as a result of the dividing, perspectival perception), synairesis is an integral act of completion "encompassing all sides" and perceiving aperspectivally. (p. 312, n.5)

The idea of freedom from space and time is an important notion in Gebser's entire approach. Further, the key feature of his approach is its incorporation of the notions of latency and transparency. What has passed is not dropped and forgotten, although this is what the mental-rational structure of consciousness tempts us to do; rather it is incorporated into our mutation as effective elements.

The concept which makes possible the "comprehension" or, more exactly, the perception of the "temporal elements" is that of *systasis*. If we also take into account the systatic concepts, the mere methodology of systems is intensified to synairetic diaphany. As Gebser (1985) asserts, this intensification/diaphany must be achieved unless we are to remain caught in the three-dimensional scheme of thought that exemplifies its extreme configuration as the form of Cartesian dualism: the forms of objectivistic or subjectivistic biased paradigm.

III. Literature Review

This chapter consists of two parts; the critical assessments on object biased paradigm and the critical reviews concerning the dangers of modern technological milieu. The first part of this chapter focuses the critiques on Cartesian object biased paradigm that provides the foundation of technological utopianism. The critical assessments mainly come form the works of Husserl and Merleau-Ponty. To grasp the interconnected nature of objectivistic bias and the characteristic of modern technological milieu, technological utopianism, the unavoidable consequence of the objectivistic biased view, will critically reviewed in terms of "progress" and "mutation."

The second part provides three concrete diagnoses concerning the nature of modern technological milieu including the works of Ellul, Heidegger, and Mumford. Before introducing these critical assessments, Borgmann's argument that deals with three different approaches on technology, will be presented. His argument makes the point clear what Ellul's, Heidegger's, and Mumford's viewpoints share and what are the differences compared to that of other futurologist, such as the approaches of Feinberg and de Sola Pool. At the end of this chapter, it will be indicated that many of communication theories are under the influence of Cartesian biased objectivism and the obsession of modern technological futurologistic optimism.

Critical assessments on "objective-biased" paradigm

Husserl's critique on the crisis of modern science

To develop more appropriate understanding for modern technological milieu, it is useful to start from the crisis of sciences; a crisis that Husserl (1970) finds,

particularly, evident in the apparent failure of the reductionist and mechanistic programs in psychology to reach an understanding of human experience and the meaning of human behavior. Husserl (1970) remarks, "the stage of development of ratio represented by the rationalism of the Age of Enlightenment was a mistake, though certainly an understandable one" (p. 290). Then, it would seem that the crisis of the modern science is rooted in the misguided theory of rationality that lies at their base. Husserl leads us to understand the constituting role of conscious subjectivity in the shaping of the human situation. By pointing to the limitations of this prevailing conception of rationality, Husserl (1970) intends to point the way toward a more appropriate conception: the always pregiven life-world gains its sense and acceptance as a world through the function of our conscious process.

In *The crisis of European Science and Transcendental Phenomenology*, Husserl (1970) tells us that we must strive "to bring latent reason to the understanding of its own possibilities," for there is no other way to put "universal" philosophy "on the strenuous road to realization" (p. 15). Husserl (1970) rejects the narrow scope of the modern conception of rationality as an inappropriate characterization of the proper nature of reason. According to Husserl, the roots of the present crisis can be traced to the Galilean mathematical rendering of nature as an "objective universe."

In Husserl's terms, to Cartesian-Galilean objectivist, the life-world is taken for a realm of mere subjective appearances, and is measured "for a well-fitting grab of ideas, that of the so-called objectively scientific truths" (p. 51). Husserl (1970) acknowledges this:

> A method which is designed for the purpose of progressively improving, in infinitum, though 'scientific' predictions, those rough predictions which are the only ones originally possible within the sphere of what is actually experienced and experienceable in the life-world. It is because of the disguise of ideas that the true meaning of the method, the formulae, and the "theories," remained unintelligible and, in the naïve formation of the method, was never understood. (pp. 51-52)

As the consequence of this grasp of the world, we are tempted to interpret the world as if it were exist in itself apart from a world-view.

Hence, according to Husserl (1970), the interpretation that the world exists in itself apart from a world view is the naïveté of the objectivistic paradigm, as it takes the so-called "objective" world "for the universe of all that is, without noticing that no objective science can do justice to the subjectivity which accomplishes science" (p. 295). Hence, Husserl (1970) reminds us:

> What characterizes objectivism is that it moves upon the ground of the world which is pregiven, taken for granted through experience, [seeking] the "objective truth" of this world, [seeking] what, in this world, is unconditionally valid for every rational being, [seeking] what [this world] is in itself. (p. 68)

Thus, to Husserl, what is the central naivete is the unquestioned presupposition of a world existing "in itself," and knowable as it is in itself, apart from the biases of human subjectivity.

As Husserl (1970) reminds us, since the supporting role of the pre-given cultural horizon goes unspoken and invisible, what the objectivistic scientists fail to recognize is the fact that their cultural horizon "is always presupposed as the ground, as the field of work upon which alone his [*sic*] questions, his [*sic*] methods of thought, make sense." Thus, the pre-given, invisible cultural horizon is "forgotten" in scientific accomplishment; "the working subject himself [*sic*] is forgotten" (p. 295).

It is no small wonder that the modern tradition embraced the naivete of "objectivism," though their thinking was motivated by a world-view, they were unaware of the craft of this growing tradition of thought, thus, so naively assumed themselves to be addressing "things themselves" with their scientific inquiries.

According to Gurwitsch (1974), with the achievement of Euclidean geometry as a demonstrative sort of reasoning, the Greek people found itself suddenly in possession of a true exemplar of episteme, and further, for the learned people of Renaissance Europe, geometry became the guiding "model and standard" of true scientific accomplishment. Concerning geometry, Husserl (1970) indicates that the cultural roots of geometry were cut off, and the pure but abstract idealization of geometry was given a life of their own, moreover geometry was raised to the level of "true object of knowledge." This tendency leads up to the conception of universal science: a conception of the "world" as being "in itself a rational systematic unity . . . . in which each and every singular detail must be rationally determined[emphasis added]" (p. 65). The rationale behind this attitude, Husserl argues, is that our scientific standpoint will treat us to a panorama of more than just "objectively

determinable reality." Because, so-call scientific approach will make possible knowledge of "what is true in itself about values and goods," as well (p. 66).

Further, Husserl (1970) wants us to recognize the nature of the transformation that took place between the Greek conception of geometrical idealization as grounded in the lifeworld activities of the Greek craftsmen, and the modern concept of geometrical demonstration as a self-enclosed, rigidly deductive process of rational methodology. Following Gurwitsch (1966), in Galileo's time, geometry had already undergone this transformation of sense. As Gurwitsch (1966) rightly points out,

> [Galileo] inherits geometry as an established science which, on account of its absolute and universal validity, he considers as the prototype, model and standard of knowledge . . . . Consequently, geometry must be applied to experience in order to discover reality as it is in itself, in contradistinction to the varying appearances and phenomena. (p. 408)

What Gurwitsch tries to indicate is that the nature within which the Greek craftsman experienced the vision of idealized perfection was not the exact universe of Galilean, and further, nor a Newtonian mechanics. As Gurwitsch (1966) illustrates, the nature within which the Greek craftsman experience was the cultural horizon of ancient Greek culture. It was nature as <u>experienced</u>: a realm that required a concept, i.e., physics, that was inseparably interconnected with other concepts, like *arche*, *psyche*, *nous* and *telos*.

In Galilean and Newtonian universe, however, the concept of nature is occupied by the objectivistic worldview. As Gurwitsch (1966) asserts,

> Under the import of the growing prestige of the developing physics, a prestige stemming from its success, both theoretical and practical, that tissue of ideas . . . . has come to be considered, by scientists and laymen alike, as reality, as "nature as it truly and objectively is," to the total disregard of the lifeworld. (p. 411)

In other words, on the contrary to objectivistic worldview, Galilean or Newtonian objective "true" nature is merely a construction of ideas or the ideal constructions.

Husserl (1970) finds the key to overcoming objectivism in the skeptical position of Hume. To Husserl, the "significance" of Hume's position lies not in the conclusions itself. Rather, he finds Hume's insight in what these conclusions indicate about the weakness of the objectivist paradigm of reason. In other words, Husserl finds a "bankrupting" naïve point of objectivism in Hume's conclusion. Hume begins by assuming that:

> All empirical concepts could be explained in terms of some combination of the [sensory] contents of perception," but "very quickly came to see that knowledge and belief result from what the mind does with its contents rather than simply from the nature of those contents. (Wolff, 1966, p. 103)

This recognition demonstrates that Hume's empiricism turns away from "objectivism," because Hume discovers that there are no "impressions of sense" from which we could ever have derived belief that take the form of an empirical generalization.

Hume argues that there is no impression from which to derive our idea of necessary connection. In other words, the mind forms a "habit of association" (Wolff, 1966, p. 107). Therefore, if we believe in causality, the force of our persuasion cannot have come from experience. Rather, it must have arisen on the basis of mental process operating on the sensory givens in experience.

As Hume indicated, our everyday beliefs about the "real" world, and about its contents, are grounded not simply in impressions, rather, more importantly, in non-empirical factors which actually serve to determine the experiential nature of the "objects" and "world." These non-empirical factors are called, "principles of association" by Hume. Behind the operations of these principles, what Hume finds is, not reason, but rather, custom, i.e., the force of habit. We grow accustomed to forming expectations in advance of experience. They are "ways" of experiencing, and relating sensible input. Without them, we would experience neither a flow of events, nor a "world" within which this flow takes place. Therefore, the scientific project of building up an edifice of objective knowledge cannot be rationally or empirically justified, and the best we can hope is a set of convictions and beliefs that serve us effectively, or ineffectively. Further, the set of convictions and beliefs become sedimented as predispositions that serve to organize our "sense" of experience.

According to Husserl (1970), Hume, however, failed to see the fact that the subjectivity engendering the world is, also the living subject whose experiences take place in the world. Husserl (1970) puts the point, "that 'world-constituting subjectivity' might itself be 'incorporated' as an object-content within the horizons of validity set up by its own constituting activities" (p. 182). It means that even though

Hume successes in overcoming objectivistic biased viewpoint, he still fails to recognize the co-constitutive process between the subject and the world. This is what Kant keenly recognizes.

Kant hopes to account, not for the fact of scientific truths about nature, but rather, for the conditions which underlie the possibility of this fact. It is Kant's belief that Descartes and Hume made their fatal mistakes when they embraced the objectivist assumptions about the nature of "world" and "experience." By assuming that the world that would correlate with objective knowledge is transcendent to human experience and conscious life, they were led to reject the possibility of an indubitable connection between the subject of experience, and the objects in the supposedly transcendent world.

As Husserl (1970) elaborates, the scientific attempt to pin down a correct "sense" of the reality surrounding us represents an effort that takes place within the horizons of the world we take for granted, as existing in advance of all practical and theoretical cognition. Carr (1977) adequately indicates the implication of Husserl's point:

> The scientist sees himself [*sic*] as overcoming the relativity of our "merely subjective" pictures of the world by finding the objective world, the world as it really is. Husserl shows that the scientist can just as easily be seen, by a shift in perspective, as a man [*sic*] who himself [*sic*] has a particular sort of picture of the world, and that as such both he [*sic*] and his [*sic*] picture belong within the "real" world, which Husserl calls the life-world. (p. 207)

All Husserl does is describe the way in which being is present to us in experiences. Therefore, the key to understand the presence of things in experience lies in the intentional nature of our conscious access to things, thus, can be disclosed by phenomenological method. Following Husserl, Merleau-Ponty (1962) explores phenomenological method that properly deals the co-constituting process between subject and 'the world' through the notion of 'body.'

Merleau-Ponty's notion of perception as a critique on objectivistic bias

Merleau-Ponty is suspicious of the "received" views on perception.[8] Merleau-Ponty observes that the received views on perception have been unproductive when applied to case studies in psychopathology. Merleau-Ponty (1962) makes fully explicit this point that perception is neither passive reception of data, i.e., in the case of Hume, nor a product of meaning-amplification, i.e., in the case of Kant or Husserl.

On the basis of his reflections on case studies of "psychically-damaged" patients, Merleau-Ponty (1962) is led to conclude that there is a dimension of bodily experience that is neither "cognitive" nor "physiological;" a dimension that is our living insertion within the common sensible world.[9] Perception is the ground of reflexive thought, insofar as Merleau-Ponty claims that our predicative level of conscious awareness is somehow "awaken" and continually sustained by the body's living insertion.

---

[8] The terms such as 'logical positivism,' 'logical empiricism,' 'deductive-nomological and causal law system' are called received view (Polkinghorne, 1983, p. 90). Following the received view, all rational explanations must ultimately lead back to the physical, quantifiable processes, even explanation of the life of the human spirit and consciousness. Bernstein (1983) explains this "received view" in detail with various implications.

[9] Concerning Merleau-Ponty's analysis (1962) of deficient modes of perceptual activity, the case for "phantom limb" is discussed in pp. 76-89, "Schneider" in pp. 98-147, and "girl who learns not to speak" in pp. 160-166.

Nonetheless, far from renouncing the significance of reflexive thought, Merleau-Ponty (1964) is trying to capture the significance of reflection. Merleau-Ponty (1962) asserts, "Without reflection, life would probably dissipate itself in ignorance of itself or in chaos: but this does not mean that reflection should be carried away with itself or presented to be ignorant of its origins" (p. 19). In other words, the evidentness of a thing's presence is not something built up by intellectual synthesis.

Further, Merleau-Ponty (1962) elaborates on the phenomenological insight into the fundamental nature of episteme:

> All my knowledge of world, even my scientific knowledge, is gained from my own particular point of view, or from some experience of the world without which the symbols of science would be meaningless. The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny and arrive at a precise assessment of its meaning and scope, we must begin by reawakening the basic experience of the world of which science is the second-order expression. Science has not and never will have, by its nature, the same significance qua form of being as the world which we perceive, for the simple reason that it is a rationale or explanation of that world. (p. viii)

Hence, as already mentioned in chapter II, Merleau-Ponty's position, in many respects, is as more a refinement than a rejection of Husserlian position. Husserl sees the life-world as arising out of the constituting activity of transcendental subjectivity, however, both Heidegger and Merleau-Ponty choose to view the "world" as a field of

access that first opens itself for interrogation in the instant of our coming to birth as existential beings.

From Merleau-Ponty's (1962, 1968) viewpoint, consciousness does not "experience" through the body; it comes to birth in the body, as a dimension of the body's interrogative posture. Thus, Husserl would place the principal focus on "consciousness (although, as embodied)," however, Merleau-Ponty choose to begin with "the body (together with consciousness)" (Merleau-Ponty, 1968, pp. 190-191). Stated differently, to Husserl, the conscious subject organizes the body's capacity for movement: giving intentional direction to the movement of the body. It would seem that consciousness subtends the function of the body, whereas on Merleau-Ponty's view, the body clearly subtends our conscious life (Madison, 1981). In short, Merleau-Ponty is interested in how the body gives rise to conscious life (Ihde, 1998, pp. 65).

Merleau-Ponty (1962) suggests that the efforts of phenomenology are concentrated on "re-achieving a direct and primitive contact with the world" (p. vii). Merleau-Ponty (1968) describes the nature of this "direct and primitive contact" as,

> With the first vision, the first contact, the first pleasure, there is initiation, that is, not the positing of a content, but the opening of a dimension that can never again be closed, the establishment of a level in terms of which every other experience will henceforth be situated. (p. 151)

Since the goal of phenomenology is to describe the world as it is "lived" by the experiencing subject. Therefore, Merleau-Ponty (1968) is immediately drawn into

investigation of the nature of our perceptual access to the world. It is in terms of this access that people are initiated to the horizons of involvement within which people must orient themselves both spatially and temporally.

Hence, horizons, as Merleau-Ponty (1968) discovers, are not given through the act of mind or consciousness, rather, through a bodily interrogation that serves as the anchor for our perceptual orientation. Merleau-Ponty (1968) insists,

> We do not have a consciousness constitutive of the things, as idealism believes, nor a preordination of the things to the consciousness, as realism believes . . . . --we have with our body, our senses, our look, our power to understand speech and to speak, *measurants* for Being, dimensions to which we can refer it, but not a relation of adequation or of immanence. The perception of the world and of history is the practice of this measure . . . . If we are ourselves in question in the very unfolding of our life . . . . it is because we ourselves are one sole continued question, a perpetual enterprise of taking our bearings on the constellations of the world, and of taking the bearings of things on our dimensions. (p. 103)

The role of the body sustains "the underlying movement through which we have installed ourselves in the world" (p. 104). Because, Merleau-Ponty's concept, body, is not the conventional notion of the body as "an object in the world, under the purview of a separated subject." Rather, the body is "on the side of the subject; it is our point of view on the world, the place where the spirit takes on a certain physical and historical situation" (Merleau-Ponty, 1964, p. 5). In other words, Merleau-Ponty's

body is 'embodied world' or 'institutionalized body.' This point will be discussed in chapter V and VI, in detail.

In the realm of "objective" space, where all points, including the objective position of my objective body, lie in objective relation to one another. On this objectivistic account, it would be nearly impossible to understand the relationship that builds up between the body and the world, e.g., a blind man, his cane, and things in the world.[10] As Merleau-Ponty (1962) explains:

> The blind man's stick has ceased to be an object for him, and is no longer perceived for itself; its point has become an area of sensitivity, extending the scope and active radius of touch, and providing a parallel to sight. . . . To get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body. (p. 143)

---

[10] In similar vein, Nietzsche (1967) insists, on the provisional character of the logos of the moment: "Against positivism, which halts at phenomena—'There are only facts'—I would say: No, fact is precisely what there is not, only interpretations [emphasis added]" (p. 267). Further, Derrida (1976) criticizes the objectivistic biased approaches from the fact that differentiation proliferates without limit. Following Derrida, knowledge unfolds as a dialectical movement of thought whose mutation over time cannot be reduced to a fundamental structuring opposition. Therefore, to Derrida, "reality" is an endless slippage of meaning that conforms to no predictable itinerary.

Similarly, according to Derrida (1976), the mind attempts to evade the unpleasant reality of *différance* by interpreting the psychological experience of speech as confirmation of the self's presence to itself. This privileging of speech as token of timeless, unmediated meaning entails a corresponding devaluation of the written word which is denied any specific attributes as a medium of communication: writing is merely an instrument for the representation of speech. That is, in order to entertain the fantasy of enduring truth, the mind must obscure the revelation writing affords of thought as a historical process.

Derrida suggests that the longing for the centered universe of meanings represents a willful forgetting of the reality of *différance*. Human being habitually overlooks the productive character of knowing in order to reside within a world of reassuring certainties. Language itself, due to its characteristic of abstraction, continually obscures the specific character of the present.

Hence, according to Merleau-Ponty's discernment, the "body" into which we incorporate things of this sort is not the "objective" body, rather, the lived body; one that is intentionally related to the world.

In a summary of body with relation to mind and consciousness, Merleau-Ponty (1964) explains that:

> The perceiving mind is an incarnated mind. I have tried, first of all, to re-establish the roots of the mind in its body and in its world, going against doctrines which treats perception as a simple result of the action of external things on our body as well as against those which insist on the autonomy of consciousness. These philosophies commonly forget—in favor of a pure exteriority or of a pure interiority—the insertion of the mind in corporality, the ambiguous relation which we entertain with our body and, correlatively, with perceived things. (pp. 3-4)

For Merleau-Ponty, the body is not originally given in my experiences through a phenomenal description or prescription, but rather, is itself the very anchor of our intentional activity. Differently state, the body is itself intentionally related to the world. Merleau-Ponty (1962) puts this point:

> We merely want to push back the boundaries of what makes sense for us, and rest the narrow zone of thematic significance within that of non-thematic significance which embraces it. (p. 275)

Therefore, "the feeling that one feels, the seeing that one sees, is not a thought of seeing or of feeling, but vision, feeling, mute experience of a mute meaning"

(Merleau-Ponty, 1968, p. 249). Merleau-Ponty concludes, acknowledging the foundational role of the living body in perception, "it is the body and it alone. . . . that can bring us to the things themselves," and in such a way that we "coexist with them in the same world." (p. 136)

My flesh literally "encroaches" upon the world, so too does the flesh of the world encroach upon my flesh. The flesh that is my living body reaches out, and in so reaching, is taken in the world, thereby opening a "dimension' or "level" in terms of which all subsequent experience will be situated (Merleau-Ponty, 1968, p. 221). As a refinement of Husserl's critique on objectivistic biased view, Merleau-Ponty makes clear in terms of his notion of 'perception' that the flesh-body is the anchoring point in co-constituting process between consciousness subject and the world. Moreover, Merleau-Ponty provides us a proper way of understanding the relationship between body and technology. In chapter V and VI, this point will be explored embracing Gebser's and Peirce's insights.

Gebser's critique on dualism as objectivistic bias

While Merleau-Ponty demonstrates the absurdity of objectivistic bias from the notion of body, Gebser (1985) provides broader context for that matter. For the rationalists, everything non-rational is abjectly irrational, just as for the Indian our optical world is *maya* (appearance).[11] Indeed, as Gebser (1985) indicates, the pre-

[11] Mander (1978) provides a good example that illustrates the difference in two different consciousness structures. One day, television crews shot images of the desserts and Hopi Indians' sacred dances at Black Mesa in Arizona. As "good" television gives so-called balanced (rational) report, they also included in their report images of huge mining cranes and interviewed members of the Bureau of Indian Affairs. The Hopi elders limited the reporting of the crews, since they felt that photographing their religious "objects" and ceremonies would steal and undermine their "aura." A week later, the report was shown on television for four minutes on the evening news which was followed by a commercial for Pacific Gas and Electronic on the growing energy crisis and the need to develop energy resources (pp. 39-43). Although the television reporting was an earnest attempt to report the Hopi

rational is not only having validity in the past, but also still active today from within its own structure which, along with other structures, is part of our constitutional make up. Over and above that, Gebser speaks of the impossibility of losing the archaic structure altogether, inasmuch as its (ever-present) origin is still present within us.

Just as the magical structure is almost impossible to represent, because it can be distinguished only by experiencing it, just as the mythical structure is also difficult to represent and is distinguished by its capacity for being experienced, just as the rational structure is merely thinkable and demonstrable, and is only to a small degree capable of experiencing or being experienced, following Gebser (1985), the integral structure is difficult to represent, and is distinguished only by being perceptible. Here, the Gebser's use of perceptible is very close to the Merleau-Ponty's notion of perception, or what the author calls "embodied vision," in the sense that what Gebser says "perceptible" is not related to the condition of objectified space or time, rather related to the matter, "I can -- ;" the embodied potential. Gebser expresses this point as, "At one time, man [*sic*] himself [*sic*], or, more precisely, the human body, was the instrument of sight or thought across distances—tele-vision and telesthesia—or the perceptor of the faint radiation of the aura, while today man [*sic*] fashions instruments for such purposes" (p. 131). It means that as the consciousness structure mutated from magic and mythic to mental-rational consciousness, so does the potential of "I can— ;" the context or radius of embodiment.

---

predicament, the medium of television could not convey their message, the message about the Hopi conception of reality and how they care about the land, the space, the wind, and the time all as sacred. Because the built-in "rationality" of the medium, television, and the consciousness structure of television crew cannot know what is rational to Hopi Indians (concerning this, pp. 328-334).

For Gebser (1985), perception is not merely observing, which is preeminently typifies the mental/rational structure, but is a potential that conjures up all forms of appearances and expression. Consequently, perception is capable of apprehending the *Diaphane* (transparent luminosity), which cannot be realized by merely seeing, hearing or feeling. However, it should be emphasized that perceiving is not a transcendental super-sensuous act. Concepts such as intuition and the like would be absolutely out of place to use them to characterize what Gebser mean by perception.

For Gebser (1985), perception is, rather, a holistic happening, a holistic condition of the self ("Sich"). One can neither hear, nor show, nor see the *Diaphane*. Rather, through perception the world is heard, displayed, seen, and becomes the living presence of wholeness through the flesh of body, in other words through the institutionalized (embodied) body.

In this sense, Gebser (1985) insists,

> Descartes, the father of modern objectivistic bias, with his premise of *cogito*, transposes the action or movement confirming or substantiating the existence of the ego essentially from the psychic-vital realm into the psychic-mental; and this is merely a kind of hypergradation that does not eliminate the *ergo*. (p. 97)

The "either-or" of dualism comes into prominence as an unbridgeable alternative and threatens to place everything in doubt. We are presented with the choice: either we must have progress as advocated and promised by the "exoterics," i.e., the technicians and technocrats; more of the quantification and progression way from origin, or we must undergo a return to origins as preached by the "esoterics," i.e., the occultists. In

either case, i.e., forcing the wheel forward or turning it back, we are confronted with an illusion as illusory as any mere forward or backward motion as such.

Following Gebser (1985), to mention the term "duality" means to focus on one of the consequences of perspective. The dualism of present days is considerably stronger than the dualism of the earlier centuries and is uncompromisingly fixed. Because perspective fixes the observer as well as the observed. It fixes subject or human on the one hand, and the world on the other. As compelled to emphasize ego ever more strongly due to the isolating fixity, human faces the world in hostile confrontation. The world, in turn, reinforces this confrontation by taking on an ever-increasing spatial volume or extent that the growing strength of the ego attempts to conquer (Gebser, 1985, p. 94).

This dualistic opposition of contraries, whose positive aspect is the concretion of human as well as of space, includes, at the same time, the negative component recognizable in the fixity and sectorization; the fixity led to isolation and the sectorization to amassment. Hence, the consequence of the fixity again provides the foundation for the technological milieu. These developments are the conclusion of a process in our day that was already prefigured as a negative possibility in the very beginnings of the mental structure.

Following Gebser (1985), the roots of the negative possibility of modern technological milieu can be traced to the inadequacy of the synthesis of duality, an inadequacy manifest in abstraction and quantification. Gebser (1985) insists,

> As long as the moderating quality of the mental consciousness was still effective, abstraction and quantification were only latently capable

> of negative effects. But when moderation was displaced by the immoderation of the *ratio*, a change most clearly evident in Descartes, abstraction began to transform itself into its extreme form of manifestation (best defined by the concept of isolation), while the identical process led from quantification to amassment and agglomeration. (p. 11)

To sum, the conception of human as subject is based on the conception that the world or the environment is an object. Human is not just in the world, but rather begins to possess it. After objectivistic duality established, the world no longer possessed by heaven, human becomes a conscious "possessor," if not of the heavens, at least of the earth. As

Gebser (1985) notifies, this shift is, however, "a gain as well as a loss" (p. 12).

Gebser's idea has important implications for the objectivistic biased view of the world. First, the acting person is no longer viewed as a subject. Second, individuality is also understood to be co-constituted as collectivity. And third, the world cannot assume an objective status. The world is now understood to be a polarity, and therefore the world is rationally ordered, but not in the rigid manner prescribed by Cartesian objectivistic biased view. In the four-dimensional world categories that were formerly thought to be mutually exclusive now interpenetrate each other.

Objectivistic biased view and technological utopia

As already Husserl (1970), Merleau-Ponty (1962, 1968) and Gebser (1985) discuss in the early part of this chapter III, there is something about human

experience and the human world that cannot be adequately reckoned with by the methods and practices of the quantificational, objectivistic standpoint, then we would have more reason to take seriously contemporary criticisms, such as Heidegger (1977), Ellul (1964), and Mumford (1963), of our increasingly technological way of being.

It is not enough to point out the anomalies of our technological milieu. Rather, we must show why the anomaly in question is not a mere research problem. The phenomenological investigations of Merleau-Ponty (1964) and Gebser (1985) are attentive to the non-quantifiable dimensions of human experiences, and which is willing to recognize the fundamental contingency inherent in all human thinking. As the development of humanity is increasingly determined by values grounded in a technological viewpoint that is itself grounded in the misguided notion of reason advocated by the Cartesian rationalists, It becomes pertinent to appreciate the relevance of Merleau-Ponty's and Gebser's philosophy for philosophical considerations of technology in particular and social science in general.

The promise of phenomenology lies in its resolve to resurrect the world of everyday experiencing, to make evident the role of the lifeworld as the fundamental reality from which all conceptions and constructions of other domains of existence start, and to which these domains essentially refer (Gurwitsch, 1966; See also Schutz (1953), for the understanding of the fundamentality of lifeworld with relation to social science in particular). The birth of scientific method came about from a blending of rational and empirical procedures, a blending that figured most prominently in the work and thought of Galileo. Galileo was hardly the first to blend

demonstration with empirical observation, but his result were the most dramatic, and were to have the greatest impact on subsequent generations of scientist. For this reason, it is not uncommon to see reference to the "Galilean world-view" in discussions of the birth and impact of the new scientific attitude. (Gurwitsch, 1974)

The Galilean world-view transformed human's view of nature and refined the essence of human rationality. The Galilean view operates on the basis of the assumption that it has captured the true sense of rational explanation, and thus also the true sense of "reason" as the guide to humanity's rational development. In the process, the methods of the natural sciences are embraced by the human science, to the point where it is simply taken for granted that all rational explanations must ultimately lead back to the physical, quantifiable processes, even explanation of the life of the human spirit and consciousness.

By the early decades of the 20th-century, the new idea of rational calculation had entered the domain of the working environment. The idea was to train the worker and to design the technological "interfaces" in ways that would promote an optimal relationship between worker and environment (Braverman, 1975). The goal of engineered efficiency became a dominant theme of reflection, eventually, as we can see this tendency in Feinberg (1977), coming to expression as the ideal of "a rationally determined future."

From a new idea of radical calculation as a culminating form of the objective-biased viewpoint, the contingency of lifeworld is precisely the "subjective-relative" dimensions of human experiencing that had to be "removed" from consideration by the exact sciences, in order to pave the way to their "objective" consideration of the

nature of reality. Thus, naturalistic psychology including scientific "behaviorism" began from a picture of reality that had been developed on the basis of very careful abstractions. The cognitive science movement that dominates psychology today, and which serves as the foundation for researches for communication field, seems to be guided by the same sort of picture, to the extend that it fails to recognize the crucial difference between "data" and "sign," as is the case of the mathematical theory of communication. The technological achievement nourished from abstraction comes to birth in a world: a world that is full of human intentions and purposes; a world more complex and ambiguous, at least, than anything considered by means of scientific abstraction. Stated in other way, data runs around in computers, however, people deal sign insofar as it is related to the realm of meaning.

The natural science, whose methods so carefully abstract all human bias, except, of course, the bias for "true objectivity", have been popularized as true exemplars of science in general, even the human sciences, and especially psychology. The sciences of human and in particular the science of human behavior, thereby aspire to reach the levels of achievement realized by the physical science (Bernstein, 1985). In the process, the human sciences take on the methods and goals of the natural sciences, and embrace the world-view that dichotomizes "mental life" and "physical life."

If we develop an objective-scientific method aimed at extracting the meaning of this world from its presence to us, it becomes difficult indeed to see the meaning. Because, we see the thing, not the pre-experiential structures that make the appearance of the thing possible. Since Husserl (1970) indicates that:

> This idea of objectivity dominates the whole universitas of the positive science in the modern period, and in the general usage it dominates the meaning of the word "science"...[But] the contrast between the subjectivity of the life-world and the "objective," the "true" world, lies in the fact that the latter is a theoretical-logical substruction, the substruction of something that is in principle not perceivable, in principle not experienceable in its own proper being, whereas the subjective, in the life-world, is distinguished in all respects precisely by its being actually experienceable. (p. 127)

If people remain unaware of the nature of perceptional process, it is easy to see that people will simply take for granted the "obvious" existence of a wholly independent world within which people think and operate as "subjective" beings. From this naïve conception of the relationship between the human beings and their world, it is very easy to grow into the posture of objectivism, and from this posture, to work for an objective determination of the "true" nature of our understandings.

The ideal of a technological utopia or the ideal of a "rationally determined" future of human circumstance comes from this orientation. At the base of the ideal lies the belief that human beings can eventually gain enough conceptual leverage over their situation to be in position to determine adequately the nature of the consequences of their actions. People can, then, choose the actions that will benefit their situation, and abstain from any actions that would be harmful to our situation. However, as already discussed in Chapter II and early part of chapter III, the whole

point of Gebser's and Merleau-Ponty's philosophy are to emphasize the impossibility and the absurdity of this "rationalizing" viewpoint.

In short, the objectivistic and rationalistic assumption leads to a view of human circumstance as something that can be "rationally determined" in accordance with the reductive, calculative, abstractive methods of the exact science. However, we cannot hope to understand the nature of the "technological phenomenon" from the standpoint that seeks only to isolate the nature of the physical relationships that hold between the technology and the user. Rather, we must seek to understand the intentional nature of our relationship to technology, for in the end, it is this relationship which generates the prescriptions through which we experience technology, and through which we en-world ourselves within an increasingly complex technological milieu. Before exploring the critical approaches, it is necessary to clarify what is the idea of technological utopia as an extreme, yet occupies majority, exemplar configuration of objectivistic bias.

Technological utopia. The promise of technological utopia is grounded on the objectivist paradigm. This aspect is particularly evident in Feinberg's work (1977). As Feinberg insists:

> More and more of what happens in the world is subject to human intervention and control, so that more than ever before, we have the power to determine the future, rather than to predict it [emphasis added]. Given this rapidly developing power which is the result of what we have learned about the world and ourselves, we should be more concerned with choosing what future we want for the world

> [emphasis added] than with divining what providence or blind chance has in store for us. We should recognize that to an ever increasing extent, the future is what we make [emphasis added], and endeavor to make it what we want it to be. (p. 8)

Feinberg (1977) believes that it is especially crucial for people to recognize the fact that the future "is ours to determine" in virtue of the increasingly refined and powerful potential for drastic changes in human and their society," a potential that comes from the advances in "engineering" technologies.

Furthermore, Feinberg (1977) inserts, "computer technology . . . . has raised the possibility of creating artificial intelligence comparable to human intelligence" (p. 11). As a conclusion, he says, "there is reason to believe that we can accomplish almost anything we wish" (p. 14). Hence, he further insists, "it seems reasonable to suppose that we will eventually be able to understand the scientific laws relevant to any aspect of nature and *man* [*sic*] that interests us" (p. 130). This fearless optimism follows from his conception of the nature of complex system. Feinberg (1977) asserts that,

> The problem is not that there is something more to the system than science can reveal, or that some mysterious laws act in complex systems that are not found in simple ones, but rather that we not in a position yet to deduce what the known laws of science imply when the components of a complex systems act upon one another. (p. 98)

Within the realm of this sort of configuration, human beings would obviously need to employ computers, which would mean, among other things, learning how to

"compute" the laws of interaction that hold between human being. Even though people have not learned how to compute laws of this sort as yet, however, following this optimistic viewpoint, there is no basis for claiming that such a feat is impossible. Feinberg's three basic optimistic claims are indispensable for clarifying objectivistic technophiles' position. Feinberg (1977) insists,

> We could imagine an especially effective computer which had been programmed with the known laws governing the interaction of components of some system . . . . and which by numerical solution of these equations would be able to make predictions about the behavior of the system in a variety of circumstances . . . Such predictions might well be made without the programmer or the computer having an intuitive understanding of the behavior of the system. (p. 100)

Then, what is needed for human being is only to learn how to ask the "right" questions. Secondly, Feinberg (1977) claims,

> There is nothing intrinsic to complex systems that differentiates them from simple systems. It is rather a weakness of the human intellect in dealing with complexity which makes it appear to us that there are intrinsic differences. Therefore, we must look for the improvement of our way of thought, rather than the obtaining of some special insight into the nature of complexity, as the direction that post-modern science will follow in bringing more of the world into the human understanding. (p. 106)

Further, continued from the first and the second claims, Feinberg (1977) puts,

> If we are going to continue to intervene on a major scale in the environment, or eventually in our won biological process, we must develop better intellectual tools for the prediction of long-term effects. This task is made more difficult by the many interacting factors that exist in the environment, and in human society. But the challenge of dealing with such problems should attract the most gifted among us, and I fully believe that they will successfully respond to it. When that is done, we may have a true ecology or science of the environment, as well as a true sociology, or science of society . . . . We can then rationally decide how to achieve the world that we want. (pp. 130-131)

Feinberg concludes that human being's limitations can be removed through the proper development of scientific reflection, computational approaches to the study of complex systems, and accurate long-range forecasting techniques. Here, what is should remember is that Feinberg begins with the assumption that humankind's chief aim is to become "as independent as possible of environmental fluctuations" (p. 112).

Finally, Feinberg (1977) argues,

> From the point of view of basic science, no aspect of the natural environment is really essential to human life. For example, we could make our food by chemical synthesis, extract our minerals from sea water . . . . etc. Indeed, in many cases we are doing just these things on a small scale, and nothing in the laws of nature forbids us from doing them on a large scale. (p. 113)

Therefore, Feinberg concludes, "it seems much more likely that it is possible to design artificial environments that more conducive to human well-being than the one in which we evolved" (p. 117). Accordingly, the fundamental question is not "what must we do to maintain the balance and harmony of our natural milieu?" Instead, we should be asking ourselves: "What sort of environment do we want?" (p. 117). Through his argument, Feinberg (1977) would have us quantify the essence of our human existence and insert the result within a computational matrix devoid of all ambiguity and contingency. In everyday life, however, Feinberg's view is not the actual, and real case, rather exactly contradictory. The ambiguity is the very essence of communication and semiosis. Without the ambiguity, just in the realm of the pure clarity, there is no communication, the end of semiosis; then there is only the calculation.

Feinberg's (1977) vision of a rationally determined future and with this, the ideal of a technological utopia is an misguided and indefensible, as is the objectivist conception of scientific rationality. For they are both grounded in the same illusions about our capacity "to see more clearly" than the structure of human experience will allow.

The problem is not that people have yet to realize fully their capacity to see with the mind's eye, as Descartes was fond of imagining. Rather, the problem is that we must first see with the eye of the body. Therefore, people must reason from the ground of the body's living within the common sensible world. In other words, it would seems that people cannot hope to conceive the proper relationship between reason and technology without first taking into account the implications that

following from a proper understanding of the different consciousness structures and the nature of intentionality, where Gebser (1985) starts his investigation.

Mutation, not "progress". With relation to technological worldview, it should be said that our description does not deal with a new image of the world, nor with a new conception of the world. As Gebser (1985) indicates, a new image would be no more than the creation of a myth, as all imagery has a predominantly mythical nature. A new image would be noting else than a new mysticism and irrationality, as mythical characteristics are inherent in all contemplation to the extent that it is merely visionary. Gebser says, "a new conception of the world would be nothing else than yet another standard rationalistic construction of the present, for conceptualization has an essentially rational and abstract nature" (p. 7).

According to Gebser (1985), all "making," whether in the form of spell-casting or of the reasoned technical construction of a machine, is an externalization of inner powers or conditions and as such their visible, outward form. Every tool, every instrument and machine is only a practical application (that is, also a perspectival-directed use) of "inherent" laws, laws of one's own body rediscovered externally. Therefore, all such technical achievement or discoveries are pre-given in us.

For the Gebserian viewpoint, every invention is primarily a rediscovery and an imitative construction of the organic and physiological pre-given "symmetries" or laws in human's structure that can become conscious by being externally projected into a tool. This is equally true of the natural capacities at the disposal of magic human such as telesthesia and telepathy, but it is not true of our radio and television. Because magic human does not need this exclusion at all because, they live and move

and are absorbed in a spaceless-timeless world of which they are a part. In this respect the act of yogis are not miracles but natural occurrences.

Human in the modern world forfeits capacity of telepathy through the unfolding of consciousness and has replaced them by their projected objectivation or externalization into television and radio. However, as Gebser (1985) acknowledges, we might also say that we would not have such instruments if we did not possess within ourselves the genuine capability of such achievements as they permit. This consideration also points up the limits of technology; "technology is definitely unable to bestow on human the omnipotence that he [*sic*] imagines himself [*sic*] to have. On the contrary, technology necessarily leads to an 'omn-impotence' to the extent that the process of physical projection is not realized" (p. 132). However, Gebser insists, we have in any event a possibility of resolving the problem of technology, a problem which cannot be solved merely by further technological advancement.

The rearrangement of certain capacities in human from the qualitative, natural instrumentality of early human into the externalized instrumentality of the machine entailed more than mere quantification. Early human, for instance, with their merely vital or magic powers was not able to think in modern sense. And yet it would be an injustice to regard this as a negative or deficiency, as modern people generally do, for this is equivalent to questioning the sense or meaningfulness of life. Nevertheless, the present threat is an atomization of the material-spatial world, and there is no difficulty in determining that this atomization has already taken on tangible and palpable forms.

As Gebser (1985) indicates, it is incorrect to regard the machine as being the initiator of all present-day horrors. Following Gebser, the breaking forth of time, what

led to the invention of the machine, lay outside human's mental or rational manipulation and retained its autonomy in modern technological milieu. That is, it remained free of human's waking conscious control, and consequently "the motoricity of the machine arbitrarily began to dominate and compel human into its dependency" (p.301). Consequently, as Feinberg's claim (1977) clearly shows, those who in their technological overconfidence fail to recognize the seriousness of our situation. Thus, they insistently reiterate that human beings have "advanced majestically" with their "progress" (p. 545).

We have been accustomed to call "the evolution of humankind" in its temporal procession, people should have to keep in mind that this is merely an attempt at structuring the past for the purpose of making a survey. Concepts such as "evolution" and "progress;" interpretations of those concepts often mislead people, though people should eliminate it as much as possible. Thus, we shall regard the comfortable idea of a progressive, continuous development as inadequate. If people want to formulate this in biological, rather than physical terms, people can say that such an on-going process is mutable, that is, it operates in the manner of mutation, spontaneously and independently, by leaps.

Regarding the notion of 'mutation,' Gebser (1985) indicates:

> The manifestation of this mutational process should not be construed as a mere succession of events, a progress or historicized course. It is, rather, a manifestation of inherent predispositions of consciousness, now incremental, now reductive, that determine man's [*sic*] specific grasp of reality through and beyond the epochs and civilizations. Once

> more, it should be emphasized that we must remain suspicious of progress and its resultant misuse of technology (to the degree that we are dependent on it and not the reverse), as well as of the doctrines of evolutionary superiority and voluntarism. The voluntarism which is clearly evident since Vico, has transferred the capacity of signification from an origin presumed to be "behind" all being, into human reason and will. (p. 41)

The proper understanding of Gebser's notion of mutation is crucial for understanding the meaning and nature of technological milieu. Because, from this notion, we are able to perceive the process that are on going invisibly until the process have become sufficiently strong and virulent, therefore become manifest themselves.

What appears to people as continuous is nothing but a series of stages of transition people have subsequently introduced into the course of events, and by means of which people endow what is happening with a logical, causal, determining and final character. The concept, "mutation" best depicts the leap-like processes in consciousness. Moreover, it enables people to keep their distance from such concepts as progress, evolution and unfolding.

Every mutation in consciousness is occasioned by the sudden eruption of possibilities and properties, but suddenly incorporates them into a new structure. All this appears to sudden to people, only because certain "processes" take place apparently outside spatio-temporal comprehension and "conceivability," so that people are not able to place the causal nexus in time and space. In other words, mutation has an emergent character.

Mutations of consciousness are associated with concepts like progress, evolution and unfolding, at best, only dialectically, in psychological or biological terms. Within the mutations of consciousness there takes place a process of rearrangement beyond the reach of mere space-time-bound events, an emergent process, that manifests itself discontinuously, or by leaps and bounds. These are the transpositional processes that have made possible the assimilation of the ideational operation of the origin through out the consciousness of human. The origin itself rises in consciousness through mutations in awareness, which is, Gebser (1985) calls, the integrational process.

Defenders of the idea of progress, such as Feinberg (1977), de Sola Pool (1990), assert that our age and our civilization are synonymous with a superior development, but this view has clearly put in question by their very achievement, and most especially by the way in which they have been applied. The results, and their applications, show that people must guard against self-esteem of whatever kind, and especially presumptuous overestimations; above all, the one fostered by the biological postulate of a development into something higher and better, which has engraved itself deeply into the modern mentality. For example, Comte, one predecessor of received view in the realm of social science, postulates progress as purposive and goal-directed, and which reveals his perspectivistic fixation. With every new mutation of awareness, consciousness unfolds more powerfully; in contrast, the concept of development that is associated with continuity allows no room for the possibility of mutation that is discontinuous.

As already discussed in Chapter II, Gebser (1985) offers, as a working hypothesis, the four or five different structures that he designates as the archaic, the magic, the mythical, the rational and the integral rather than continuous progress that has developmental characteristic. However, we must always keep it in mind that these structures have by no means the character of the past tense, but are present in every one of us today, sometimes more or less latent, sometimes in quickened form.

Therefore, origin, according to Gebser (1985), is ever-present. It is not a beginning, since all beginning is linked with time. So far as the choice of the word "structure" is concerned, structures are distinct from "planes," or "states." Because those terms imply something spatial, and hence foster the mode of looking at things in perspective. Structures, for Gebser, are no mere spatial textures, but may indeed be textures of a space-time or even non-space-time character. The results of these mutations are latent in each and every one of us in the form of various consciousness structures and continue to be effective in us.

Reviews concerning the dangers of modern technological milieu

Three approaches concerning the views on technology

Borgmann (1984) suggests a very useful idea concerning three possible views on technology. For Borgmann, all views on technology are essentially determined by one of three approaches: the instrumental, the pluralist, and the substantive.

The instrumental view is that technology is simply a means to an end or a value-neutral tool in the service of human values and goals. Therefore the instrumentalists believe that political activity still directs technology. Thus, the instrumentalists form a spectrum of views and debates on technology ranging from

the politically left to right. The liberal democratic view that pervades Western democracies as well as the socialist and Marxists views, as is the case in Marcuse's *One Dimensional Man*, perpetuates the simplistic instrumental view that technology is a means to an end.

According Heidegger (1977), the instrumental view was outdated by the quantity of technical proliferation and the subsequent qualitative change that result in social, psychological, and intellectual process. The instrumentalists refuse to relinquish the idea that someone, some group, some governing body, or "humanity" in general is in control of technology. The instrumental view fails to differentiate technology in our modern culture from technology in past traditional cultures where means were "always and inextricably woven into a context of ends," therefore, Heidegger claims that the instrumental view is "correct" but not yet "true" since it "still does not show us technology's essence" (p. 6).

Secondly, there are the pluralistic approaches that receive the least attention in Borgmann's analysis since they suffer from inability to see the collective technological "forest" for the individual technological "trees." As Borgmann (1984) puts it, the pluralists see "no clear problem of technology at all, merely an interplay of numerous and various tendencies" (p.15). They focus on individual systems and technologies, the details of their evolutions, specific interactions between one technology and another, and particular counterexamples to both the instrumentalist and substantive approaches. In short, the pluralists, by attempting to master the overwhelming plethora of minute details and interaction of any given technology, get lost in a sea of information without any vision of an underlying pattern or essence of

the whole. In one example or stage of evolution for certain technology, the pluralists might adhere to one theory, while in another interaction or evolutionary stage, an opposing theory might be upheld.

In contrast to pluralist approach, Borgmann describes the most "ambitious" and least popular substantive approach to technology for which Ellul is the chief representative, and Heidegger is included in this category as well. According to Borgmann (1984), the substantive view is characterized by the affirmation of technology as an autonomous force; Borgmann says, "a force in its own right" that "shapes today's societies and values from the ground up and has no serious rivals" (p. 9).

Borgmann claims that the substantive view is usually "anti-technological" since autonomous technology is portrayed as a malicious force.[12] Borgmann (1984) claims that "efficiency" is an incomplete notion, incapable of being the sole goal of technique, as Ellul (1964) would describe it, because it requires "antecedently fixed goals on behalf of which values are minimized or maximized" (p. 9). By itself, this exemplifies a gross misunderstanding of Ellul's idea of technique that operates with "absolute efficiency," not "efficiency" as Borgmann would have it (Lovekin, 1991).

Ellul (1964) describes "absolute efficiency" as that which is determined by the quantitative calculations of other technicians in order to illustrate the self-regulating character of modern technology that rejects any antecedently fixed values. Defining

---

[12] At this point, Borgmann reveals much controversial understanding of Ellul's view on technology. As Lovekin (1977, 1991) illustrates, technique ("the technical phenomenon") is a form of intentionality as well. Without any sense of the technical intention involved in the "technical phenomenon," Borgmann have missed the most crucial dimension of Ellul's concept. Sometimes, this kind of misunderstanding (Feenberg, 1991; Mitcham & Mackey, 1971) leads to describing Ellul's and Heidegger's view as a "fatalism" despite the objection of Ellul himself and his defenders.

"efficiency" in the traditional sense, Borgmann fails to recognize the modern self-justifying function of the appeal to "efficiency" in the technical phenomenon Ellul describes (Lovekin, 1991; also see, 1980).

For example, when someone insists the wilderness and nature being treated with more respect, and, if the reason of his/her argument is, just because this approach represents the most efficient use of those resources on the long-term view, it never could be regarded as a different perspective from that of "absolute efficiency." Because, the result is, of course, that we should try to manage our natural resource with more care and respect, however, this cannot be considered treating wilderness in its own right nor a deviation from the device (instrumental) paradigm. It is not another paradigm, but rather is a fine tuning of the device paradigm.

In this vein, Zimmerman (1990) argues, "the limitless domination of modern technology in every corner of this planet is only the late consequence of a very old technical interpretation of the world, which interpretation is usually called metaphysics" (p. 166). Following this view, technology is conceived as the final stage, the fulfillment, the end of the Western tradition that begins with Plato and Aristotle. Therefore, technology is the lamentable conclusion of "thinking (metaphysics)" which has given way to its final form, "calculation" (Zimmerman, 1975; also see 1995).

Zimmerman (1990) insists that the origin of device paradigm could be traced back to the ideas of Greek philosophers; he summarizes Heidegger's critique of Plato's and Aristotle's "productionist" metaphysics as following:

> The metaphysical schemes of Plato and Aristotle, Heidegger argued, were based on the view that the structure of all things is akin to the structure of products or artifacts. Aristotle's metaphysics, for example, is 'productionist' insofar as he conceived of all things, including animals, as 'formed matter.' The most obvious example of such 'formed matter' is the work produced by an artisan who gives form to material. Plato and Aristotle seemingly projected onto all entities the structure of artifacts. (p. 157)

Based on Heidegger's critique, Zimmerman states that, as a consequence, "if people in the technological era are treated instrumentally, this is because the Greeks defined human in terms of categories which originally applied to artifacts such as equipment" (p.159). It is not an accidental coincidence between Gebser's description on the very burgeoning stage of mental consciousness and Heidegger's insight that technological instrumentality traces back to Greek philosophers. The coincidence adequately illustrates the process of dimensional accrual/dissociation. Following Kramer (1998), as human culture strives to become more and more objective, or productionist-like in Heideggerian sense, a process of dimensional accrual/dissociation occurs (also see, Kramer, in press).

As most of Marxist revisionists including much of Frankfurt school, such as Marcuse (1964) and Harbermas, and Borgman (1984) are seem to fail to grasp the seriousness of modern technological milieu.[13] They all see and affirm the deterministic character of technique and technological enframing, but by virtue of

[13] Habermas criticizes the colonization (or mechanization) of lifeworld. But, it is very hard to find his mentions concerning 'technology' or the nature of technology (Dreyfus, 1995).

their ability to describe and talk about the determinism involved in technology, they believe that determinism can be avoided or overcome. Marcuse's (1964) concluding chapter, describing the coming revolutionary change that would overcome the dangers of technology and return dimensional depth to man, seemed almost like a denial of his recognized character of technology. The strategy of this group is to describe the danger of technology and then, because the dangers have been identified and brought to consciousness, offers a revolutionary freedom that overcomes those dangers. Ellul (1964) faithfully illustrates the achieving that revolutionary freedom is much harder than they might think.

Ellul's exploration on technological system and society: Technological imperative.

According to Ellul (1964), the everyday world may become so thoroughly dependent on the needs of the technological system that our capacity for choosing and judging might well be framed completely by the technological criteria relevant to the safety and prosperity of the technological system. In that event, our lives would be completely determined and modified by technological factors deeply rooted in the objectivist paradigm.

Technological milieu has reached a point where people could not hope to begin to understand the nature of the human environment within which people think and operate if people did not first consider the nature of the technological milieu within which people are now situated. If technology is to be comprehended as a system, then one must overcome the temptation to consider their relationship to technology as one of "dealing with isolated objects." We need instead to recognize that our involvement with technology engages us in "a network of interrelations,"

where the interrelations between parts "are not of the same type as those between the parts of an engine."

The view based on the objectivist paradigm of reason suggests that technology is a set of objects crafted by, and at the immediate disposal of, human beings. A view like this simply assumes that the human being is free to recognize the need for changes without ever questioning the possibility that the systematic nature of the environment within which humankind functions is itself the source of dynamic of change. Ellul (1964) indicates that humans are free to choose, but "free" only within a certain range of choice. All that exists are kinds of choices and zones of choice. However, the zones of my choices are completely delimited by the technological system.

Ellul's conclusion (1980) is that humankind is not in command of its technology, but is instead thinking and operating in response to its technology:

> The human being who acts and thinks today is not situated as an independent subject with respect to a technological object. He [*sic*] is inside the technological system; he [*sic*] is himself [*sic*] modified by the technological factor. The human being who uses technology today is by that very fact the human being who serves it. And conversely, only the human being who serves technology is truly able to use it [emphasis added]. (p. 325)

Further, Ellul (1980) indicates the misunderstanding of the naïve, objectivistic perspective on mechanization and technological milieu in general. The problem with this perspective is,

> It leads to regarding technology as put together out of disparate bits and pieces, with random and uncertain relations between them. Yet the opposite is true. Each technological element is associated with all the others in a preferential way. When mechanization is introduced into offices, it represents a kind of spearhead launched in that direction by the technological system. (p. 81)

This seems particularly true in the case of computerized operations. With the transfer from a "manual" system to a computerized system, there will invariably follow new job definitions and new problems, requiring an expertise that serves to integrate the user into an entirely new work environment.

The increased capacity of the system and the greatly reduced "turn-around" time between a work request and the desired result produce a new horizon of expectations, a horizon of expectations that is often frustrated by unforeseen difficulties or breakdowns in the operating system. People can perform tasks in an hour that used to take a week; but also, at the same time, people also grow to expect the tasks to be completed on time, so that a breakdown in operations capacity leading to a 24-hour delay could very well strain the relationships of those who are involved in the transaction.

The point here is not that computers should be packed up and sent back to the manufacturer. The point is that a computer transforms the workplace it is introduced into; it transforms the nature of the tasks to be performed; it transforms the horizons of expectation, and introduces a new equilibrium to the milieu of office work. This new milieu places new demands on the relations between elements, and may in fact

integrate these elements within its own system of options. The computer becomes the nucleus and fulcrum of all relations, creating an environment that has the capability of sustaining its own "evolutionary rhythm." The lives and activities of those who are involved in the computerized workplace ultimately become geared to the pace of this new rhythm, and more often than not are delivered over to the demands of system. Thus, people are giving themselves over to the "technological imperative," and that people are doing so for exactly the same reason that they have embraced the objectivist paradigm of reason (Ellul, 1980). Of course, this tendency closely related to the obsession of "progress." This obsession will be discussed in terms of 'progress' and 'mutation' in chapter V and VI in detail.

As the demands of the technological system are increasing, and with this increase comes a further solidification of technology as the determining factor in our lives. This does not mean that technology has "a mind of its own," nor does it entail that technology functions "independently" of human desires and needs. Instead, Ellul's position (1964, 1980) could be interpreted as that the technological system has become an integral feature of the human life-world, and that in becoming an integral feature of the life-world, the system has generated a subtle transformation in the horizons of the everyday world within which people think and operate. Ellul (1964) more clearly illustrates the danger, in particular, of modern technological milieu in *Technological society*.

In *Technological society*, Ellul (1964) emphasizes the technological imperative as the determining characteristic of technological milieu. Ellul (1964) indicates this phenomenon as,

> In the past, different civilizations took different "paths"; today all people follow the same road and the same impulse. This does not mean that they have all reached the same point, but they are situated at different points along the same trajectory. The United States represent the type that France will represent in thirty years, and China in possibly eighty...Technique is the same in all latitudes and hence acts to make different civilization uniform. (p. 117)

For Ellul, if technology has become the dominant or determining factor in our lives, this is because we have made the conscious investment and commitment necessary to deliver ourselves over to the technological imperative. The obsessions of "avoiding error" and " exact calculation" are examples of our desire and needs. Already mentioned in Gebser's critique of dualism, these obsessions are the consequence of dualism; the fixity and sectorization. Because, the fixity leads to isolation and calculation. If it is people's desire to remove the potential for human error, then they must ultimately convert their understanding of the world into a medium that can be processed by computers.

Ellul envisions three milieus in human history—the natural, the social, and the technological. Human has not left the natural milieu upon entering the social. For Ellul, the natural milieu is, then, mediated by the social milieu. Even though the natural milieu has been both preserved and negated, that is co-exists in the social milieu (Lovekin, 1990, 1991).

Technique now mediates all social relations. In the same dialectical manner that society emerged as the negation and preservation of the natural milieu, the

technological milieu sublates and mediates human's relation both to society and to nature. If we want to understand our milieu, Ellul (1964) claims, we can no longer consider it in terms of traditional social forces, nor can we consider technology as simply one social force among others.

All social forces have been negated and preserved only in mediated by technology. It is necessary to look at the dynamic forces and currents within the phenomenon of technology itself. Technology is, now, that which all together permits human to live providing them with what they need while, at the same time, preventing human with their greatest threat, dehumanization through systematization to the technological milieu and total annihilation.

From this broad comprehensive picture, Ellul (1964) suggests that technology is not one isolated factor among others that predominantly influences modern society. In fact, Ellul objects to the term technology, because, it would lead us to believe that it is one factor among many others as in the usage, i.e., space technology, medical technology, communication technology, and so forth. Generally, technology brings to mind images of machines or specialized procedures. Ellul (1964) insists on using the term technique to describe the phenomenon that shapes our technological milieu.

> The term technique, as I use it, does not mean machines, technology, or this or that procedure for attaining an end. In our technological society, technique is the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity. (p. xxv)

Thus, Ellul (1964) differentiates the technical operation from the technical phenomenon because, "every operation carried out in accordance with a certain method in order to attain a particular end" (p. 19). The technical phenomenon is that qualitative differences which distinguishes modern technique from that of the past. He insists that:

> The twofold intervention of reason and consciousness in the technical world, which produces the technical phenomenon, can be described as the quest of the one best means in every field. And this "one best means is, in fact, the technical means. It is the aggregate of these means that produces technical civilization.
>
> The technical phenomenon is the main preoccupation of our time; in every field men seek to find the most efficient method. But our investigations have reached a limit. It is no longer the best relative means which counts, as compared to other means also in use. The choice is less and less a subjective one among several means which are potentially applicable. It is really a question of finding the best means in the absolute sense [emphasis added], on the basis of numerical calculation. (p. 21)

The drive toward efficiency is, in fact, a rational drive. The technological phenomenon is as much a form of consciousness and human desire, as it is a sociological phenomenon. Similar techniques easily could develop independently of each other. Thus, there was not yet comparison or competition that could lead to the

formulation; "The one best way in the world!" (p. 30). Rather, only local "best ways" counted.

Following Lovekin (1977, 1991), the universal pervasiveness of technique has two aspects for Ellul. First, simple geographical maps of the countries where technique has already conquered and is presently invading indicate that the field on which technique plays out its development is the entire globe. It is the "geographical universalism."

Second, Ellul describes a qualitative universalism. The global expansion of technique ultimately minimizes the uniqueness of all countries and cultures to the degree that they have become technical. Ellul (1964) says,

> *Technical civilization* means that our civilization is constructed *by* technique (makes a part of civilization only what belongs to technique), *for* technique (in that everything in this civilization must serve a technical end), and *is* exclusively technique (in that it excludes whatever is not technique or reduces it to technical form) . . . . Herein lies the inversion we are witnessing. Without exception in the course of history, *technique belonged to a civilization* and was merely a single element among a host of nontechnical activities. Today *technique has taken over the whole of civilization.* (p. 128)

As Ellul (1964) indicated above (p. 117), while the U.S. may be twenty years ahead of France technically and China fifty years behind the U.S., all of these countries are on the same trajectory; thus, a global technical milieu that brings all countries into uniformity.

Heidegger's *Question concerning technology*

It seems out of question that Heidegger is the anti-technological philosopher par excellence. From this standpoint, his negative account of technology regarded as a critically antagonistic and nostalgic assault against the modern technology. Ihde (1999) criticizes Heideggerian position that "the preference for embodiment relations over other human-technology relations is what could be called a nostalgic element in the romantic thesis" (p. 109). However, Ihde's critique on Heidegger's position is hardly unique to Heidegger. It is also to be found in Karl Marx. Insofar as alienation theory is bound to any nostalgic element relating to the handwork of the worker prior to machine tools in a factory context, there may be found the same preference in that older mode of analysis. [14]

Even though there is much possibility he could be regarded as antagonist against the modern technology, Heidegger's project (1977) of *The question concerning technology* seeks to prepare a free relationship to technology, where the freedom of this relationship of human existence to technology is determined in terms of response to the 'essence' of technology. This study sides with the interpretation that it is inadequate to accuse Heidegger as an antagonist of technology. Because,

---

[14] The mechanical reproduction of art works makes the achievements of the great masters available to everyone, but the "aura" surrounding the work disappears entirely. Walter Benjamin (1969) made clear this point in his famous essay, *The work of art in the age of mechanical reproduction*. Benjamin argues that even the most perfect reproduction of artwork is not authentic, because it lacks the presence of the original, that is, "its presence in time and space, its unique existence at the place where it happens to be." (p. 120) The authenticity or uniqueness of artwork is called "aura." Following Benjamin (1969), "The concept of aura which was proposed...with reference to historical events may usefully be illustrated with reference to the aura of natural ones. We define the aura of the latter as the unique phenomenon of a distance, however close it may be. If, while resting on a summer afternoon, you follow with your eyes a mountain range on the horizon or a branch which casts its shadow over you, you experience the aura of those mountains, of that branch" (pp. 222-223). Heidegger described this "aura" as the capacity of a work of art to "organize" a world as the clearing in which human life can transpire and through which the earth can manifest itself (Concerning this aspect, see, Zimmerman, 1990).

Heidegger speaks in the name of liberation or 'proper understanding' or 'way of seeing,' but not 'mastery.'

Technology is not equivalent to "the essence of technology," because, the essence of technology is nothing technological. The free or open relationship of human existence to technology is not a matter of the technical facility or experience with technology, which is so often invoked by commentators arguing against or on behalf of Heidegger's analysis of the technological essence of modernity (Zimmerman, 1990; Lovekin, 1991). In other words, we are excluded from anything like a relationship to the essence of technology, exactly when we conceive technology as the technological tools or specific techniques.

Therefore, Heidegger makes clear the point by claiming technology is a mode of revealing. Zimmerman (1990) accurately indicates Heidegger's focal points. Zimmerman states,

> Philosophers have traditionally presumed that entities are really first present-at-hand and can become tools under certain circumstances. However Heidegger insisted that this reverses the true situation. The fundamental way in which entities "are" for us is as ready-to-hand. Only by an act of abstraction can *Dasein* remove itself from its involvement with the activities of everyday life and adopt instead the attitude of a passive spectator or observer, for whom what was once a useful device now becomes a mere "object" with certain properties analyzable by specific scientific procedures, and so on. (p. 139)

Heidegger is right, at least, about the dominant way of Western configuration of nature as a resource well for human purposes. What is uniquely Western about this view lies, mostly, in its connection to the systematic mechanization, i.e., mathematization, of nature and the emptying of nature as mere object resource qualities.

Ge-stell (enframing). Heidegger (1977) describes the essence of technology as *Gestell* (Enframing). Translating *Gestell* as "enframing" would lead one mistakenly to think that technology for Heidegger is mainly a "structure" or sociological framework. *Gestell* designates not a thing or structure, but rather, more of an activity, a process, or a way of being in the world; and for that reason, *Gestell* is usually translated as enframing. As a mode of being in the world, enframing also entails the manner in which all entities are revealed to us. The essence of technology describes both the manner in which we relate ourselves to the world and the manner in which everything in the world is revealed and appears to us (Glazebrook, 2000, especially, pp. 240-246).

The claim that technology is a "mode of revealing" and not a "mere human doing" implies both that it is not solely human activity, nor a mere means within human activity. This is Heidegger's strategy for eliminating the multitude of instrumental and anthropological definitions of technology that all affirm, in one way or another, that human is actively control of technology. All such definition affirms human's freedom and, at the same time, ultimately deludes human. Indeed, for Heidegger (1977), exactly that aspect, i.e., affirming human freedom with much fundamental delusion, is the true essence of technology (p. 19).

Technology, the rule of enframing, requires that nature be ordered and available in a specific way, which Heidegger (1977) calls "standing-reserve." The delusion involved in the instrumental and anthropological definitions of technology is that they are "technological definitions" of technology. In other words, they already presuppose the availability of the world as a "standing-reserve" that human sets-upon through technology. Such definitions are one factor among many that participate in the conspiracy to conceal the essence of technology and human.

It is modern science that sets up nature as a calculable standing-reserve available for human's use. "Standing-reserve" is the manner in which science reveals nature to us (Heidegger, 1977, pp. 21-22). He claims that modern science is actually in the service of technology and not vice versa. In the modern world, science serves and is dependent on technology despite the chronological priority of science (Lovekin, 1991; Zimmerman, 1990; Ihde, 1999; Kramer, 1997). For example, most of medical science depend on the aid of technological development of MRI and sonogram, and in earth and space science, the satellite and digital transmission technology are indispensable (Ihde, 1998). Ellul (1964) also proposed an almost identical thesis concerning the relation of technology to science. Ellul (9164) argues that the common belief "that technique is an application of science (science being pure speculation)" is misguided (p. 10-11). Technology is not a mere point of contact between scientific theories and the material world. Ellul's point is that the theoretical distinction between "pure" science and "applied" science is, in practice, untenable, as all science in the modern world is applied.

To Heidegger (1977), the supreme danger of enframing, i.e., the danger of technology, consists of triple-tiered concealments. The first order danger that is most commonly discussed is the appropriation of nature and all other objects in the world as a standing-reserve or "resource." This leads to the second order danger, the final appropriation of the appropriator, *Dasein*, as a standing-reserve. Human beings become "human resources", now revealed in the same category, "resources", as everything else in the world. Heidegger adds a third order delusional by-product of the first two dangers, namely that human beings get the impression that they are "lord of the earth" because all standing-reserve, i.e., everything, exists because of and through their own making, for their own use, and therefore, as a reflection of their own essence.

For Heidegger (1977), then, the supreme danger of enframing is falling as a prey to the delusion, i.e., "human as lord," that hides the illusion, i.e., "human and nature are standing-reserve," that conceals the misconceptions, i.e., "technology is a means to an end set by human activity." All the delusion, illusion, and misconception prevent the unconcealment of technology: "as a mode of revealing" that is "not a mere human doing" (Lovekin, 1991).

Heidegger (1977) suggests one key concept for other mode of revealing, *poeisis*. It is "the arts of the mind and the fine arts"(p. 13). Heidegger refers to the *poeisis* mode of revealing as "mediated thinking," which is to be affirmed over against rampant "calculative thinking." In other words, people are in danger of losing their power to think meditatively (p. 52). Heidegger's term "destining" applies primary to the manner in which the world is revealed and/or the manner in which

human thinks about the world. Even though there is subtle difference between two concepts, *Synairesis* and *poesies*, but both concepts share the necessity of meditative thinking and the seriousness of technization of lifeworld. In this sense, the single most important danger and the last possible danger of technology is human's inability to respond to it "meditatively" in their thinking.

To sum up Heidegger's points, Heidegger (1977) suggests that it is crucial to look beyond technology's all too familiar shape as instrumental thing i.e., as a mere tool, rather, technology must be seen as a not so obvious, even elusive event, in order to come to terms with the possibility of its historical appearance. For Heidegger, the question concerning modern technology is always already answered when it is taken to be as self-evident and transparent in its essence as the instruments we use are in their familiarity. This clarity of technology as "machine and nothing more" is actually an ambiguity. Because, the possibility of instrumental familiarity is not simply a choice that we can make or unmake whenever we wish. Rather, the possibility involves the emergence of a historical and perceptual decision that is, in fact, the essence of technology itself.

Modern technology becomes more familiar, and thus people feel themselves to be more empowered by it, as technology becomes an increasingly "natural" component of our lives. Yet, this possibility of the increasing "naturalness" of technology, something which people can take or leave, obscures the very fact that modern technology is much more than an outside force acting on modern perception within rational consciousness structure.

Mumford: Myth of the technological complex

As Mumford (1967) illustrates, abundance is the promise of the technology. Moreover, abundance is assumed to determine the quality of life. The quality of life should, then, tend to be defined by or as abundance. Therefore, rather than the good life, abundance can only be depended upon the 'goods life.'

Following Mumford (1967), Darwin superimposed the ideology of Malthus and Adam Smith on the biosphere and ignored the diversity of life, including mutual aid and kinship. It is important to remember neither Gebser, nor Innis, nor Geddes, nor Mumford embraced the fatality of social Darwinism. Mumford (1967; 1970) blames many of the ills of the modern technological milieu on a quantitatively based ideology of the "myth of the machine." The machine, as the entire technological complex (megamachine), is pervasive in its influence and extensive in its structure and process.

Concerning this study, the focal point in Munford's argument is his comparison between quantitative mechanism and qualitative organism. As Mumford (1963) states,

> The method of the physical sciences rested fundamentally upon a few simple principles. First: the elimination of qualities, and the reduction of the complex to the simple by paying attention only to those aspects of events which could be weighed, measured, or counted, and to the particular kind of space-time sequence that could be controlled and repeated—or, as in astronomy, whose repetition could be predicted. Second: concentration upon the outer world, and the elimination or

> neutralization of observer as respects the data with which he [*sic*] works. Third: isolation: limitation of the field: specialization of interest and subdivision of labor. In short, what the physical sciences call the world is not the total object of common human experience: it is just those aspects of this experience that lend themselves to accurate factual observation and to generalized statements." (p. 47)

As described by Mumford, the scientific approach was framed in measurement and instrumentation and simplification. This indicates the relationship between mechanization and objectivistic biased paradigm. Concerning this relationship, Mumford (1963) illustrates as

> The tools and utensils used during the greater part of man's [*sic*] history were, in the main, extensions of his [*sic*] own organism: they did not have—what is more important they did not seem to have—an independent existence. But though they were an intimate part of the worker, they reacted upon his [*sic*] capacities, sharpening his [*sic*] eye, refining his [*sic*] skill, teaching him [*sic*] to respect the nature of the material with which he [*sic*] was dealing. The tool brought man [*sic*] into closer harmony with his [*sic*] environment, not merely because it enabled him [*sic*] to reshape it, but because it made him [*sic*] recognize the limits of his [*sic*] capacities. (p. 47)

Following Mumford, we still regard power as the chief manifestation of divinity, or if not that, the main agent of human development. The 'technological imperative' in Ellul (1964) and '*ge-stell*' in Heidegger (1977), Mumford (1961) similarly describes

'absolute power' as the driving force of modern technological milieu. As Mumford illustrates 'absolute power,' like 'absolute weapons,' belongs to the same magico-religious scheme as ritual human sacrifice. Such power destroys the symbiotic co-operation of human with all other aspects of nature. Because, too much or too little is equally fatal to organic existence (p. 571).

After Geddes (1915), Mumford (1963) adopted the transformation of the terms Paleolithic and Neolithic into the terms Paleotechnic and Neotechnic to describe modern culture, technology and types of people and their ideologies. Mumford insists, "one can divide the development of the machine and the machine civilization into three successive but over-lapping [emphasis added] and interpenetrating [emphasis added] phases: eotechnic, paleotechnic, and neotechnic" (p. 109). Geddes transposed the terms Paleolithic and Neolithic, as used to describe the older stone-age culture from the later stone age culture, into the terms paleotechnic and neotechnic.[15] These terms describe not only epochs in the development of technology, but also cultures, and types of actors in the roles that supported the ideologies of those epochs and cultures.

Following Mumford (1963), the machine is not a product of an industrial revolution, but has existed in some form since the time of the divine kings of Egypt. Though Mumford placed the clock in a monastery in the tenth century as the crucial

---

[15] Each of these phases roughly represents a period of human history, it is characterized even more significantly by the fact that it forms a technological complex. Each phase has its specific means of utilizing and generating energy (Mumford, 1963, p. 109-110). Speaking in terms of power-and characteristic materials, the paleotechnic is built on the products of mine, coal and iron, and neotechnic culture is based on alloys, the lighter metals and electricity, and by extension, electronic communication technologies. The use of the lighter metals and the electric grid that fostered clean industry and the communication network were the characteristic of the neotechnic epoch. The neotechnic megalopolis arises in the wake of technological advance based on science, that brings forth the technologies of electricity and instantaneous communication.

machine, the machine is prefigured in the ritual procession of quarried stone to build the pyramids. Not wheels, nor tools, but standardized, interchangeable human parts comprised the proto-machine. Mumford asserts,

> Civilization brought about a double transformation of man [*sic*]. On the one hand it developed in the pharaoh or ruler, the autonomous personality; and on the other, by the subdivision of labor and the specialization of work, it produced the submissive, if not servile, *Teilmensch*, or divided man, who has lost his [*sic*] primitive wholeness without yet gaining the new attribute of his [*sic*] ruler: autonomy. (p. 47)

What matters to Mumford is not the machine, instrument, or skill itself, but rather the transformation of the mode of life and thinking in the technological milieu. Mumford (1970) insists that the gate of the technocratic prison will open automatically, despite their rusty ancient hinges, "as soon as we choose to walk out" (p. 435). For Mumford, Gebser (1985), Ellul (1977), and Heidegger (1977) likewise, in order to re-conquer the machine and subdue it to human purposes, one must first understand it and assimilate it. Following Mumford (1963),

> From the beginning, indeed, the most durable conquest of the machine lay not in the instruments themselves, which quickly become outmoded, nor in the goods produced, which quickly were consumed, but in the modes of life made possible via the machine [emphasis added] and in the machine. (p. 323)

What remains as the permanent contribution of machine, carried over from one generation to another, is the technique of cooperative thought and action it has fostered rather than machine itself. From this standpoint, Mumford (1970) states, "to understand fully what happened earlier, one must read backward from the present to the past" (p. 312). Therefore, Mumford's theme is not that of technological determinism, rather is the antithesis of futurological technological determinism.

For Mumford (1963), the machine is ambivalent. Because, it is both "an instrument of liberation and one of repression" (p. 283). The machine complicates the organism and the organism elaborates the machine. The machine manufactures complexity, the organism, by ingestion and digestion, breaks down complexity. At the beginning, following Mumford, "the machine was an attempt to substitute quantity for value in the calculus of life" (p. 282). In this vein, as Mumford (1963; 1970) insists, social science may be considered, to some extent, as the product of the machine ideology that reinforced through the success of the religious faith in the scientific method of reducing, not only the inorganic matter of the world, but also the cultural mechanism and the human and social organism. Accordingly, as all of philosophers discussed in chapter II and Chapter III commonly assert, the quality of life that could not be measured as quantity was ignored in the effort to simplify and order a worldview of life as a mechanized process.

The accelerating tendencies of a mechanizing processes that the whole apparatus of life has become so complex and that the processes of production, distribution, and consumption have become so specialized and subdivided result in the individual person's muddle of confidence in their own unaided capacities.

Consequently, they are increasingly subject to commands they do not understand, at the mercy of forces over which they exercise no effective control, moving to a destination they have not chosen.

With regard to the development of the state-of-the-art communication technology, "the possibilities of good and evil here are immerse," however, at the present moment, as with so many other technological benefits, "the dangers of the radio and the talking picture seem greater than benefits" (Mumford, 1963, p. 241). Further, Mumford (1970) asserts the ever-increasing dangerous situation of a mechanized process as,

> Those already conditioned from infancy by school training and television tutelage to regard megatechnics as the highest point in a man's [*sic*] 'conquest of nature,' will accept this totalitarian control of their own development not as a horrid sacrifice but as a highly desirable fulfillment, looking forward to being constantly attached to the Big Brain, as they are now attached to radio stations by portable transistor sets even while walking the streets. By accepting these means they expect that every human problem will be solved for them, and the only human sin will be that of failing to obey instructions. Their 'real' life will be confined within the frame of a television screen [emphasis added]." (p. 331)

Moreover, the global net of the communication technologies, especially through its complex and interconnected communication technologies, such as the Internet, PDA (Personal Data Application) and diverse types of mobile telephone, have the function

that impresses upon the people the myth of the absolute power of the machine and of those that suppose they control its workings.

However, Mumford (1970) indicates, "The ironic effect of quantification is that many of the most desirable gift of modern technics disappear when distributed *en masse*, or when—as with television—they are used too constantly and too automatically" (p. 337). There is no satisfactory answer to this phenomenon on the basis of technics alone. In other words, it would be a gross mistake to seek wholly within the field of technics for an answer to all the problems that have been raised by technics.

To sum up, what is essential about technology is not that one can look through it and see the world, rather that the world is created anew in it. As Mumford (1973), Ellul (1964), Gebser (1985) and Heidegger (1977) commonly indicated, technology is not, first and foremost, machines or some style of using machines which can be repeated again and again, but rather the inherent corporate tendency of perception; it is the technical transformation of everyday perception and the way in which this transformation is taken for granted. Seen from Gebser's notion of "plus-mutation," however what separates ancient and medieval technology from the form that we intimately and ceaselessly experience involves the accomplishment of a certain perceptual and technical fusion and what Carey (1989) called the characteristic of "sublimation." [16]

---

[16] Carey and Quirk (1989) have provided one interesting and heuristic definition in electronic sublime for interpretation. In the investigation into the "electronic sublime" of our time, they have shown it to be a thematic and chronological continuation of the "mechanical sublime" of the 19th century. In terms of conceptual content, both of these forms of sublimes can be considered to be part of the larger meta category of the "technological sublime." Following Carey (1989), mechanical sublime was born in the 1800s, of a contemporary culture stamped by new mechanical technology, especially the techno-romantic and utopian expectations concerning the steam engine, steam power and railway. During the

For example, in their investigation of the "mythos of the electronic revolution," Carey (1989) refer to a specific new technical innovations: "As agent . . . . at hand to bring everything into harmonious cooperation. . . . triumphing over space and time. . . . to subdue prejudice and to unite every part of our land in rapid and friendly communication" (p. 120). This is not in reference to McLuhan's "global village," but rather to *steam*, the miracle working natural power of the 19th century, and the *railroad* on which the communications network built.

Communication theory and technology

As Williams (1983) points out, the word, communication has an unresolved double valence to it (pp. 62-63). Reacting to shifting sociocultural contexts and the changes in both the means and modes of transferring information, *communication* has developed an unstable semantic field; at once both one-way transmission and mutual sharing. This semantic bivalence or instability of the word communication puts communication theories in an interesting situation, turning them into unwilling bifocal scholars as they set out to investigate two incompatible phenomena of inquiry.

---

last third of the century through, belief in the *mechanical sublime* began to decline significantly and its place was taken by the *electronic sublime*, based on electricity and systems of electric technology. Later in the 20th century television, computer and electronics industries have mutated the sublime thoughts and expectations previously directed towards the telegraph and telephone. We have moved into the age of the electronic sublime (Carey, 1989, p.113).

The electronic sublime includes the central ideas of electronics and electronic systems "advancing" with nearly teleological if not messianic power. It also includes an emphasis on the *continuous state of change*. New "revolutionary" innovations are seen as following each other in a progressive, nearly inescapable series of developments. It is important to note that in shifting from the mechanical to the electronic sublime, the verbal metaphors for speaking of technological change often remain the same, although the subject which they portray has become altogether different.
As steam and the railroads were in the 19th century, multimedia, hypertext, the Internet, "information highways" and other recent electronic inventions in our own time are the embodiment of the technological (and specifically the electronic) sublime. This mentality and way of thinking can be seen clearly in contemporary technological discourse. A strong future orientation and over optimistic, even enchanted way of talking about the possibilities of new technology are identifying features of the rhetoric of the eletronic sublime. As history repeatedly demonstrates, the idea that technical and technological changes automatically lead to positive developments in society – even directly to cultural evolution – is regularly presented in the visions of our time.

As Nelson (1985) rightly suggests, models and theories of communication are "designed to give us the illusion of controlling, or at least, structuring this uncertainty" (p. 3).

The technological annihilation of space has received support by information theory and cognitive science, and before that by Cartesian epistemology.[17] According to information theory, all communication is the exchange of information, be the channels wide or narrow, long or short (Borgmann, 1984; Shannon & Weaver, 1959). As Finlay (1987) demonstrates with the aid of a discursive analysis, contemporary explanations on, and practices of new communication technology conform to the age-old procedures of classical representational theories that are based on objectivist-bias, as opposed to being at all revolutionary, as is often claimed.

One of the dominant paradigm in communication theory is, without doubt, that stemming from the influence of "the mathematical theory of electrical communications" model, describing communication as the transmission of information between a sender and a receiver, through a channel that links them in some way. The central object of this model is, then, the *message* that *contains* the information: information is encoded into the message by A and then decoded by B. Such an operation is made possible by the fact that both A and B share knowledge of *the same message code*.

---

[17] The technological annihilation of space, in the sense that all different mode of the consciousness of space collapsed into one abstract, mathematical geometric space, which has supported by Cartesian epistemology and Galilean science, will be discussed in detail in chapter VI: Visiocentrism and overdetermination. In this chapter, the relationship between technology and the different consciousness of time and space manifold will be explored. Mentioning briefly, the importance of the technological annihilation lies in the fact that the annihilation of various time and space consciousness by making them unilinear and unidimensional based on modern technology leads to the annihilation of semiosis and communication.

According to the mathematical theory of communication or "effect tradition" in general, which relies on, what Kramer (in press) calls, "received orthodoxy," the fidelity of a message is measured by how much agreement there is between the sender and the receiver. Following Kramer (in press), this configuration of communication leads to the problem of social engineering; what Ellul (1963, 1980), Gebser (1985) and Heidegger (1977) discussed in previous chapters, because:

> For the correspondence sense of "good" communication is concerned with compliance gaining and control, and just of the message but of its interpretation, for these two discrete atomic entities, the sender and the receiver must somehow understand each other if they are to coordinate behaviors. This is really communication as utility or technology.

Further, Kramer insists, echoing Ellul's argument (1964), agreement between the sender and the receiver, in the received view, "does not mean that the two people agree about the truth-value of the message but only that they understand the meaning of the claim first and foremost as the same, in the same way" (in press).

Although, the mathematical theory of communication that originally deals with only technical features of communication has had a major influence on the development of communication theory that developed from both psychology and linguistic. The process of communication has been, therefore, conceived as a psychological process of two subjects, (alternately functioning as) sender and receiver, correctly utilizing a linguistic system (that is to say, using a grammar that we assume to be known by both subjects) to produce propositions that demonstrate their own mental activity.

From the standpoint of mathematical communication theory, dealing with communication means only considering grammatically correct linguistic propositions. All that does not fit into this restricted category is banished into one of the two peripheral categories available (both of which are also borrowed from the mathematical theory): *redundancy* and *noise*. A fairly substantial portion of the whole interactive process, including all non-verbal communication and a good part of the verbal as well, is propelled into one or the other of these categories. Consequently communication is reduced to a basic structure that is logical and verifiable.

The key to the mathematic understanding of communication is the connection (a strict relation of symmetry) between "thinking" and the "proposition," where the mind is conceived of as a tank of objective contents that are transformed provisionally by a code that makes it possible to transport them through a channel. Needless to say, communication theory cannot escape the essential characteristic of modern technological milieu or rational consciousness. This is undoubtedly a rationalistic reduction of the communicative process, a concept based entirely on psychological, Cartesian subject biased aspects of communication, abstracted from context and thus misrepresentative of the process as a whole.

In his work, Edward T. Hall (1966) tries to see the communicative process in a way that could be considered as external to the subjects involved in it, based rather on the factor of experience as an anthropological and intercultural meeting point. Birdwhistell (1973) insists that the reduction of communication to simple passage of verbal information as a mechanistic and atomistic conception of man. He argues that a human being is not a black box with one orifice for emitting a chunk of stuff called

communication and another for receiving it. And at the same time, communication is not simply the sum of the bits of information that passes between two people in a given period of time.

As this study will discuss in Chapter VI, many nation's official government policy documents that explains the blueprint of nation's technological future, and futurologists' promises on information technology robustly resides in the fundamental ideas of traditional communication models and perspectives, e.g., "mathematical theory of communication," being satisfied with the delusion of his or her mastery power of communication. From this standpoint, as Chang (1996) asserts, "to derail communication from its teleological track, to exteriorize the microevent of communication to its macrostructure of determination" could be an alternative to objective-biased paradigm (p. 186).

IV. Methodological Approach

This study uses three philosophical ideas as a foundation for investigating the meaning and the transformation of communication/semiosis in modern technological milieu. The main method to be utilized is Peirce's semiotics. In addition to the semiotics, Kramer's theory of dimensional accrual/dissociation will be used in conjunction with relation to Peircean semiotic process, or semiosis. As already described, Gebser's idea of consciousness structures and "plus-mutation" will be integrated with both Peirce's and Kramer's methods. The simultaneous use of three methods may seem unnecessarily complicated. However, these three different methods, when used together, will not only reveal different aspects of the same phenomena or data, but also will provide a complementary reinforcement of each methods' strengths to explain the process that we call communication.

The three methods are commensurable in three important aspects. First, they well demonstrate the vagueness of Cartesian dualism, sometimes called "subjectivism" or "objectivism." Second, therefore, the three methods have the potential to grasp the nature of communication or sign action, i.e., semiosis, as a process. Third, as a consequence, they present useful conceptual frames for analysis far beyond the traditional communication approaches applied. In particular, Peirce's ten types of signs from the concept of Firstness, Secondness, and Thirdness, Gebser's consciousness structures and the process of "plus-mutation", and Kramer's theoretical frame, the dimensional accrual/ dissociation offer pertinent conceptualizations of communication in the technological milieu. Hence, utilizing these three approaches provide a means of exploring this topic. The integrating the three methods will

provide an optimal leverage for engaging the dynamics and possibilities confronting us within our technological milieu.

First, in this chapter, the common (or commensurable) grounds of the three methods will be described in further detail. Secondly, Kramer's theory of dimensional accrual/dissociation will be outlined. Next, as the primary method for this study, applicable elements of Peirce's semiotic sign system will be described in detail.

The nature of communication and sign-action (semiosis): process and transformation

Signs do not so much timidly "represent" a thing as Cartesian referential theory and the mathematical theory of communication assume; rather, they emphatically "relate" with more than merely a thing. Kramer (in press) insists, "communication as exchange, or downloading, is called into question already in the fifth Century B.C." He argues that if we consider the given metaphysical prejudice, which states there are two atomic fragments, i.e., a sender and a receiver who are connected by a channel along which a message is conveyed, then, neither pure "information" nor "meaning" exists. Therefore, one cannot say that meaning is communicated or conveyed (Kramer, in press). In this sense, signs are less like nouns than verbs.

Kramer (in press) argues that Nietzsche's charge that language is a fetish is correct supporting his contention by mentioning recent research which indicates that the cognition of language may be much less arbitrary and much more grounded in our sensual bodies than previously thought. Nietzsche (1974) warns that language is becoming a fetish and more abstracted by withdrawing into a virtual sign-world (section 354). In other words, as Kramer (in press) indicates, language works by

dissociative generalization, by means of sampling the world and reducing it to a "surface- and sign-world." Hence, Nietzsche's abstraction occurs in the form of dissociation, through which the world is fetishized.

From Peirce's (1931; 1958) view, a mere correlation or correspondence between a sign and its reference does not in itself produce a meaning. This requires a triadic production of what Peirce calls the *interpretant*, a relation in which the sign (*representamen*) bears some variety of correspondence to its reference through the immediate object of the sign (*ground*), which is an "idea" corresponding to the object not in all its respects, but only under certain considerations. Hence, a sign must be taken as a sign in a context supporting interpretation in order to be interpreted. Mere function is not sufficient. For Peirce, the word "sign" has two aspects or more acceptations: sign-action and sign-object. He calls the first *semiosis* and the second *representamen*. Properly speaking, semiosis begins because a representamen is opaque, and when the representamen is transparent, semiosis becomes a blind process (Merrell, 1995, 1997). Meaning is thus generated from the opacity of the representamen through the semiosis.

With relation to this study, one theme that should be stressed is that the non-existential classes (phenomena) are also real. Gebser and Peirce both share this perspective. When Nietzsche mentions languages are abstractions and fetishes, he also recognizes this point. Peirce's view on thing, relation, and signs relies on this theme; that is, at the same time, the reason for this author's choice of Peirce's semiotics as the method to exemplify Gebserian consciousness structures.

As Peirce says, "a mere possibility may be quite real."[18] He explains, "The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you" (4.580). This conception of the real is closely connected to the definition of thought as a continuous temporal process. This process is self-correcting, i.e., it is sometimes imposed by "absolute chance," and is subject to public or communal testing.

Likewise, according to Gebser, the four distinct cognitive styles are very much part of our own consciousness, both collectively and individually. As Feuerstein (1987) has described, our everyday consciousness is a "play" of these structures. At least, this is how we can consciously relate to them. They are, however, always in the process of engagement with each other. Thus, every single day our consciousness completes a cycle of movement through the different stages from waking to dreaming (or reverie), to sleep, and finally to deep sleep. More importantly, throughout the day, we thematize the four structures in interaction with others or in response to our environment. The fact is that we spend far less time than we like to think in the mental structure of consciousness.

Another perspective of meaning is demonstrated by structuralism, in which meaning is considered a given, as existing in self-presence; then structuralists tried to identify the systems of signs as the locus of meaning. Sheriff (1989) describes it as "fate of meaning." Structuralist research was based on the assumption that as texts do have meaning, there must be a system with respect to which they have meaning. However, the concept of a text having meaning was then challenged by several

[18] In quoting from The Collected Papers of Charles Sanders Peirce I-VIII, the number to the left of the decimal indicates the volume, whereas the numbers to the right of the decimal point indicate the paragraph. So 4.580 indicates volume four, paragraph 580.

theorists, who recognize that meaning is not stable and fixed in the text, but rather is dynamic and develops in reading the text (Culler, 1982; Kramer, 1988; Seung, 1982; Finlay, 1990).

In short, all efforts at finding the locus of meaning have proven to be unilluminating. The main reason is, as Culler (1982) points out, that structuralists took meaning as given, then tried to identify the system of codes responsible for the accepted meaning. Their error lies in their very first assumption: that meaning exists in a fixed form independently of the users. In spite of structuralists' uncompromising belief, essence does not exist 'objectively,' and hence, one may not simply search for it. Rather, essence is indissolubly related to 'subjective' views of things. To say that something is essential, one must draw a dividing line between the essential and the inessential. Where is the source of that dividing line? Some theorists hold that the line is determined by the categories one implicitly applies to things prior to perceiving, conceptualizing, and understanding them.

Therefore, what is considered essential varies as the categorical terms change. It means that there is no characteristic which is essential in itself, apart from human purposes and human classifications (Foucault, 1972a; 1972b). Peirce's complicated sign system will show that without human being's involvement, either purposeful or as unconscious following of socially imposed classification, there cannot be what we call characteristic in the world. In this sense, to Peirce, there is no crisis of representation, because representation is only one species within the multifaceted genus of semiosis (Oehler, 1995, p. 269).

In brief, Cartesian dualism and the traditional communication approaches, including the structuralists' approaches, that have endowed the received orthodoxy are limited. Their approaches lack meaningful explanation; the communication process of such approaches is becoming more abstracted, that is dissociated from the lifeworld. Kramer's theory of the dimensional accrual/dissociation will illustrate this aspect in detail.

Theory of dimensional accrual/dissociation (DAD)

In order to understand the difference or change of semiosis--the very different ways in which people act and react, communicate significance, and speak *of*, we must take into account their differing spatio-temporal orientations. In an attempt to explain the variety of human behaviors people exhibit, Gebser (1985) proposes a framework of three different world-orientations. The three orientations are called magic, mythic, and perspectival.

Based on Gebser, Kramer (1997, and see, Kramer & Ikeda, 1998) suggests that it is demonstrable that these three kinds of communication/comportment correlate with a continuum of dissociation. Magic communication is one-dimensional idolic, mythic is two-dimensional symbolic, and the perspectival world is three-dimensional signalic.

From the foundation established by Gebser's (1985) notion of transparency and Mumford's (1934) idea of dissociation, Kramer (1993; 1998) develops the theory of dimensional accrual/dissociation. The theory of dissociation and dimensional accrual explains the variety of communication behaviors that have been widely observed and

reported, by initiating the explanation at the fundamental level of space and time (Kramer & Ikeda, p. 37; also see Kramer, 1997).

The theory of dimensional accrual/dissociation states that as one moves from the magic univalent, to the mythic bivalent, and to the perspectival trivalent worlds, dimensional awareness accrues or increases. This does not, however, mean that it becomes "better," for no transcendental criteria are assumed. Neither is accrual a form of "progress," because no final goal or telos is assumed.

Following Kramer (1997), as one moves from i.e., accrues, one-dimensional idolic, to two-dimensional symbolic, to three-dimensional signalic ways of being and communicating, one becomes more and more dissociated from the rest of the world. Language becomes increasingly an arbitrary system of labels (Kramer, 1997; Kramer & Ikeda, 1998). However, in this theory, no linear progressivism is presupposed. Rather, all "previous" orientations are present in more complex ones. As Kramer states,

> History demonstrates that none are inherently superior to any of the other. Such a valuation is dependent upon the criteria used for comparison and there are no known "transcendental" criteria outside of each world orientation that could be applied to each one independently. (Kramer & Ikeda, 1998, p. 43)

From this viewpoint, what this study will observe and try to explain is the differences in the changes of semiosis.

The semiotic division of the sign into a signifier and a signified is a Cartesian way of thinking that cannot explain or even understand magic communication,

because magic messages have an uninterpretable unity. In the modern perspectival world, incantation and oath-taking have little relevance. Language is said to be totally arbitrary. What characterizes modernity is perspectival dualities such as the subject/object dichotomy. Everything is random occurrence. The perspectival world is spatial and, as such, is linear, so that a thing can have only one meaning at a time.

In so-called primitive, or less objective societies, time is not reckoned or fragmented into discrete units such as minutes and hours but, instead, is experienced as a constantly varying flux. Each day is directly experienced as having a different length of light and dark than every other day (Kramer & Ikeda, 1998, p. 42).[19] As dissociation occurs, a people may separate themselves more and more from the larger environmental and spiritual forces that are readily observed. Instead of attuning themselves with the empirically given flux of daily variety, they seek to generate abstract models that tame the natural world, thus creating a second-order world, a simulacrum that serves the purpose of power and predictability (p. 42). The objectivism (or the subjectivist bias) is impossible in the magic and mythic worlds, because they have no dissociated subject that can objectify the Other (alterity).

Peirce's Semiotics

The extreme complexity of Peirce's work is notorious. In particular, his general philosophy of language is extremely difficult to interpret, largely because it is

---

[19] Prior to clock time, hours and days were longer in summer than in winter. A day's work was measured not by hours but by what needed to be done (David S. Landes, 1983, *Revolution in Time: Clocks and the making of the modern world*, Harvard University Press, pp. 77-78). The first mechanical clocks were designed in the thirteenth century, and so was the abstract grid of sixty-minute hours and sixty-second minutes (Lewis Mumford, 1963, *Technics and Civilization*, pp. 13-16). Clock time equalized the days and fixed the working hours. It introduced precision, replacing midmorning with 10:30 A.M. And it made the implicit rhythm of life's daily round evident and surveyable. But the employment of clock time also shows that the ability to see things in a new way can lead to ordering them in a new way as well.

so difficult to know whether he would allow or encourage any priority among the various trichotomies that he posits. Following Peirce, to give a name to a sign, i.e., to identify it, does not solve the problem of the way it acts in semiosis. Peirce's emphasis on interpretation (as opposed to conception) suggests that meanings are to be explained ultimately in terms of the human context in which they are interpreted. Therefore, the sign can only be conceived of and interpreted within the spectrum of the actual semiosis (in Wittgenstein's (1953) term, use).[20]

Semiosis and its components

Semiosis, which is a process of inference, is the proper object of semiotics. Semiosis is, of course, an experience that everyone has at every moment of life. Semiotics, which is the theory of this experience, is another name for logic, "the quasi-necessary, or formal, doctrine of sign" (2.227) (Sebeok, 1994). The formal constituents of semiosis are thus the representamen, the interpretant and the object, which Peirce calls the Immediate Object within semiosis in order to discriminate it from the object outside the sign, or rather outside semiosis, and which he calls the Dynamical Object. The representamen is first, the object second, and the interpretant

---

[20] Following Wittgenstein, many philosophical confusions, especially the confusion concerning language can be unmasked by bringing into view the concrete use we make of certain words and propositions within the framework of different language-games. (p. 5) What Wittgenstein means by language-games are context of action which contain both linguistic and extra-linguistic elements and which are embedded in inclusive forms of life. (Wittgenstein, L. (1953). Philosophical investigations. (G. E. M. Anscomb Trans.). Oxford: Basil Blackwell. p. 11)

In place of the traditional view that appoints mind and meaning as agents of thought and conceives of language as the medium of expression for meanings, Wittgenstein draws attention to our factual use of signs in concrete situations of action. The philosophical question then no longer reads "what does this sign mean?" but "how is this sign used? What does it do?"

Richard Rorty pointed out the similarities between Wittgenstein's Philosophical Investigations and the philosophical framework of Charles S. Peirce. The view suggested by Rorty is that Peirce had envisaged and repudiated positivist empiricism fifty years earlier, and had developed a set of insights and a philosophical mood very similar to those of contemporary philosophers working under the influence of the later Wittgenstein. See, Rorty, R. (1961). Pragmatism, categories, and language. Philosophical Review, 70, 197-223.

third. These three constituents have no separate existence of their own, no more than have the signifier and the signified in the Saussurean sign. It must always be remembered that for Peirce, semiosis as triadic sign is indecomposable.

The representamen, the object, and the interpretant stand for relations or functions, not terms in relation. In other words, they can never have other relations or fulfill other functions in another semiosis. For example, the interpretant in one semiosis will become a representamen in another. It is the "terms" whose functions change and not the reverse. Therefore, it is the analysis of a given semiosis not the formal analysis of the semiotic triad that will tell us the "nature" of its constituents. To confuse the formal rigor of Peirce's definitions with a mechanical empirical description is to misunderstand the matter completely.

Semiosis, before becoming an object of formal analysis, is an experienced inference that cannot be other than triadic. Because it is experienced, semiosis cannot analyze itself without destroying itself. An experienced semiosis is a pure transaction in which the terms in relation cannot be distinguished from one another, nor from the transaction. It is a "transitive," not a "substantive," experience (Deledalle, 2000; Merrell, 1995).

Trichotomies of Sign

When dividing the three sign trichotomies (Representamen, Object, and Interpretant) into signs of nature (Representamen), signs of humans (Object), and signs of culture (Interpretant), we are able to achieve a better understanding of cognition. The signs of nature are: Qualisign, Sinsign and Legisign. The signs of

human are: Icon, Index and Symbol, and the signs of culture are: Rheme, Dicisign and Argument (see Diagram 1, p. 124). Peirce writes,

> Signs are divisible by three trichotomies; first, according as the sign in itself is a mere quality, is an actual existent, or is a general law; secondly, according as the relation of the sign to its object consists in the sign's having some character in itself, or in some existential relation to that object, or in its relation to an interpretant; thirdly, according as its Interpretant represents it as a sign of possibility or as a sign of fact or a sign of reason. (2.243)

The first division of the three trichotomies is identical with Firstness, i.e. possibility, and the representamen, and it consists of Qualisign, Sinsign, and Legisign. It is worth noticing that the first trichotomy consists of (non)-sign, i.e. signs that do not relate to anything; they are monadic and exist *sui generis*. Still, as potential, they form the basis for the creation of meaning.

The Qualisign is defined as being a quality of a sign. Before the manifestation of the sign, another sign must carry it. Because a quality is what it is positive and within itself, a quality can only describe an object due to some kind of resemblance or a shared element. In other words, a Qualisign necessarily has to be an Icon, and when a quality is a logical possibility, the Qualisign can only be interpreted as a sign of being, i.e., as a Rheme. An example is the experience of the color red. The color red will, of course, be carried by some thing or event.

The Sinsign is an actual thing or event as a sign. The Sinsign exists only through its qualities; therefore, it contains or carries several Qualisigns. A red cloth is an example of a Sinsign: the cloth carries the quality of red and can be interpreted.

Peirce defines the Legisign as a law, which is a sign. The lawfulness of Legisign is defined and determined by the users. That is why the Legisign is a conventionalized sign. Each conventionalized sign is a Legisign though this is not necessarily true the other way round. Peirce states that the Legisign is a general type and not a single particular object that one has to agree on as being a carrier of meaning.

The relationship between the Qualisign, the Sinsign, and the Legisign is that these signs exist within themselves, monadically and as non-signs. Naturally, it can be rather confusing when we refer to nonsign as sign. However, Peirce is aware of the problem of explaining something which by nature is unexplainable[21] (Merrell, 1995a, 1997).

The other well-known and most applied trichotomy consists of the Representamen-Object relations, or how Secondness is expressed in the sign: Icon, Index and Symbol. It is important to notice that this trichotomy describes the dyadic relation between representamen and object. When someone analyses the image of a person and says, this is an Icon, or that smoke is an Index of fire, or that the man on the toilet door is a Symbol, the statement is only partly correct in a Peircean sense.

---

[21] From the same reason, Wittgenstein says:

> 6.54. "Anyone who understands me eventually recognizes them as nonsensical...He must, so to speak, throw away the ladder after he has climbed up it."
> 7. What we cannot speak about we must pass over in silence.

See, Wittgenstein, 1963, *Tractatus: Logico-philosophicus*, (D. F. Pears & B. F. McGuinness, Trans.). London: Routledge, p. 151.

The dyad is a relation between representamen and object without any interpretation. If we interpret the person in the picture as an Iconic relation, a dyadic relation no longer exists; it becomes a triadic relation. This means that the relation between the figure in the picture and the figure in reality is dyadic. However, this is not how we interpret it. In these dyadic cases, it would be more correct to say that the picture, the smoke, or the man on the toilet door contain, respectively, iconical, indexical, or symbolic features.

The Icon is a sign, which shares a resemblance with the Object it represents. Common examples of Iconic signs are photographs, as they resemble the Object, i.e., the model they depict. Peirce states that the Icon does not have a dynamical relation to the object it represents. The qualities of the Icon resemble the qualities of the object, and, through that resemblance, a similar sense of feelings is evoked in who sees the relation as a resemblance.

Index means reference (to something). This class is constituted of signs that have a causal relation to the objects they describe. The Index refers to the Object, which it describes by virtue of a relationship in cases where the sign is caused by the Object, such as, smoke is an Index of fire. An Index sign is thus a sign which represents its Object by virtue of a direct reference to the Object, i.e., footsteps pointing to the person who walked past. The result of a thermometer measuring the temperature is an index of the air temperature. It is important to stress that the Index is physically connected to the object, yet, the interpreter has no influence on the relation between the Index and its object other than merely noticing the relation after it has been established.

Peirce writes that a Symbol is a sign that refers to its Object, which it denotes by virtue of a law.[22] Peirce clarifies his notion of law by stating that the law is an association of common ideas. This common association means that the Symbol will be interpreted as pointing to the Object. Thus, the Symbol is a sign that bears meaning solely by virtue of rules and conventions. A sign being conventionalized means that there is an agreement among users on the meaning of the sign. Letters, words, and numbers are such examples of symbolic signs. Peirce writes about the Symbol:

> Any ordinary word, as "give," "bird," "marriage," is an example of a symbol. It is applicable to whatever may be found to realize the idea connected with the word; it does not, in itself, identify those things. It does not show us a bird, nor enact before our eyes a giving or a marriage, but supposes that we are able to imagine those things, and have associated the word with them. (2.298)

Thus, symbol refers to its object through the realization of meaning based on common understandings or conventions regarding the meaning. If we take a closer look at the Symbol, we will find out that it contains iconic and indexical features. Peirce uses the concept "to love" as an example:

> A Symbol is a sign naturally fit to declare that the set of objects which is denoted by whatever set of indices may be in certain ways attached to it is represented by an icon associated with it. To show what this complicated definition means, let us take as an example of a symbol,

---

[22] In this study, this law is understood as (different) consciousness structures in the Gebserian sense or as a language game in the Wittgensteinean sense.

> the word "loveth." Associated with this word is an idea, which is the mental icon of one person loving another. Now we are to understand that "loveth" occurs in a sentence; for what it may mean by itself, if it means anything, is not the question. Let the sentence, then, be "Ezekiel loveth Huldah." Ezekiel and Huldah must, then, be or contain indices; for without indices it is impossible to designate what one is talking about. Any mere description would leave it uncertain whether they were not mere characters in a ballad; but whether they be so or not, indices can designate them. Now the effect of the word "loveth" is that the pair of objects denoted by the pair of indices Ezekiel and Huldah is represented by the icon, or the image we have in our minds of a lover and his beloved. (2.295)

The Symbol emanates from the Icon and the Index. The interaction between the Symbol, Index and Icon connect the idea in the Symbol.

The third sign trichotomy consists of Rheme, Dicent sign, and Argument. It describes the relation between the sign and the Interpretant/Thirdness. It is a misunderstanding that the third trichotomy makes it possible for us to understand the relation between Firstness and Secondness. Rhemes refer to possible objects. As examples of Rhemes, one can mention nouns, as they clearly refer to possible Objects. In Eco's words (1976), signs are the prerequisite for lying, as the Object does not have to be present at the same moment as the Representamen. So, the Objects referred to are only possible. The Rheme represents possible existence.

Dicent Signs are signs of actual existence. For that reason, the Dicent Sign cannot be an Icon. The Icon does not provide an opportunity for interpretation. In order to describe the case to which it is interpreted as a reference, Dicent Signs must necessarily contain a Rheme. An example of Dicent Signs could be whole sentences. The Dicent sign represents actual existence.

The Argument is a Legisign. The Argument represents its Object in its capacity as a sign. This means that something is being stated about the sign. An example of an Argument could be whole passages of text, i.e., meaningful links of Dicent Signs. The Argument is a sum of knowledge structured through Rhemes and Dicent signs.

The diagram will facilitate understanding. This complex system summarizes the signs mentioned above. Every part of the sign is in itself a sign, and is constructed by different kinds of signs with different natures. Though the system exists in wholeness, parsing it will enable a closer examination.

	Firstness	Secondness	Thirdness
Representamen (That which represents) **Possible signs** (Hence largely the nature of Firstness)	***Qualisign*** a quality, timbre, color	***Sinsign*** a particular item or event	***Legisign*** conventional representation
Relation of representation to object (Ground of representation) Actualizes signs (Hence largely the nature of Secondness)	***Icon*** a likeness to some object (naturally or by convention)	***Index*** a causal connection to the object	***Symbol*** a conventionally stipulated relation (most words)
Anticipated relation of sign to object and interpretation (Pragmatic status of interpretation) Conventional signs (Hence largely the nature of Thirdness)	***Rheme*** sign of possibility (terms or Words)	***Dicent (Dicisign)*** sign of an actual occurrence (propositions /Sentences)	***Argument*** sign of a set of stipulated relations (Texts)

Diagram 1. The components of semiosis

The first part (the representamen) is the Firstness trichotomy. We know that the Qualisign in the trichotomy is the sign that the most Firstnesslike. It is the representamen. The object which is the sign that carries the Qualisign is the Sinsign. We know from the definition of the Sinsign that it is an actual thing or event, and we know that in order to be manifested, the Qualisign has to be embodied in the Sinsign. The Legisign makes the connection between Qualisign and Sinsign possible. When the Qualisign is manifested in the Sinsign through the Legisign, some kind of lawfulness occurs. Peirce calls it "force of habit." In this case, the semiosis is

monadic; there is no intelligent interpretation behind semiosis (2.243-2.246). It could be called the semiosis of natural signs.

The second part (the object) is the Secondness trichotomy (2.247-2.249). A dyadic relationship exists between the Firstness and the Secondness trichotomies. The Secondness trichotomy is the result of the evolution taking place in Firstness. However, the evolution within the Secondness category takes place at a different time and place in evolutions proportional to Firstness, because the evolution in the Firstness category triggers the evolution in the Secondness category. The dyad is created between Firstness and Secondness: because of this relation, Icon, Index, and Symbol all contain elements from the Firstness trichotomy.

The third part (the interpretant) is the Thirdness trichotomy (2.250-2.253). These signs are pure triads, i.e., genuine signs, and all express lawfulness. Peirce has primarily worked with this trichotomy when developing his logic. That is why the relation among the Rheme, the Dicent sign, and the Argument is the same in an inference. Here, the Rheme is the predicate, the Dicent sign is the premise, and the Argument is the conclusion. In this way, the conclusion mediates between the predicate and the premise; during this process, a sign occurs. This is interesting, because the interpretant forms the equivalent or a more developed sign in semiosis. Peirce stresses that we, as a consequence of the logic within the interpretant, must necessarily reason on the background of the same logic, i.e., our ability to make judgments (logically) and to draw conclusions based on an innate logic. Yet what kind of logic is it? It is not a logic based on the logic employed within the natural

sciences or classical empiricism, but rather, it is a symbolic logic, a logic which occurs out of evolution.

Ten classes of signs

If we take a closer look at the first trichotomy (Columns in Diagram 1, Qualisign-Icon-Rheme), all the signs refer to Firstness. The basic sign is the Qualisign, and both the Icon and the Rheme are constructed on the basis of the Qualisign. Peirce writes: "Since a quality is whatever it is positively in itself, a quality can only denote an object by virtue of some common ingredient or similarity" (2.254). The similarity means that a Qualisign, when manifested, must be an Icon; when a quality only exists as a pure logical possibility, the Qualisign can only be interpreted as a sign of being, i.e., as a Rheme. The Rheme mediates between the Qualisign and the Icon. It has to be the logical possibility that determines whether we can identify the resemblance in a picture. The movement from the Qualisign to the Icon through the Rheme constitutes the lawfulness within Firstness.

The second trichotomy consists of Secondness signs (Sinsign-Index-Dicent) which all denote signs of actual existence. They all act as objects, and, therefore, they all carry qualities from Firstness. Within the Dicent sign is the Rheme, in the Sinsign there are one or many Qualisigns, and in the Index is the Icon. As already mentioned, the Sinsign and the Dicent sign are signs of actual existence. The index also has to denote actual existence, as it expresses a causal relation between Firstness and Secondness that determines the actual existence.

The third trichotomy consists of Thirdness signs (Legisign-Symbol-Argument) denoting lawfulness and conventionality. The Legisign expresses a

conventionalized sign, and most important, it is also a sign that denotes lawfulness in nature. The Symbol is also a conventionalized sign and denotes lawfulness as a dyadic relation between nature and human. This relation is not yet interpreted, as in that case, it would have been triadic. The connection between the Legisign and the Symbol is created by the Argument. The Argument is the most Thirdnesslike sign. Hence, within the Argument, we have the Legisign consisting of Qualisign and Sinsign, and we have the Symbol consisting of Qualisign, Sinsign, Legisign, Icon, and Index. Within the Argument we also have the Rheme and the Dicent signs. Thus, the Argument is the most degenerate sign in the sense that it the sign farthest away from Firstness. In other words, it is likely to Nietzsche, it would be the most abstracted sign, and to Kramer, it would be the most dissociated sign.

Peirce creates ten sign types on the basis of the nine types of signs.

Types of Signs	Familiar terms	Technical expression
Rhematic Iconic Qualisign	Feeling	$R_1 O_1 I_1$
Rhematic Iconic Sinsign	Imaging	$R_1 O_1 I_2$
Rhematic Indexical Sinsign	Sensing	$R_1 O_2 I_2$
Dicent Indexical Sinsign	Awaring	$R_2 O_2 I_2$
Rhematic Iconic Legisigns	Scheming	$R_1 O_1 I_3$
Rhematic Indexical Legisigns	Impressing-saying	$R_1 O_2 I_3$
Dicent Indexical Legisigns	Looking-saying	$R_2 O_2 I_3$
Rhematic Symbol Legisigns	Seeing-saying	$R_1 O_3 I_3$
Dicent Symbolic Legisign.	Perceiving-saying	$R_2 O_3 I_3$
Argument Symbolic Legisign	Realizing	$R_3 O_3 I_3$

Diagram 2. Ten types of signs

It is important to understand that these types are ideal, basic analytical classifications that we seldom see purely represented in reality. As shown in Diagram 2, Peirce creates ten classes of signs from the trichotomies mentioned above (2.254-2.265). The ten classes are a consequence of classes logically excluding each other. A Qualisign will always be a Rhematic Iconical Sign, and a Symbol will always be a Legisign, and an Argument will always be a Symbolic Legisign, etc. It is important to stress that the division does not mean that the Firstness trichotomy does not exist in the intellectual signs, i.e., the culture signs. Rather, Firstness does indeed exist in intellectual signs as a displacement; in Gebserian terms, it is a plus-mutation. In a sense, Peirce's sign system always presupposes the process of plus-mutation.

The ten classes of signs are 1) Rhematic Iconic Qualisign 2) Rhematic Iconic Sinsign 3) Rhematic Indexical Sinsign and 4) Dicent Indexical Sinsign 5) Rhematic Iconic Legisigns 6) Rhematic Indexical Legisigns 7) Dicent Indexical Legisigns 8) Rhematic Symbol Legisigns 9) Argument Symbolic Legisign, and finally 10) Dicent Symbolic Legisign. Diagram 2 illustrates these ten classes of signs.

It should be noted that all these signs refer to the Thirdness trichotomy. This means they are all rooted in our culture. Stated differently, without cultural contexts, or the consciousness structure, as a way of seeing, semiosis could never be completed. In this vein, Peirce stresses that Thirdness is a category of habits, which tend to become subconscious. This tendency leads to a crucial point of Peircean semiosis concerning this study: habits gradually become more and more subconscious, and, thus, Thirdness begins its regress to Firstness. This is the very

point at which Cartesian dualism, empiricist's causality, and constructivism collapse altogether. Therefore, to Peirce, no sign is exclusively of the body or the mind.

An example analysis for understanding of Peirce's sign system

Due to the complexity of Peirce's sign system, it is not easy to understand clearly only with the literal description of the classes of signs. This sample analysis is introduced for facilitate understanding the types of, and the transitional characteristic of Peircean sign system. For the analysis, three MS Office XP Advertising pictures are used.[23]

One common theme of three pictures is the sign class of "argument." As the three ads (picture 1, 2, and 3) are a serial advertising pictures, the theme of the three ads when they are considered as a combined advertising, it can be regarded as, in terms of Peirce's signs system, "Argument-Realizing, $R_3O_3I_3$: Regardless of age, gender, and race, all human being can use and, thus, will be satisfied with MS Office XP. Our cultural world is a world "made real"; it is more "made" than simply given to us through so-called the senses. For this reason, this type of sign, *argument*, is a sign whose interpretant is related to its object in terms of that which is conventional and accepted as the general ways of the cultural world. It is a linguistic portrayal of technological development of a particular time, in the history of the cultural life of the United States (further, it is the cultural life of this planet). This type, *argument*, is the most efficient sign for "making real" whatever cultural world we happen to live in.

The texts in each advertising pictures consist of the sign classes of "*dicent symbol*" and "*argument*." The sign class of *dicent symbol*, $R_3O_3I_2$, is expressed as Proposition- Perceiving-Saying. This sign class linguistically identifies the object of

[23] All three of ad pictures are taken from National Geographic. August, September, October 2001.

the sign. The sign is perceived as such-and-such, and often specifies some of the attributes of that object. These are the examples of the "*dicent symbol*" in each ad pictures:

"That is designed to automatically save your work in case of an error." (Ad 1)

"Which present the tools you need that were previously hidden in the menus." (Ad 3)

The examples of the "*Argument*" are below. Even though the sign class of "Argument" is the most abstracted and fixed type of sign, thus, it is typical sign type of the mental consciousness, the example "Argument" type signs (texts) reveal the magical and the mental consciousness at the same time.

"Once complicated become suddenly simple. They'll simply appear when he needs them" (Ad 2).

"He can alter space and time itself. Everything he needs is on the screen" (Ad 3).

"She'll hit a magic combination of keys" (Ad 1).

"You want it. You need it. Now you can get it" (Ad 1, 2, and 3).

Hand written "Microsoft Office XP" in ad texts is a sign class of "*dicent indexical legisign*," $R_3O_2I_2$. In other words, it is a type of "Looking" or "Acknowledging-saying." This is a type of sign, each use of which supplies information in terms of the effect of its object on it and the manner in which that object is apart from it. Therefore, there is awareness of the sign as a sign of something with respect to someone. This is a sign so familiar to the subject that its meaning is hardly more than tacitly acknowledged.

Microsoft Logo and Microsoft Office XP Logo is a sign type of "*rhematic indexical legisign*," $R_3O_2I_1$. It can be expressed as Impressing-Saying. This sign has

made a definite impression on the consciousness of the subject. Here language enters the semiotic process, although it is language use in an implicit rather than explicit way, and requires context within language and a cultural setting for its proper interpretation. This is a type of sign that requires that its use must be affected by the particular semiotic object it indicates and remained distinguished indicating some specific object. This logo stands for a particular type of MS software.

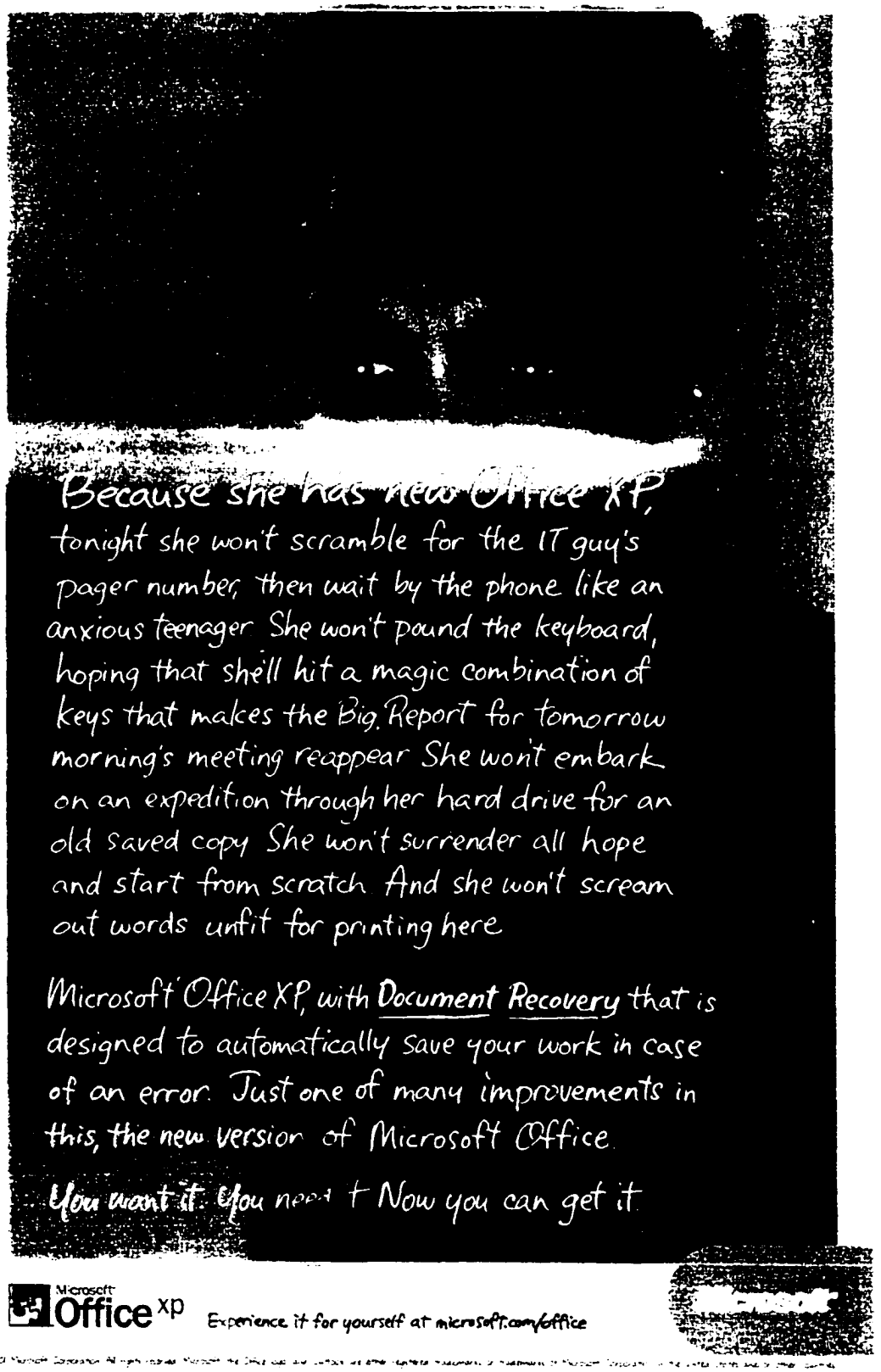
"Document Recovery," "smart tags," and "Task Panes" in ad texts are the sign class of "*rhematic symbol*," $R_3O_3I_1$, and can be said as "Seeing" or "Identifying-Saying." The sign is seen as such-and-such and give a name. This is a technical or artificial languages. This type involves symbolic signs that are by means of social conventions made and taken in the way they are.

Transformational or mutational characteristic of signs. People's skin color in each advertising picture is a *Dicent Sinsign*, $R_2O_2I_2$, "awaring," in the sense that this sign has become the object of direct experience insofar as it is a sign indicating something other than itself and providing information regarding that something other (the person in the picture). It should be noted that with which the sign is interrelated is at least tacitly acknowledged by the subject, but the sign cannot yet be a given name.

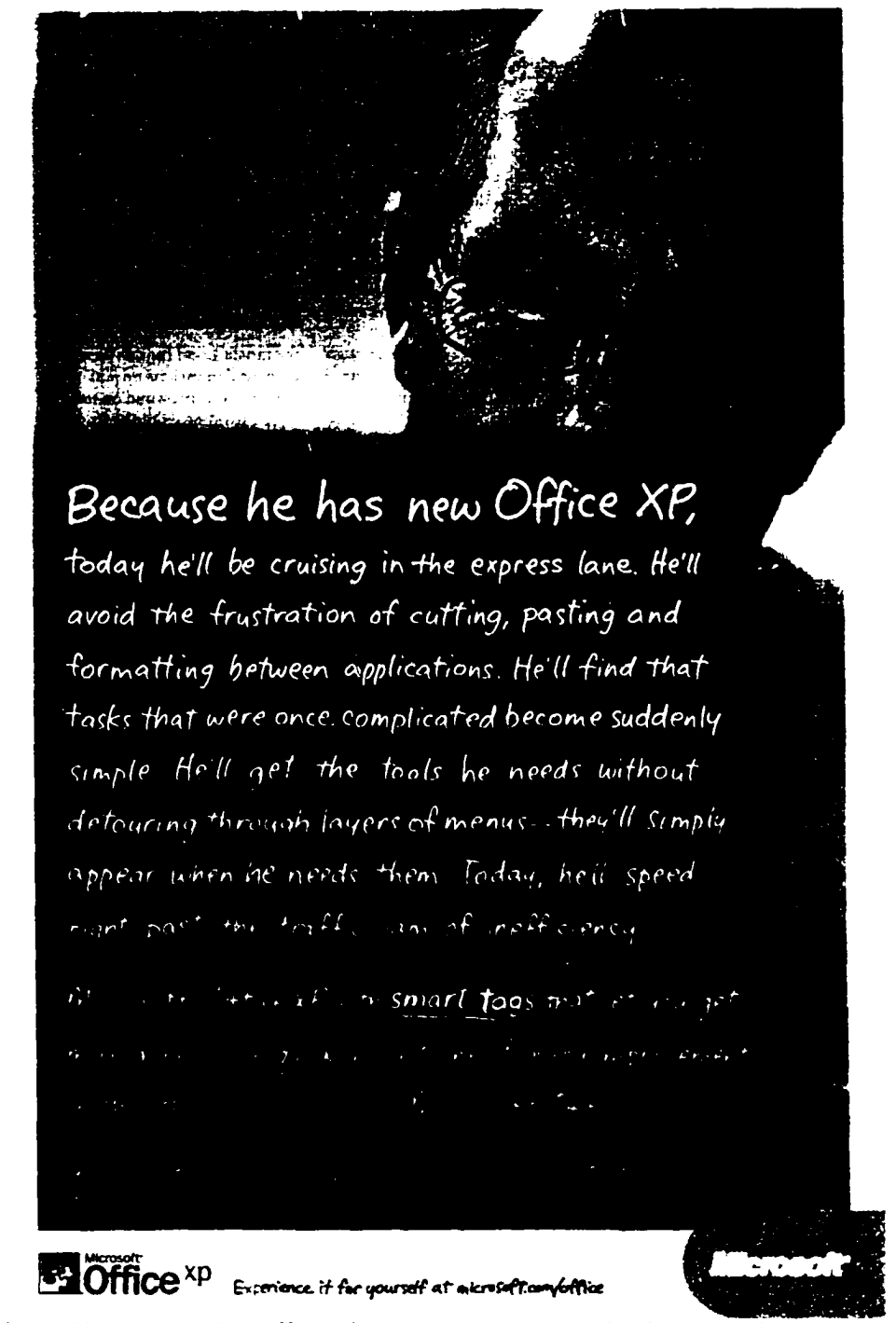
On the other hand, when we see all the serial advertising pictures at the same time as if those are one combined text, peoples' skin color as a sign class of "awaring" transforms or mutates into an *iconic legisign*, $R_1O_2I_3$, "scheming," as an expression (or a description) of racial background. The iconic legisign is a general type of sign insofar as it is a patterned sight that manifests some likeness with

something other than itself. The sign requires that its likeness incorporates some quality that renders it fit to evoke in the mind of the subject an idea of that likeness.

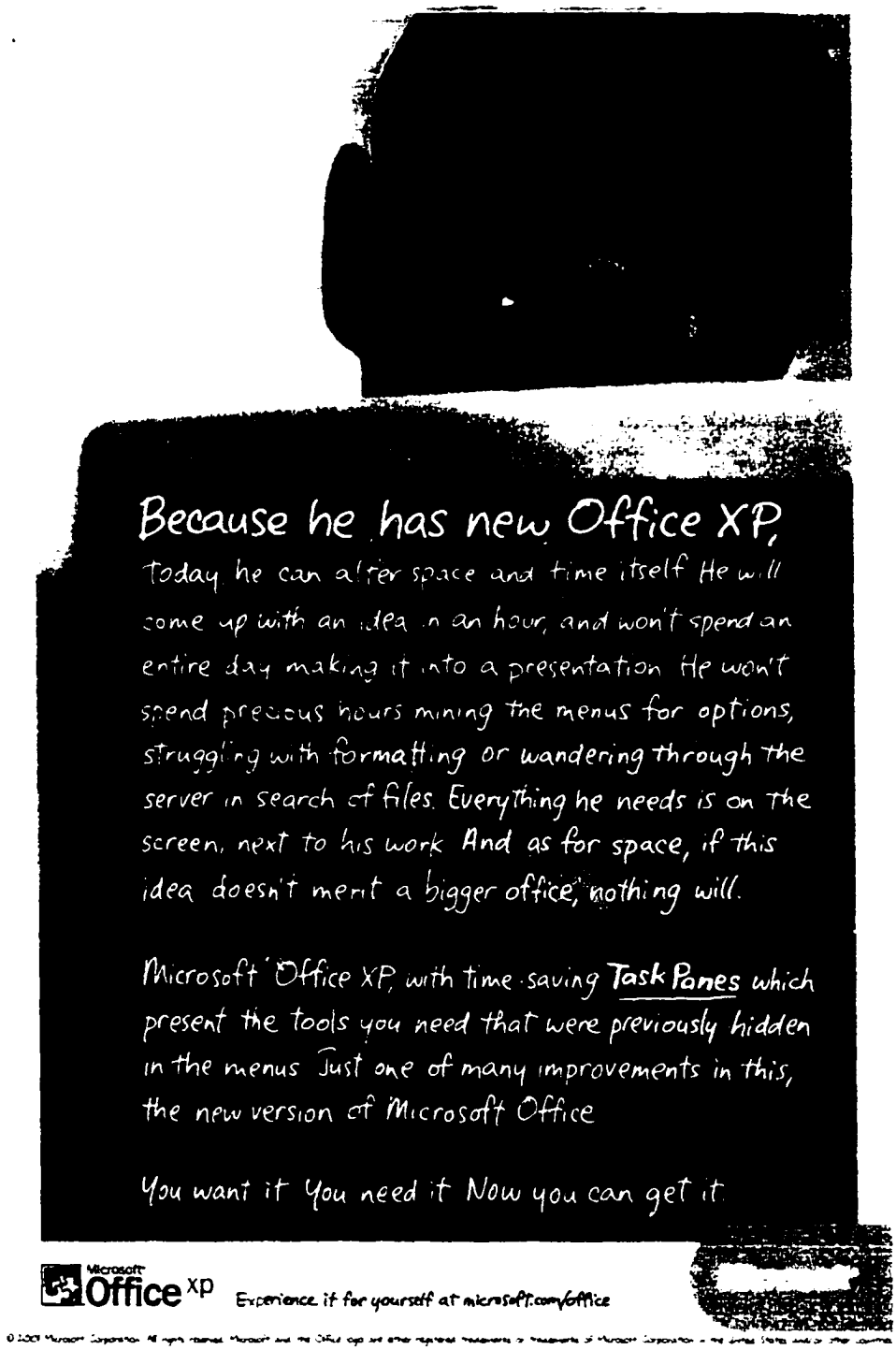
Because the *iconic legisign*, $R_1O_2I_3$, "scheming," is the sign that reached the Thirdness of its representamen, thus it can endow that representamen with (genuine) semioticity (semiosis). The sign has now entered the subject's awareness, the subject acknowledges it as a sign, and as a sign that interrelates with some semiotic object. In other words, the skin color (black and white) is acknowledged as a racial background. Therefore, this transformation or mutation occurs again when we consider "age" and "gender" in the advertising pictures.


Because she has new Office XP,
tonight she won't scramble for the IT guy's pager number, then wait by the phone like an anxious teenager. She won't pound the keyboard, hoping that she'll hit a magic combination of keys that makes the Big Report for tomorrow morning's meeting reappear. She won't embark on an expedition through her hard drive for an old saved copy. She won't surrender all hope and start from scratch. And she won't scream out words unfit for printing here.
Microsoft Office XP, with Document Recovery that is designed to automatically save your work in case of an error. Just one of many improvements in this, the new version of Microsoft Office.
You want it. You need it. Now you can get it.
Microsoft Office xp
Experience it for yourself at microsoft.com/office

Ad picture 1


Because he has new Office XP,
today he'll be cruising in the express lane. He'll
avoid the frustration of cutting, pasting and
formatting between applications. He'll find that
tasks that were once complicated become suddenly
simple. He'll get the tools he needs without
detouring through layers of menus... they'll simply
appear when he needs them. Today, he'll speed
smart tags
Microsoft Office xp
Experience it for yourself at microsoft.com/office
Microsoft

Ad picture 2


Because he has new Office XP,
Today he can alter space and time itself He will come up with an idea in an hour, and won't spend an entire day making it into a presentation He won't spend precious hours mining the menus for options, struggling with formatting or wandering through the server in search of files. Everything he needs is on the screen, next to his work And as for space, if this idea doesn't merit a bigger office, nothing will.
Microsoft Office XP, with time-saving Task Panes which present the tools you need that were previously hidden in the menus Just one of many improvements in this, the new version of Microsoft Office
You want it You need it Now you can get it
Microsoft Office XP
Experience it for yourself at microsoft.com/office

Ad Picture 3

V. Embodiment and technology

As already discussed in Chapters III and IV, Gebser (1985), Mumford (1973) and Ellul (1964) commonly indicate the transformation of the nature of the modern technological milieu. The common point of their argument is that modern technology and modern science constantly shape new objects to be seen and ways of seeing these objects.[24] The quest for positivity in so-called scientific research finds its impetus in this ongoing production of the new perception. The price of this new technically-inspired perception, which stands on the basis of a pure positivity of things, i.e., objectivistic bias, is the annihilation of meaning: the annihilation of communication and semiosis. There is no more communication but rather, is merely calculation. Instead of meaningful communication, there is a full-blown modern "time-anxiety" based on calculative perception (Gebser, 1985). These phenomena will be explored in chapter V and chapter VI in detail.

The crisis in the contemporary attitude concerning the nature of thought and of perception stems from the way in which appearance and perception have been lifted out of the historical realm via a process of technicization. As a result, people's grasp of not only perception and appearance but also, of history and language is being impoverished. However, contrary to the contemporary attitude, perception differs depending upon the subject and the object.

---

[24] Some acting agent (i.e., researcher) oriented approach, such as Kuhn's work (1962) that explains the revolution in research paradigm from the historical factors, overlooks something fundamental concerning the emergence and domination of modern Newtonian scientific view: the mutation of modern science is perceptual, technical as much as intellectual. In other words, mutation does not come from mere constitutional process of subject (researcher), rather it comes from the institutioning process of human and world. Accordingly, a different direction that can make sense of a form of scientific dominance is driven in large part by perceptual and technical commitments or convictions.

Perception as an essentially bipolar arrangement (subject-object), suffers from the fact that the object of contemporary research always recedes as the questioning advances.

Heidegger (1962) suggests, "the character of Being which belongs to the ready-to-hand is just such an involvement. If something has an involvement, this implies letting it be involved in something" (p. 115). Accordingly, perception occurs when there is a "context" formed for a perceiver and a perceived, a context of mutual involvement or implication. In other words, perception is this context-formation, as well as the activity that takes place within it.

To assume the perceiver gives rise to the perceived (or vice-versa) is to overlook the place or context of their emergence in such a way that people find themselves caught up in a truly vicious regression. As previously mentioned in Chapter III, Merleau-Ponty (1962) and Husserl (1970) indicate that intellectualism or Cartesian subjectivism and empiricism hold this error of oversight in common, the former doing so in the name of subject, the latter in the name of the object. Following Merleau-Ponty (1962), "Between my sensation and me always lies an obscure thickness of a primordial experience which prevents my experience being clear [even] to myself" (p. 250). He means that the primordial experience engenders the possibility of any given perception, though it also limits any perception's domain of clarity insofar as this primordial experience or perceivability itself cannot be rendered completely visible.

Further, the question of the perceptual horizon is not simply a spatial matter. As explained in Chapter III, Husserl (1970), criticizing Kant, recognizes the temporal

structure of perception and further explores the constitutional characteristic of consciousness in terms of his schema of protention and retention.[25] Merleau-Ponty continues this exploration of the question of the perceptual (rather than consciousness) horizon as both spatial and temporal. Merleau-Ponty asserts this point as "the synthesis of horizons [past, present and future] is only a presumptive synthesis, it operates with certainty and precision only in the object's immediate vicinity [emphasis added]" (1962, p. 58; see also 1968, pp. 148-149). The meaning of Merleau-Ponty's notion, "open and unfinished object" is clearly explained.

On the contrary, in the modern world, from the objectivistic biased viewpoint such as Feinberg (1977), science is not so much a question of discovering new things and new ideas but rather, of improving and refining what is already possessed and understood. New entities will continue to appear; however, their forms will follow the strict lines earlier thrown forward by the already-established modern perception. This notion of science exists because, to the objectivist viewpoint, modern perception is not only perfectible but also, is essentially self-reliant.

Merleau-Ponty's notion of 'body,' or more broadly 'flesh,' together with Peirce's notion of 'habit' and 'potentia' provide a new way for understanding perception and technology. The central theme in Merleau-Ponty's investigation is the

---

[25] To Kant, temporality, for better or worse, is not something beyond the human perceptual scheme, but the quest for that is an illegal temptation of metaphysical desire of human intelligence. However, temporality, to Kant, is a transcendental form of all sensibility. The objectivistic biased paradigm regards time primarily as a barometer for external changes began to yield ground. Kant, on the other hand, shifts the thematic focus more and more from time *per se* to time-experience. In this sense, Kant's critical philosophy is "critical." Husserl's term "retention" refers to the unified totality of horizon-consciousness against which the present stands out, where as recollection is a particular mode of consciousness whose focal point is a certain past event. Thus, retention is part of an on going experience; it remains continuous with the present. The consciousness of present always involves retention as the horizontal consciousness of the background.

body as anchoring point of perception and communication. The notion of 'embodiment' facilitates critiques on the objectivistic-biased viewpoint and thus, provides the capability of grasping the relationship between technology and communication/semiosis. Before exploring Merleau-Ponty's argument, this study begins from the Peircean version of 'embodiment': 'habit'. The term, 'habit,' is the place where Peirce meets Merleau-Ponty.

Peirce's notion of habit is not that of behavioral psychology, but rather, it involves our engendering meanings for signs. Habit entails activity with which mind and body engage according to dispositions that have become entrenched by use and as a result of individual experience, social customs, and rules of conduct. Rather than being judged as either true or false, habits are considered in terms of their degree of contextual validity. This is an open deviation from the principle of excluded middle. A habit is valid to the degree that it applies to the other contextual fields of habit that position it; it may be invalid in other contexts and hence, can never possess a universal truth-value (Peirce, 5.367).

If we regard reality as a relational process between subject and world or simply the infinite expression of 'being-in-the-world,' the concept of '*potentia*' that Heisenberg (1958) chose to speak of "reality" in relation to the contradictory results of quantum mechanical experiments gives a new way of interpreting experimental results as well as of defining "reality." A semiotic correlate to the term "potentia" may be suggested by Peirce's notion of "habit." In objectivistic-biased traditional physics, the results of the observation of physical objects are conceived of as idealized normative abstract objects or as real causes. However, the disparities in the

results of quantum mechanics experiments require a new interpretation of the "reality" that these results reflect or represent.

Following Heelan (1965), Heisenberg (1958) insists that we can temporarily halt the flux of movement and isolate the quantity of energy, however, it must be recognized that these results, i.e., observations of time-space and causality, do not refer to anything other than points of observation. Experimental observation produces a moment of stability. The stability is not pure, naked "reality," but rather, a stability is produced by the momentary interaction of (a) the subject, (b) the subject's apparatus doing the measuring or the trace as "signifier," and (c) the Object being measured. This Object is unknowable except *in*, *through*, and *as* an experimentally-measured or interpreted entity.

Potentia is neither a pure idea nor an actual event, neither a transcendental category nor a particular substance, neither an object nor an interpretation. Rather, potentia refers to the possibility of producing laws or models of objects in and through experiment and interpretation. Likewise Husserl (1970) asserts the phenomenon represented by the model is actually the interaction of knowing subject and object to be known, as well as the traces left by both. According to Heelan (1965),

> The elementary particle, on the one hand, is not phenomenally real; for it has 'no color, no smell, no taste; . . . . and the concepts of geometry and kinematics, like shape or motion in space, cannot be applied to it consistently.' On the other hand, it is not a pure idea, for it can be 'converted from potency to act,' by the process of measurement and

observation. Heisenberg called it real but potential [emphasis added]. (p.154)

Therefore, human beings have no direct knowledge of the object as brute reality or of the universal organization of their knowledge categories. Apart from the symbols or traces produced by their encounter, with the particular conditions of experiment, i.e., within a particular context, human beings know nothing (Heelan, 1965).

The "reality" of the quantum mechanical results is a "potentia" as opposed to an "in-itself," physics or "noumenal" reality, because reality exists only in relation to the act of observation. For example, energy is a condition of possible characteristics of a particular physical milieu, whereas "potentia" would be the statement of the possible types of systems and processes permitted by that milieu taken as the context of experimentation and interpretation. Therefore, the Kantian universal laws of nature are transformed into laws of the possible relationships between subject and object. Reality is not simply the external world as the Newtonian objectivistic biased-viewpoint presupposed but rather, the mutually engaged presence of knowing subject and object to be known.

Hence, the tendency of light to behave as a particle with certain other properties when acted upon in experiment is "potentia," a correlate of a possible union of subject and object in the act of observation or interpretation under certain conditions. We are no longer speaking of a representation of "reality"; rather, we are describing an interactive production/presentation of reality; in other words, an embodied grasp of the world. What is changing here are the limits and definition of the type of "reality" that we can know: 'what is visible.' Therefore, one can know

possible results only of the observational event and only as interaction of (a) the empirical behavior of the world, (b) our forms of thought or our instruments, and (c) our communication or semiosis.

Heisenberg (1958) proposes the problem of the status of "reality" and then, answers that it is one of many potential results of interaction. According to Heelan (1965), "science, the atomic physics, is but a link in the infinite chain of man's [*sic*] argument with nature and that it cannot simply speak of nature 'in itself'" (p. 152). Therefore, "the true object of quantum mechanics was not nature but man's [*sic*] relationships with nature" (p. 54). Accordingly, if science comes up with particular experimental results or with certain formula, these "represent" not a noumenal "reality" of pure nature nor an empirical object in-themselves. Rather, they "present" potential configurations that may be actualized or that probably will be actualized in the event of experiment. Hence, truth or rather, meaning, exists as potential. The result of experiment has no absolute "truth," only validity. Therefore, laws of various kinds are simply more or less applicable to certain well-defined domains of experience, i.e., their validity is contextually delimited. As illustrated in Chapter III, Gebser (1985) explains all expression has its validity within its own consciousness structure. However, at the same time, the possibility that all expression can be interpreted differently remains as 'potentia' in the process of 'plus-mutation' and the characteristic of 'ever-present origin.'

As Merleau-Ponty (1962, 1968) explores the answer for the problem of Cartesian dualism in his concept of 'body,' Heisenberg has, perhaps, found the solution to the problem of the impossibility of Kantian transcendentals or Aristotelian

pure experiences. The alternative is "potentia" or "possibility." Potentia is the result of the dialectical interaction of both subject and object. At the same time, potentia is the process itself. It does not stem from a one-sided idealism, an abandon to capricious subjectivity, any more than it arises out of naked empiricism. This point reflects Husserl's critique on the crisis of modern science as described earlier. The notion of 'potentia' implies the interrelational constitution (co-constitution) and does not pretend 'absoluteness' or 'universality' as is usually claimed by the objectivistic biased viewpoint. It is adequate to relate the notion of potentia with Peirce's concept of 'habit,' as Peirce insists on habit as a series of possible experimental results.

Peirce's notion of habit

Peirce proposes habit as the solution to the gap between human and the continuous, dynamic, chance-generated, uncertain field of sign-relations. Because habit enables one to fix sign-relations and to find regularity in them, Peirce asserts, "It is clear that . . . a principle of habit . . . . is the only bridge that can span the chasm between the chance medley of chaos and the cosmos of order and law" (6.262). According to Peirce, the meaning is determined by the habits of past sign-relationships in connection with the interpreter. Therefore, to Peirce, "there remains only habit, as the essence of the logical interpretation" (5.486). Peirce's habit may be closely related to semiotic notions of code. However, it must be carefully considered that, to Peirce, code is not regarded in terms of 'connection' or 'link' that ties meaning with actual object in the world, i.e., as a dyadic semantic transfer mechanism. Rather, as Peirce indicates, habit as code must be understood as a triadic, interrelational, communicational relationship. Habit is a regularity of transformations

among objects, persons, and material symbols, or among Interpretant, Object, and Representamen.

Habit, then, is a temporary limitation of possibilities or of relations largely pre-established by the previous perceiver's sociocultural Interpretant-habits, which enable possible meaning configurations that are the interaction of sign-functional habits to be temporarily and potentially isolated. To summarize, triadicity, relativity, relationality, conventionality, and communicationality are properties that are developed within the Peircean notion of habit to make them applicable to the practice of communication and to the interaction involved in knowing objects. Hence, a habit is an embodied regularity of semiotic procedures. The perception of Object and Representamen, as an Interpretant-effect, depends upon previous Interpretant-habits of attention or 'seeing,' which are stored in what Peirce calls "associations in memory." For Peirce, however, this memory is more social rather than individualistic and anthropomorphic. Habit, then, is a configuration of sign-relations that may be temporarily isolated yet, that also must be resituated in the historical consciousness continuum of other habits in order to be more completely, if not exhaustively, interpreted.

Accordingly, habits are neither fixed laws nor parts of mechanical models, neither absolutes nor exempt from variation by chance. In short, habit bears all of the epistemological flux, interrelativity, and possibility of "potentia." The acquisition of interpretant-habits, and their interpretation for that matter thus, is always subject to growth, mutation, and alternation, because, these habits are interactionally-triadically constituted and are formed in the first place by chance occurrences.

As an alternative for the correspondence theory of truth and meaning, the potential of the Peircean configuration of the nature of semiosis/communication lies in the notion of contextual validity, i.e., a certain field of relations. Peirce proposes the notion of sign-field, or in Peirce's term, "*phaneron*," to explain the configurations that sign-habits generate. Peirce acknowledges, "signs are irreducibly triadic—they function in relation to other elements of the triad in that they are situated in a field—ground—phaneron" (2.228). For Peirce, "field is synonymous for relation of signs" (1.286). The sign-field describes all of the sign-habits present to the interpreter at the time of the reception of a particular sign-relation, a presence that necessarily governs the reception of, or the contextualization of, the particular sign-relation.

Hence, for Peirce, the sign field, "*phaneron*," is the organization of sign-relations in a particular time and space that governs the functions of any new perception of sign-relations. Therefore, the phaneron is the "collective totality of all that is present to the mind no matter what manner or sense, and without worrying at all whether it corresponds or not to any real thing" [emphasis added] (Peirce, 1.285). For Peirce, in the end, truth and meaning depend neither upon a singular habit, nor upon the habits of the idiosyncratic *self* but rather, upon the consensus of the community. In the lifeworld, the real is that, sooner or later, information and reasoning would finally result in, and which is, therefore, independent of the whims of you and me. Thus, the very origin of the conception of reality shows that this conception essentially involves the notion of community as historical consciousness, without definite limits (Peirce, 5.311).

Merleau-Ponty's Habit-Body

Merleau-Ponty also emphasizes the situated characteristic of body i.e., the way in which the body "loves" relations. Merleau-Ponty (1962) suggests:

> Prior to stimuli and sensory contents, we must recognize a kind of inner diaphragm which determines, infinitely more than the stimuli and sensory contents do, what our reflexes and perceptions will be able to aim at in the world, the area of possible operations, the scope of our life. (p. 79)

Thus, Being-in-the-world, he concludes, is a "pre-objective" view that serves to "anchor" the subject-body within a definite, though hardly "determinate," environment. Being-in-the-world is, then, "an intention of our whole being" that is caught up in the dynamics of a "definite involvement" (Merleau-Ponty, 1962, p. 82). Hence, the body, in Merleau-Ponty's account, is "the unperceived term in the center of the world toward which all objects turn their face" (p. 82). Further, Merleau-Ponty (1962) suggests that there must be another layer to the body's nature, another layer besides that of "the body at this moment" which is the flesh-body. Merleau-Ponty calls this second dimension the "habit-body." Together, the flesh-body and the habit-body dictate the situatedness of the body.

The habit-body is an "anonymous" realm of bodily orientation, a horizon of sedimented "manipulatory movements," or "axes" and "vectors" through which the body participates in the spectacle of involvement that is a subject's "being-in-the-world" (Merleau-Ponty, 1968, pp. 220-222). Following Merleau-Ponty (1962, 1968), the habit-body serves in a foundational way to "situate" the existential subject within

a context of possibilities that, then, induce the actions and anticipations of lived-body. The body therefore serves to initiate the existential subject to a range of possible themes, hence frames the orientation within which the subject takes up one's life.

In this regard, Merleau-Ponty (1962) clarifies the limitation of the "objectivistic" understanding of body, as he says "It is never an objective body that we move, but our phenomenal body, and there is no mystery in that, since our body, as the potentiality [emphasis added] of this or that part of the world, surges toward objects to be grasped and perceives them" (pp. 105-106). Therefore, Merleau-Ponty is led to conclude there is a bodily possession of space that is more primordial than our possession of "objective" space and that this pre-objective spatial existence is "primarily condition of all living perception" (p. 109). In other words, actual bodily movement is more primordial than the thought of a bodily movement.

"Beneath intelligence as beneath perception," Merleau-Ponty (1962) remarks, "we discover a more fundamental function," a function which first enables us to place ourselves "within a particular world," or "within a situation." This function is the "intentional arc." Merleau-Ponty says, "Intentional arc projects round us our past, our future, our human setting, our physical, ideological and moral situation, or rather, which results in our being situated in all these respects" (p. 136). Hence, it is by virtue of our intentional arc that we can integrate different dimensions and points of view into the unity of a personal core of being that is then capable of responding to both familiar and unfamiliar sorts of situations. The intentional arc, thus, supplies people a foundational unity that is not a synthesis of aspects but rather, the very basis

for synthesis and integration. The unity is bodily intentionality, which manifests itself in experience as a sort of "performatory" knowledge.[26]

Merleau-Ponty (1962), following Husserl, establishes this point, "consciousness is in the first place not a matter of 'I think' but of 'I can'" (p. 137). In this sense, the body inhabits the world, even though it is a point of view on the world. Through the perceptual habits of the body, we are able to "come into possession" of world, setting "boundaries to our field of vision and our field of action" (p. 152). In this vein, Merleau-Ponty (1962) indicates,

> The body expresses total existence, not because it is an external accompaniment to that existence, but because existence comes into its own in the body . . . . Understanding in this way, the relation of experience to thing expressed, or of sign to meaning is not a one-way relationship like that between original text and translation [emphasis added]. Neither body *nor existence* [italics in original] can be regarded as the original of the human being, since they presuppose each other. (p. 166)

Therefore, if it is through the body's initial capacity to open onto a field of access that the world first becomes a world and the subject a worldly being, then it would seem that the body is "the initial upsurge of meaning, the basis of all possible truth, of all

---

[26] Pierre Bourdieu's sociological approach offers many similar points to Merleau-Ponty's notion of 'embodiment' and 'intentional arc.' In a sense, Bourdieu's works can be regarded as the potential application of Merleau-Ponty's philosophical explorations. In the notion of 'embodiment,' both thinkers share the experience of lived body as the dissolution of subject and object dichotomy. Bourdieu clearly focuses the visible—or, what is 'seen'—more than invisible phenomenon; Merleau-Ponty, rather, focuses the potentiality or possibility of in terms of "motility" – "I can –." See Merleau-Ponty (1962) and Bourdieu, P. (1977). *Outline of Theory of Practice*. Trans. R. Rice. Cambridge: Cambridge University Press. Also see, Bourdieu (1990). *The logic of practice*. Trans. R. Nice. Stanford: Stanford University Press, especially, pp. 55-57, pp. 76-77, pp. 102-104)

rationality" (Madison, 1981, p. 65). Stated differently, "to have lost one's voice is not to keep silence: one keep silence only when one can speak" (Merleau-Ponty, 1962, p. 161).

Merleau-Ponty's body and technology

For Merleau-Ponty (1962), perception as 'embodied consciousness' is the primal point of contact between our existence and the world. Body is never an object among other objects, either natural or artificial, in the world. In addition, the body as the subject of the sensorium is mine; "I am my body." As such, it is the vehicle of my communication with the world. Merleau-Ponty (1962, 1968) insists that my body is not an object but rather, is a medium, an organization.

The hallmark of modern perception involves its taking up of new instruments, though instruments are not simple material objects; instead they are modern technology itself. Technology is no longer limited to simple machines. In its modern form, technology extends much further (Ellul, 1964; Mumford, 1973). In other words, the technology is no longer simply part of the strictly visible realm; technology is the embodiment of a new way of seeing, the visible itself.

Merleau-Ponty's notion of "flesh" connects the two dimensions of reality: the inner and the outer. For instance, Merleau-Ponty (1968) illustrates that the operation of the two eyes is synergic, in that binocular vision is not composed of two monocular visions as an "association," "assemblage," or "aggregate" of two separate entities or as a "parallel" working side by side, but rather, it is one sole unitary vision. Touch, too, is an interlacing of the movement that touches and the movement that is touched.

In the handshake, we feel we are touching and being touched at the same time (pp. 142-144).

Embodiment and Institution (Co-constitution)

It is not perceptibility, but intelligibility, which dominates the essence of bodies in Descartes' view, and thereafter, his perspective permeates all the viewpoints that have the Cartesian objectivistic bias. However, Merleau-Ponty (1970) is reluctant to grant a primary constitutional power to consciousness. Instead, he proposes the term "institution." For Merleau-Ponty (1970, see also, 1964, 1968), "institution" comes to replace "constitution" as the primordial movement of appearance. Things are caught in the play of institutional forces along with consciousness and are not simply subordinate to the unilaterally superior productive power of consciousness. If consciousness does play the role of 'institutor,' i.e., 'quasi-agent, it is only with the support and collaboration of things-in-the-world and only within the context of movement of institutions always already at work.[27]

For Merleau-Ponty (1970), what matters is not so much a case of constitution as much as it is one of "institution." The Cartesian objectivistic biased view of perception remains derivative in that it overlooks the very source of its possibility of self-certainty. Perception begins, not in the work of consciousness or in its meaning-giving power, but in subduing consciousness under the indeterminacy of the world. If it has been admitted that (Cartesian) constitution cannot account for the world, then a new assessment that seriously or radically considers the nature of the other

[27] Kramer (1993, 1997) indicates the same points in terms of the notion, "co-constitutional" process. However, Kramer's term, 'co-constitution' still provides subject or acting agent with the primary constitutional power, although tacitly. Kramer (1993, 1997), like Husserl, fully recognizes the eloquence of things, i.e., things-in-the-world, and clearly insists on that point in his argument; however, the usage of the term, 'co-constitution,' reveals a still subject-oriented tendency.

"participants (objects)" in the manifestation of the multidimensional flesh is necessitated. In other words the ways, in which people's perceptions and people's thoughts rely on the obscure nature of things play a central role in this assessment.

As Merleau-Ponty (1970) suggests, the concept of institution may help us find a solution to certain difficulties in the notion of consciousness. Merleau-Ponty insists,

> If the subject were not taken as a constituting but an instituting subject, it might be understood that the subject does not exist instantaneously and that the other person does not exist simply as a negative of myself . . . . an instituting subject could coexist with another because the one instituted is not the immediate reflection of the activity of the former and can be regained by himself [*sic*] or by others without involving anything like a total recreation. Thus the instituted subject exists between others and myself, between me and myself, like a hinge, the consequence and the guarantee of our belonging to a common world. (p. 40)

To perceive is not to constitute a meaningful, sensible situation. Rather, to perceive is to find oneself in the midst of an appearance that demands or suggests the possibilities of meaning. Thus, the phenomenon of perception precludes any simple notion of beginnings, insofar as it is already ahead of itself. In this sense, every perception has the characteristic of "ever-present origin" as its nature, because a world of things is always unavoidably already there before us.

Hence, the thing has its own right in the establishment of the institution of perception. However, "for consciousness there are only the objects which it has itself

constituted" (Merleau-Ponty, 1970, p. 39). Therefore, if perception and technology (as objects) are essentially institutional and not constitutional, everything must be explained in a dramatically different way. When we perceive something, we are taking up an institution of perception as our own, engaging what was before us. The institution is not some empty transcendental but rather, the relationality of perceiving and perceived, and insofar as things are invested with this relationality, they precede any personal perception as well.

Technology and perception

When technology is regarded as a good or evil that is external to the essence of perception and thought, we continue to see it as something controlled and manipulated, rather than grasped as a historical manifestation. Merleau-Ponty illustrates the means through which technology comes into perception. As Merleau-Ponty (1962) explains, when the blind person's cane becomes an extension of the sense of touch, the cane becomes invisible as cane and "visible" as body. Likewise, the masterful pianist comes to inhabit the keyboard in such a manner that it seems to be a fleshly extension of that person's hands by which he or she makes music. Merleau-Ponty emphasizes this point profoundly, saying, "the lived body is not where it is nor what it is" (p. 72). These examples demonstrate the human body's talent for extending itself beyond its objective boundaries.

For Merleau-Ponty (1964), the question concerning technology is invoked as the bridge between his radical notion of body and even more radical notion of flesh. Hence, to him, all technique is "technique of body" (p. 168). It represents and amplifies the metaphysical structure of our flesh. Merleau-Ponty (1964) explores the

relationship between body and technology through the example of mirror (pp. 168-169). In this case, mirror serves as one example of the virtually unlimited number of technical and perceptual relationships in the modern technological milieu.

With the improvements of the mirror, generally, those of the technology, the human body is reflected more and more accurately; however, it is only because the body already held the possibility of existing in two senses, as "seeing body" and "visible body." In other words, the mirror (or technology) and the human body imply and provoke each other's latent qualities i.e., the body as double body and the mirror as the perfectly "transparent" medium that encourages this doubling aspect of the body. In this sense, the mirror symbolizes the way in which all technology seems to play a representational role in human life. Yet, in fact, the symbolization is not so simple or straightforward; rather, amplification, even transformation, is underway in the technological milieu.

Following Merleau-Ponty (1968), "the visible-seer (for me, for the others) is moreover not a psychic something, nor a behavior of vision, but a perspective, *or better*, the world itself with a certain coherent deformation" (p. 262). From Gebser's perspective (1985), Merleau-Ponty's concept, "the visible seer" is close to the power for concretizing the specific consciousness structures, or better, the world itself, with the characteristic of "plus-mutation." Hence, from Merleau-Ponty's perspective (1964, 1968), the question concerning the place of technology is the question of how a technical body becomes instilled and insinuates itself into the broader structure of flesh.

For Merleau-Ponty (1964, 1968), it is crucial to understand how the human body and the technical body provoke and sustain one another, as well as how together "amplify" one another or exceed the potential of either alone. However, Merleau-Ponty also recognizes that this technical "amplification" of the body, i.e., the revealing of something that is most proper to the body, has a price. All such amplification is, in fact, deformation or transformation. Implicit in this transformation is the privileging of a certain form (e.g., Euclidean geometry) of perception and the accompanying forgetting or masking of other possibilities.[28] Euclidean geometry, as a typical example of the co-happening transformation and deformation, shows itself as an overwhelming and appropriative embrace of the Renaissance perspective. Euclidean geometry is an embrace not only of some new perspectival technique, but also of the revelatory spirit of the Renaissance perspective. The perceptual power of modern science stems from its unconditional embrace of this historical possibility, not the technique per se (Carey, 1989, pp. 113-141, see also footnote 16 in Chapter III of this study).

Ihde (1979) insists, "modern technological embodiment lies in our technology and its relation to polymorphic perception" (p. 99). It is possible to illustrate that there are approximately three different configurations exemplifying the relation between technology and perception, i.e., technological embodiment.

First, in his arguments about what computers could not do, the conclusion Dreyfus (1972) drew is that the computer could not be intelligent, because *it did not*

---

[28] Gebser (1985) indicates the same point. As Gebser notifies, this shift or the privileging of a certain form is, however, "a gain as well as a loss" (p. 12). When consciousness mutation occurs, some aspect gains manifest state, together with some lost in other aspect. Kramer explains the same matter in his theory of dimensional accrual/dissociation. See, chapter IV of this study.

have a body, which is to say, a human body. Its materiality neither perceives, nor moves, nor acts. In another sense, of course, the computer does have a body; however, there could be a great deal of argument regarding bodily differences between electronic and fleshly bodies.

Second, Heelan (1983), in contrast, comes close to "humanizing" the artifact. Insofar as the instrument enters into an extended human embodiment, it becomes virtually transparent. Therefore, Heelan claims that reading a thermometer is "equivalent" to a direct perception. Heelan, however, collapses his "readable technologies" too much into unique measuring perceptions of a particularly trained, as well as technologically extended, human body. In this respect, Heelan's technologies are taken *inside*, whereas Dreyfus leaves the technology *outside*. For Dreyfus, not only do computers "think" differently than humans, but they also do not "think" at all. The computer in fact remains an alien presence that only through philosophic illusion becomes similar in appearance to the human.

Finally, Ihde (1998), following Merleau-Ponty, insists that technologies are neither outside nor inside. Technologies do not reveal themselves "directly" but rather, "indirectly" or *reflexively*, in a phenomenological way. Ihde concentrates, first, upon technologies as artifact; i.e., it is possible to use praxically any material entity "technologically." Ihde insists that to take up the artifact into some human-directed or referential praxis toward the world, e.g., simply picking up a stone and throwing it for some purpose, is to accomplish, as humans often do, at least some minimal technical modification of the artifact before putting it into use.

Ihde (1998) insists that interpretation is a *distinctively relativistic* act. Relativistic, as discussed in the section on Heisenberg's notion of 'potentia,' which is in a sense analogous to contemporary physics, means the perspective always has to account for *what* is observed and is, simultaneously, necessarily dependent on the situation or position of the observer. The object does not simply reveal itself to me, particularly not objectivistically. In this phenomenological, relativistic framework, it is the co-constitutionality (or institutionality) that is crucial. Thus, a phenomenological exploration must examine at the realm of human-technology relations, not the technology and human subject alone. In the spectrum of such relations, as Heidegger (1962) observes through the hammer example, our uses of artifacts are such that the artifacts themselves do not stand out; indeed, when they do stand out, they are no longer functioning in the world-related way through which we experience them.

Ihde (1998) suggests technological mediatedness is a central feature of the human-technology relationship. His explanations of a mediated situation are helpful for understanding the term, "medium," in Diagram 2. He says,

> In the mediated situation, my "reach" is extended or magnified"-I can do more than I could do in my naked body position. But, simultaneously, at least during the actual use of the technology, my experience of apple is "reduced." This latter point is often overlooked in favor of the former magnificational point-but for example, I do not feel the fleshiness of the apple, nor tactilely sense as fully its state of ripeness, etc. . . . . The mediated situation, then, is one in which both

> what is experienced and how one experiences the object are changed. Technologies transform our experience of the objects in the world non-neutrally. (p. 47)

Borrowing Ihde's (1982, 1990) configurations, Human—Technology—World, we can express the embodiment of technology as below. Here, we differentiate technology from two distinctive viewpoints, as a tool or an instrument and as a mode of revealing. In this sense, medium is a more appropriate term than technology, because the term medium includes a specific technological apparatus and technological mode, as well as time and space.

Configuration 1: (Human < ---------- > World), Un-perspectival conscious structure

Configuration 2: Human ---------- >World, Perspectival consciousness structure

Configuration 3: Human ---- medium ---- World, or, (Human --- medium) ---- World.

Configuration 1 illustrates the characteristic of the un-perspectival world in terms of 'embodiment.' As Gebser (1985) illustrates, there is no clear distinction between world and human in the un-perspectival world. In other words, there is no intentional directionality in the perception of things-in-the-world.

Configuration 2 indicates the typical characteristic of the mental, perspectival world. This configuration is an expression of the Cartesian objectivistic biased paradigm. As discussed in previous chapters and the early part of this chapter, this perspective objectified things in the world, including human being and world. This configuration stresses the Cartesian conscious subject; thus, the world is waiting to be discovered and to be perceived by *cogito*.

Configuration 3 illustrates the mediated world. Ihde (1990, see also, 1998) suggests this mediated context as "I --- Technology --- World" (pp. 85-90). Further, he classifies two specific contexts: " (I—Technology)--- > World" as "embodied relation", and "I--- > (Technology—World)" as "Hermeneutic relation." In embodied relations, following Ihde (1990), "what allows the partial symbiosis of myself and the technology is the capacity of technology to become perceptually transparent" (p. 86). In configuration 3, if embodied relations approve the authority of things, that is, approve their own power in perceptual relations, the medium is regarded as another side in the co-constitutional process, e.g., as the Greek people thought when they use tools, which is what Heidegger calls *poeisis*. Then, the (Human --- medium) --- World configuration can be regarded as the expression of the mental consciousness structure, because, as Gebser (1985) indicates, rational people still have the reflective power to recognize the limits or relational confinement of their consciousness structure.

However, if people already embody the very mechanism or technicization, not merely the knowledge or usage of technological apparatus or skill, then the configuration, (Human --- medium) --- world, can be regarded as the expression of the rational consciousness structure, i.e., as the extreme extension of the Cartesian tendency. Within this kind of configuration, as Dreyfus criticizes in *What computers cannot do*, the unattainable ambition, such as AI (Artificial Intelligence), arises. This argument will be discussed with relation to semiosis/communication in chapter VI.

Based on the notion of 'body' and 'flesh,' the notion of institutional embodiment on which Merleau-Ponty insists can be illustrated as, {(Human/world) --- medium] --- world}. Following Merleau-Ponty (1968), "The world seen is not 'in'

my body, and my body is not 'in' the visible world ultimately" (p. 138). Stated differently, "we must not think the flesh starting from substance, from body and spirit—for then it would be the union of contradictories—but we must think it, as we said, as an element, as a concrete ensemble of a general manner of being" (p. 147). Therefore, the enigmatic notion of 'embodiment' cannot be explained with substance; rather, it can only be understood through the concept of 'potentia' or 'possibility.' Merleau-Ponty (1968) clarifies this point;

> To designate it [the flesh], we should need the old term 'element,' in the sense it was used to speak of water, air, earth, and fire, that is in the sense of a *general thing*, midway between the spatio-temporal individual and idea, a sort of incarnate principle that brings a style of being wherever there is a fragment of being. The flesh is in this sense an 'element' of Being. Not a fact or sum of facts, and yet adherent to *location* and to the *now*. (pp. 139-140)

Merleau-Ponty's notion of 'embodiment' can be illustrated as in Diagram 3.

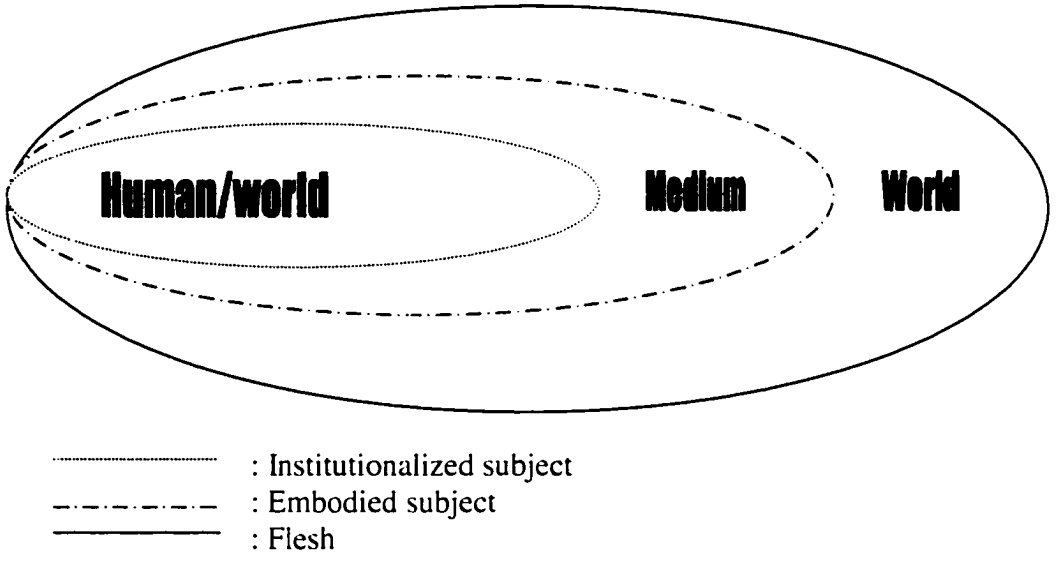


Diagram 3: The relationship between technology and embodiment based on Merleau-Ponty's notion of body, embodiment, and flesh

As Kramer (1997) insists, together with Gebser (1985), the "two most fundamental media are time and space" (p. iii). Therefore, without speculating on the mutations of consciousness structures or the mutations of the way of grasping time and space, we still fall short of full understanding of the concept, "embodiment." For Merleau-Ponty (1968), perception becomes enigmatic precisely in relation to "cultural" factors. He states, "what I maintain is that: there is an informing of perception by culture which enables us to say that culture is perceived" (p. 212). Hence, technologies are always culturally embodied; that is, any given technology will also be culturally relative as well. Cultural embeddedness is a matter of technology-in-a-context; where it is and what it is have meaning only contextually.

The notion of 'embodiment' can explain why there is no such thing as a simple technology transfer. There is only a culture-technology transfer, for all technologies have a cultural network of its assignment. In this sense, as Latour (1993) illustrates, the ozone hole is simultaneously "natural" and "cultural" if our science is correct in claiming that about a quarter of its formation is of homogenic origin. The enigmatic notion of embodiment and its relationship with communication will be discussed with more detail in chapter VI through the exploration of "vision."

VI. Visiocentrism and Overdetermination

In this chapter, the transformation or mutation of visualism will be discussed as a typical and fundamental realization of consciousness structures and perception. The explorations on the mutation of perspectivism (or vision) serve as good examples that illustrate the characteristic differences among pre-perspectival, perspectival, and Merleau-Ponty's (1968) embodied perspective (or, "embodied vision"). Further, the implication of "embodied vision" with regard to semiosis and communication will be investigated through the notion of "overdetermination."

With the advent of the modern way of perception, tools, i.e., technology, come to represent the means by which objects and works are judged. Taken as model entities, the being against which all beings can be evaluated, tools facilitate and further instigate the transformation that indicates the perceptual faith of modern people from that of earlier phases, such as magic or mythic. Hence, production and usefulness become the dominant ontological motifs of the modern mental perceptual faith, and, as such, the essence of objects is always cast in the light of purposefulness and availability. In Heidegger's term, *poeisis* gives way to a sort of fundamental instrumentalism that finally, as demonstrated by Feinberg (1973) and explained in Chapter III, declares the human being can do anything desired, just as God does. Therefore, it is not a mere coincidence that instrumentalism is reflected in the incessant reference to God as clockmaker.[29]

---

[29] The success of the Newtonian appropriation of appearance profits from the Baconian vision of objects as already primordially technical. In other words, what had been for Descartes a necessarily direct appeal to God's creative power in the attempt to ground the essential origin of objects or things in a truth of rectitude is no longer necessary. In the Baconian view, God provides humanity with a technical inspiration from the beginning; the nature of all things, natural or not, follows this divine model of production. Thus, the appeal to God is no longer necessarily direct; rather it flows through a quasi-technical constitution of real (Koyre 1965, pp. 53-58).

Descartes' philosophical visualism coincides with the beginning of modern "subjectivism" or "individualism." According to McLuhan (Carpenter & McLuhan, 1960), there is, in Descartes, a unique correspondence between "eye culture" and "I-culture." The "I" of the Cartesian Cogito or human subjectivity becomes the center of thought from which the "I-viewpoint" and subjectivism of modern times originate. Further, with the developments that help to "fix" or stabilize observations without bodily training and with the developments that can and do "distance" the previously direct bodily activities from the original context, the actual embodied seeing is replaced by the technoconstruction that allows the vision to be mechanically stabilized. In this vein, the Greek metaphysical preference for the eternally fixed remains within the Galilean/Newtonian configuration of the world, time and space. In short, machine embodies the metaphysics. The hypertrophy of 'I' in Cartesian subjectivism and the objectivistic-biased configuration of space and vision are inseparable. These are two faces of the same phenomenon.

The emergence of modern technology accompanies the emergence of modern perception (i.e., mental-rational consciousness structure). This technical and perceptual thrust shapes a new world, a world which is so radically new as to retrospectively render all worldly precedents unthinkable and unperceivable. As Mumford (1973) and Gebser (1985) indicate, the emergence of new technologies, such as precision of time through precise measurement devices, e.g., chronometer, the instrument to measure time and optical devices, was as much an outcome of the modern scientific impulse as a result of some innate human volition to master the

material world. Therefore, the world as perceived, its shapes and contours, its durations and periodicities, changed dramatically with this new age of discovery.

Scale and fixation of space

The spatial preoccupation of modernity is expressed by ever-greater precision, which means ever-more minute subdivision of the world. Quantification expresses this desire. These subdivisions are then arranged in hierarchical schema that pretend to operate automatically, methodically, and irony of ironies, "naturally." Therefore, autonomy of method is an attempt toward objectivity and freedom from awareness, i.e., subject-consciousness.

Modernity presumes, and through discursive means, establishes and maintains a consistent version of a fixed, measurable, and systematic universe. The modern world is unitized into discrete bits that are essentially identical and infinitely divisible. Each bit is identical with every other piece. Consequently, unitization enables manipulation. As Gebser (1985) indicates, this fundamental way of looking at the world enables technology to reshape, reconstitute, and make the world on a grand scale. "Technology is making, not describing [emphasis added]" (p. 114). Unitization enables precision and efficiency (conformity), which heralds the awakening of temporal anxiety in the modern world.

The domestication of space/time is the central problem of visiocentrism: to render all experience as visual/spatial (Kramer, 1992; see also 1994, 1997). The privileging of the eye-brain is visiocentrism. The more faith in the veracity of mediated information grows, the more the faithful become vulnerable to the power of the medium, because seeing is "real," seeing is believing. Though scales are social

constructs having power/value only so long as convention holds, scales become real (Kramer, 1992, pp.114-115).

As Ihde (1990) illustrates through the example of map, scales orient the world spatially, including invisible phenomena such as opinions, so these phenomena can be made visible and thereby "grasped." In the Gebserian sense, scales are magical. As scales transform anything into a spatial quantity, thereby it is regarded as real. For the modern scientist, measure is the thing itself. As a magical phenomenon, ratios are seen as things-in-themselves, as if the numbers are independent of human action.

In addition to the magical characteristic of the obsession of scale, an operational definition contains the essentially modern prejudice that the phenomenon defined is conceived, *a priori*, as being measurable; it is fixed as spatial and unitary. Thus, following Gebser (1985), "operational definitions include a priori, the means of creating the phenomenon as measurement . . . . By this operation, the world becomes a mathematical product" (p.115). To sum, scales are mythical when their products are assumed to exist before human intervention and are represented, or rather, revealed, by measurement. Mythically, measurement is not seen as identical with what it measures; however, the numerical values are not wholly arbitrary either. There is an emotional association between the two.

Perspectivism and modern technological perception

Following Gebser (1985), although humans' horizons expanded, their world became increasingly narrow as their vision was sectorized by the blinders of the perspectival worldview (p. 23). The gradual movement toward clearer vision was accompanied by a proportionate narrowing of humans' visual sector. The deeper and

farther humans expand their view into space, the narrower is the sector of humans' visual pyramid. For Gebser (1985), the ultimate achievement of perspectivity is the "aerial perspective," in other word; the God's eye view of Leonardo's Last Supper (p. 17). Gebser (1985), Ihde (1990), and Koyre (1965) commonly indicate that Leonardo's establishment of the laws of perspective is a very significant historical event in that it made technical drafting feasible and thereby initiated the technological age. Gebser (1985) asserts,

> Perspectival vision and thought confine us within spatial limitations. . . . The positive result is a concretion of man [*sic*] and space; the negative result is the restriction of man [*sic*] to a limited segment where he [*sic*] perceives only one sector of reality. (p. 18)

Thus, the basic concern of perspective is to "look through" space and, thereby, to perceive and grasp space rationally. From then on, the history of perspective is considered as a triumph of the sense of reality with its detachment and objectivation and, at the same time, as a triumph of human striving for power with its negation of distances. Finally, with the help of modern technology, the desire reached the final point or what Heidegger calls "distantlessness." Gebser (1985) asserts that this tendency can be seen as a process of establishing and systematization of the external world and an expansion of the ego sphere (p. 19).

Gebser (1985) provides two important remarks regarding perspectivism (pp. 16-22). The first contains one of Leonardo's earliest general definitions of perspective: "Perspective is a proof of test, confirmed by our experience, that all things project their images toward the eye in pyramidal lines" (as cited in Gebser,

1985, p. 20). This viewpoint expresses Leonardo's Platonic, even pre-Platonic animistic attitude that "all things project their images toward the eye," and the eye does not perceive but rather, suffers or endures. This creates an unusual and even disquieting tension between the two parts of the sentence, as the Aristotelian notion of the first part, i.e., 'perspective is a proof of test,' not only speaks of proof but also indeed proceeds from the "experience" of early science. This struggle in Leonardo himself reflects the transitional situation between the unperspectival and the perspectival worlds (See, Diagram 4).

The second note on perspective is illustrative of Leonardo's complete dissociation from the dominant unperspectival structure of ancient and early medieval consciousness. In its measurements, perspective employs two counter-posed pyramids. The one has its vertex in the eye and its base on the horizon. The second has its base resting against the eye and its vertex at the horizon (See Diagram 4). Gebser (1985) explains these two pyramids as follows:

> The first pyramid is the more general perspective since it encompasses all dimensions of an object facing the eye . . . . while the second refers to a specific position . . . . and this second perspective results from the first. (p. 20)

These remarks express the change from a *participation inconsciente* to what we may call a *relation consciente*, or conscious relationship (Gebser, 1985, p. 20). Leonardo was able to place the vanishing point in space (on the horizon) in opposition to the passive or "enduring" point of the eye, the receptor of the

stream of object impressions and thus, realized the close interrelationship between the two.

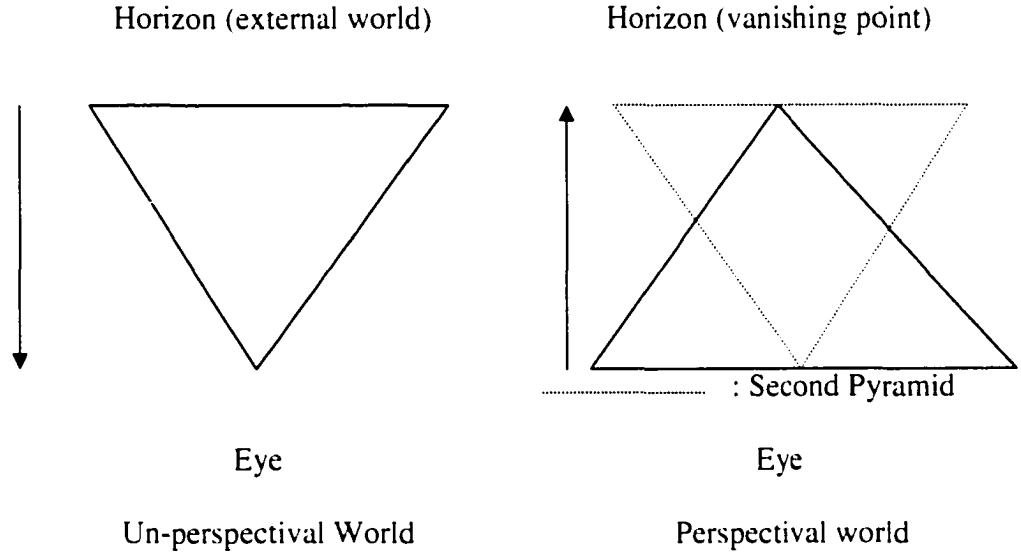


Diagram 4. Perspective from pre-perspectival to perspectival world

As Leonardo himself notes, the second pyramid (realized externally) results from the first (as cited in Gebser, 1985, p. 20). The emphasis has shifted to the eye of the subject, the eye which has realized space, and, thus, established an equilibrium between the ego world (of the eye) and the external world (the horizon) (Gebser, 1985, p. 20). The statement by Leonardo also represents a conceptual realization or actualization of perspective, a realization that has determined the Western image of the world ever since.

The magnification of space and spatiality that increases with every century since 1500 is at once the greatness as well as the weakness of perspectival human. Their maximization of the "objectively" external, a consequence of an excessively visual orientation, leads not only to rationalization but also, to an unavoidable hypertrophy of the "I," which is in confrontation with the external world. This

exaggeration of the "I" amounts to may be called an ego-hypertrophy: the "I" must be increasingly emphasized, indeed, over-emphasized, in order for it to be adequate to the ever-expanding discovery of space. Gebser (1985) nicely summarizes two results of the modern objectivistic paradigm that is expressed as the form of hypertrophy of 'I." He indicates,

> The expansion of space brings on the gradual expansion, and consequent disintegration of the "I" on the one hand, preparing favorable circumstances for collectivism. On the other hand, the haptification of space rigidifies and encapsulates the "I," with the resultant possibility of isolation evident in egocentrism. (p. 22)[30]

Following Gebser's configuration (1985), the perspective changed from mythic to mental/rational consciousness structures. In other words, the mutation in consciousness and perception occurred.

As a consequence, increasing precision replaces the qualitative as the dominant theme of the time. However, this replacement is not a putting aside but rather, a penetration and fusion, or in Gebser's term, "plus-mutation." In this way, the pre-perspectival quotidian form of perception, with its tendency to grant the qualitative and the imprecise, is dominated by the new, more radically appropriating, rational perceptual form.

With regard to this perceptual mutation, Ihde (1990, 1998) and Heelan (1983) explain that the disappearance of non-Euclidean space in conjunction with the appearance of the Renaissance technique of perspective was exemplified by Leonardo

---

[30] The collectivization or "the masses" is not only closely related to the expansion of space, and the consequent "being lost" in space, but also that it is conditioned by a temporal-psychic component.

da Vinci's perspectivism, which offers a striking example of the way in which a specific transformation of the everyday realm paves the way for the advent of early modern science. The appearance of modern science involves not only the transformation of perception but also, the new science's bold claim that it is entirely self-motivated and thoroughly clear about, and in control of, its own aims.

However, according to Ihde (1998), modern technology precedes modern science insofar as modern technology plays a central role in the perceptual mutation that embodies the legacy without which modern science could not arise. The innumerable aspects of technological utopianism, such as Feinberg's position (1977), imply the increasing indispensability and invisibility of technology. In other words, various technologies gather intimacy and, thus, become more and more familiar to the ways of our seeing and speaking in everyday life.

The dominance of the mechanical paradigm in early modern science offers us a direct yet subtle formulation of a new light and an order that are provided by the new technical horizon. In Descartes, both body and world must necessarily function according to strictly mechanical laws, due to the clear and distinct superiority and perfection of this sort of physical system. However, with the advent of the Newtonian denial of Cartesianism, the Newtonians never call the mechanical paradigm entirely into question; instead, the questioning is selective, leaving the paradigm in unbroken form in terms of the operations of sense perception (Koyre, 1965, pp. 54-56). Therefore, in this respect, if the mechanistic approach gradually loses its popularity among people, it is only because it does not faithfully follow the driving force of

already transformed technological tendency, a tendency that tries to incarnate technology into human everyday perception (Mumford, 1973; Ellul, 1964, 1980).

Contrary to so-called objectivistic-biased science, our perception is neither a fixed nor an ahistorical structure. People have not always seen the world quite the way modern, especially Western, people do. As Kramer (1997) indicates, "some cultures present an atomistic, fragmentary mode of being, while others present a more animistic and fluid world" (p. x). It is becoming increasingly evident that our "post-Renaissance" perspective stems from a historical formation that has manifested itself within the last five hundred years. Kramer (1997) insists that:

> Some cultures qualify, or establish a quantifiable type of space and time, while other cultures establish (through their expressions) spaces and times that are qualitatively different. Leonardo da Vinci did not "discover" three-dimensional depth-space, as if it were somewhere or somewhen else. Rather, he established it by articulating it." (p. x)

Therefore, this unique historical mode of perception, i.e., Leonardo da Vinci's vision, characterizes early modern science. Koyre (1968) indicates that the destruction of the *Kosmos* and this emergence of a universe of homogeneity in its place is a direct and profound result of seeing the world in a radically new manner (see also Ramo, 1999). From this stage hence, modern science began to pronounce itself to be an ahistorical institution. According to the modern scientific viewpoint, everything obscure is declared unthinkable and imperceptible and, therefore, is necessarily irreal. Clarity becomes the prime parameter of the real and the perceivable. In this configuration,

that which does not make itself manifest to consciousness, and what falls outside the bounds of clear thought and vision are undeniably regarded as fictitious.

Modern people find, in the new geometrical approach of the Renaissance perspective, a new form of revelation, a new world possibility. However, as Merleau-Ponty (1964) recognizes, it is "no 'infallible' gimmick. It is only a particular case, a date, a moment in a poetic information of the world which continues after it" (p. 175). In other words, perspective is never "instituted by nature," rather, "it is to be made and remade over and over again" (p. 175). Merleau-Ponty (1964, 1968) recognizes the way in which technical perception covers up its own status as a perceptual form. The transformation of perception by technology holds, at its most negative, the danger of entirely forgetting itself as perception, a historical possibility. However, "our perception is cultural-historical," therefore, "the perception of the world is formed in the world" (Merleau-Ponty, 1968, p. 253). This point would be the common emphasis for every phenomenology scholars discussed heretofore. Meanwhile, McLuhan (1964) also seems to understand the relation between the transformation of perception and technology, though he has critical shortcomings in understanding the nature of that transformation from the phenomenological standpoint; he gets closer to the point of 'overemphasis on visual sensorium' yet fails to understand the concept of 'embodied vision.'

McLuhan's misunderstanding of the sensorium, 'visual.'

For McLuhan (1964), like Innis (1951), it is the medium of communication that shapes and controls the structures of the human sensorium and association. The message is contentless. The most important aspect of McLuhan's thought is the

effects of the medium on sensorium. A change in the medium shifts the ratios or rationality (ratio-nality) of the senses. In this vein, McLuhan (1964) declares, "in the electronic age, we wear all mankind [*sic*] as our skin" (p. 47).[31]

Following McLuhan (1960), the typographic period is characterized by the preeminence of the space-binding power of the eye over the time-binding power of the ear. Speaking of typographic culture as "eye culture," McLuhan says, "Truth, we think, must be observed by the 'eye,' and judged by the 'I'. . . . most of our thinking is done in terms of visual models, even when an auditory one might prove more efficient" (Carpenter & McLuhan, 1960, p. 66). By associating television with tactility, as opposed to vision, McLuhan contrives to heighten the sense of a union between human and the medium as technology. For McLuhan (1964), tactility represents the utmost intimacy of human with technology. Whereas sight is the least intimate, touch is the most intimate on the scale of the human sensorium.

Ong (1977) also orders the sensorium in this manner: Touch—Taste—Smell—Hearing—Sight. The sensory direction from touch to sight indicates the movement toward greater distance, abstraction, formalization, objectification, and idealization, whereas the opposite direction indicates greater proximity, concreteness, potency, subjectivity, and actual existence (pp. 136-137). As discussed in chapter IV, this ordering of the sensorium can be found in the order of signs in Peirce's configuration of his semiotics. However, in Peirce's configuration, the ordering of the

[31] The elevation of the role of the media in McLuhan (1964) is more thoroughly criticized by Mumford (1970) for its technological determinism and other over-generalizations. Mumford's critique on McLuhan's position is more meticulous than those of more recent efforts by others, such as Meyrowitz (1985) and Mosco (1989).

sensorium is not hierarchical. Peirce, rather, suggests the level or degree of dissociation.

McLuhan's idea of the tactility of electronic technology or television is an incredible proposition that is, at least, phenomenologically untenable and inadmissible. This is because McLuhan's configuration has a fundamental confusion between two ontological categories: the human and the technological. Stated differently, McLuhan (1964) replaces the primacy of the sensing subject (body) with that of the sensed medium. Television viewing or watching belongs to the category of "seeing as," or seeing a picture-object.[32]

By associating television with tactility, McLuhan (1964) instantly homogenizes human and machine. McLuhan's conception of the medium as technology merely places the human body as the natural mediator between human and the world. The human body is no longer regarded as the anchor point of perception but rather, is reduced to the medium of communication called television. From the phenomenological standpoint, at least from Merleau-Ponty's (1962, 1964, 1968) position, to understand the carnal source of tactility means to understand the notion of embodiment, the 'flesh' of the body as Being-in-the-World.

Ihde (1979) opposes McLuhan's presentation of the shift from one (vision) to another dominant sensory form (hearing); he insists,

> [T]he reduction of early modern scientific culture was *not* so much a reduction *to* vision as the McLuhanites hold, but a reduction *of* vision

[32] Wittgenstein (1954) makes distinction between "seeing" and "seeing as," that is, seeing a real object and seeing it as a picture or an image. For Wittgenstein, there is the "categorical difference" between seeing a real object and seeing a picture-object: the latter or "the flashing of an aspect on us seem half visual experience, half thought" (p. 197).

> [emphasis added]. What is needed is a re-evaluation of the full range of possibilities within sensory experience. (p. 99)

Therefore, Ihde proposes a fully phenomenological restoration of vision along the path already opened by Merleau-Ponty previously discussed in terms of body in Chapter V. Merleau-Ponty (1968) has understood more profoundly that "perception itself is polymorphic and that if it becomes Euclidian, this is because it allows itself to be oriented by a system" (p. 212). Accordingly, in the technological milieu, if the vision and hearing become attuned to the potentials of technology, it is because our perceptions are concretely situated within a newly oriented system.

Television as a "reproducing" medium of communication is preeminently visual and auditory. McLuhan's metaphor of tactility for television conceals and even deceives its visualness. So too does Internet and almost all computer mediated media. McLuhan (1964) conceals the fact that our existence channeled by television is visual enframing. That is to say, McLuhan neglects the fact television processes, programs, focuses, skews, selects, edits, etc. In essence, the casting of both its visual image and its sound is all enframed. Television, therefore, disconnects, rather than integrates the operative senses of vision and hearing which creates a sensory schizophrenia.

In television, the natural informational balance between aural and visual has been shattered. Information that we take in with the visual sense cannot be used to modify or help the information from the aural sense, because they have, each, been isolated from each other and reconstructed. Thus, for Heim (1993), as well as for other VR theorists and critics, virtual reality may be an exciting new medium of

representation, but like all imitations, it must always be distinguished from and grounded in a clear sense of reality.

The images do not transparently "refer" to some external event or reality, as would be the case with a television monitor showing who is entering the door.

All mass image technologies also *lack depth*. These effects are thus "reductive" when compared to plenary, constant, and active or full sensory experience. They are effects that keep imaging technologies, at most, "virtual," rather than actually substitutable realities. Within the multiple uses of scientific imaging, there is a spectrum that does run from partial isomorphism to variations upon isomorphism that vary away from the "literal" or copy form, toward a certain kind of "fictive" or technologically enhanced form of variation.

Note that, although the "intent" is to highlight in such a way as to reveal some "real" phenomenon, the complex techniques are very close to the fixing which can be done through digitally enhanced photography, which in journalism context today has become an ethical issue. While none of the imaging described mimics old-fashioned copy-epistemology notions, it does, through variational means, "refer" to "real" effects.

Merleau-Ponty's embodied vision

The body as expression lies in the center of Merleau-Ponty's concern, the essence of the body as an open and appropriative structure. Therefore, the question of embodiment is obviously a major theme of Merleau-Ponty's work. However, it would be too hurry to say that Merleau-Ponty reifies the "lived body" above all else. If the "lived body (*corps proper*)" stands at the center of his ongoing exploration of

incarnation, it will only be so in the more broad sense of the term, the "proper body" in the notion of "flesh."

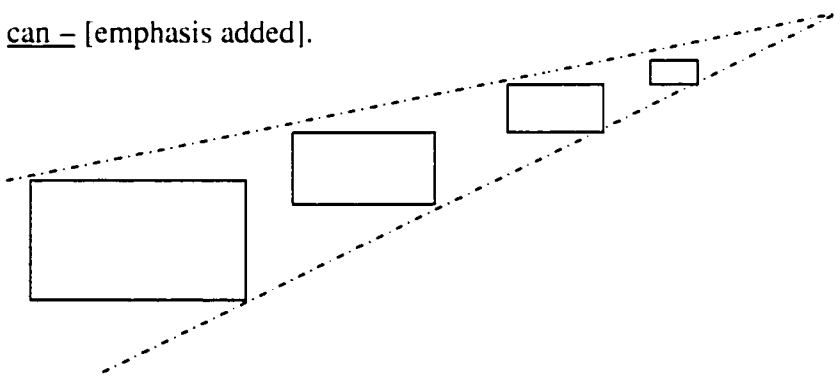
What Merleau-Ponty's account of the lived body and flesh introduces is the possibility of a world whose essential form does neither stem from a constant and ever-lasting objective presence, nor from the expressivity of a thinking subject. Merleau-Ponty's this account criticizes the scientific vision of Cartesian objectivistic bias that attempts to come to hold the contemporary technicization of the body as objective body. Heidegger (1962) succinctly remarks this point, as he says, "The kind of Being which belong to entities within-the-world is something which they themselves might have been permitted to present; but Descartes does not let them do so." (p. 129) Hence, the confinement of the status of objects to a realm of simple existence is untenable in itself. It is possible only within the modern biased configuration of the clear-cut subject and object dualism.

As McLuhan (1964) misunderstands, it would be a mistake to conclude that Merleau-Ponty places vision in a privileged position in the hierarchical order of senses or treats it as the regal sense among other senses. Rather, for Merleau-Ponty (1968), visibility is a generality of the sensible, an exemplar sensible, or one variant of the variations of the sensorium, as the flesh of the body, or, as Being-in-the-World. As "there is the visible seer", so are there "the audible hearer" and "the tangible toucher" (pp. 254 - 260). Therefore, there is just a circular interplay of senses; the senses are interlaced or intertwined in a circular way. As the hand can "see" in the dark, touch is, also, close to the invisible form of hearing. Accordingly, Merleau-Ponty is very cautious on "a fundamental narcissism of all vision" (Merleau-Ponty,

1968, p. 139). Based on this narcissistic tendency on visual, the idea that "seeing is believing" is endemic to television. As Merleau-Ponty (1968) illustrates the fact that people must learn to see world (pp. 3-4), there, also, is will to believe in what people see even though what people see on the screen is enframed or reproduced as pictures.[33]

Merleau-Ponty (1968) provides a new understanding of seeing or vision, what the author calls, 'embodied vision', when he says,

> It is idea not of a slice of the objective world between me and the horizon, and not of an objective ensemble organized synthetically (under an idea), but of an axis of equivalencies—of an axis upon which all the perceptions that can be met with there are equivalent, not with respect to the objective conclusion they authorize (for this respect they are quite different), but in that they are all under the power of my vision of the moment.
>
> Elementary example: all the perceptions are implicated in my actual I can – [emphasis added].



[33] Mander (1978) indicates the lack of people's learning to see the nature of framed world fully and points out the bias toward naïve belief about what people are seeing. He argues: "Without the human bias toward belief, the media could not exist. What's more, because the bias is so automatic and unnoticed, the media, all media, are in a position to exploit the belief, to encourage you to believe in their questionable sensory information...The media, all media but particularly moving-image media, which present data so nearly natural, effectively convert our naïve and automatic trust in the reliability of images into their own authority" (pp. 249-250).

> What is seen [in one of my perception] can be an object near and small or large and far-off....The ray of the world is neither this series of logical possibles, nor the law that defines them—(interobjective relation)—It is the gaze within which they are all simultaneous, fruits of my I can—It is the very vision of depth...The "ray of the world" is not a synthesis and not "reception," but, *segregation* i.e., implies that one is already *in the world or in being* [emphasis added]. One carves in a being that remains in its place, of which one does not make a *synopsis*—and which is not in itself--. (pp. 241-242)

Here, Merleau-Ponty appreciates the "voice of things" and the ability, or rather, the institutionalized possibility, of subject. In other words, Merleau-Ponty emphasizes the co-constitutive process of seeing between world and institutionalized body.

Gebser's explanation of Picasso's picture illustrates the concretization of what Merleau-Ponty insists above. According to Gebser (1985), "we accord to the present, for both space and time exist for the perceptual capacities of our body only in the present via presentiation: (pp. 25-26). The presentiation or making present evident in Picasso's drawing was possible only after the he was *able* to actualize, that is, bring to consciousness, all of the temporal structures of the past latent in himself, in other words, those structures are institutionalized in him. Only where time emerges as pure present, and time is no longer divided into its three phases of past, present, and future, it can be said concrete. To the extent that Picasso from the outset reached out beyond the present, incorporating the future into the present of his work, he was *able* to "presentiate" or *make* present the past.

Stated differently, from the phenomenological standpoint, the relational distance is the intentionality distance that must include both referent object and perceiving, perspectival "lived" body, however, not in the same way as in Cartesian-Newtonian frames. Therefore, what must be avoided is the ideal observer, or god's eye simultaneous sight. Merleau-Ponty's embodied vision provides the way to overcome the Cartesian-Newtonian objectivistic biased perspective.

For Merleau-Ponty, the Cartesian-Newtonian ideal perspective is impossible. As Merleau-Ponty (1968) insists,

> In short, there is no essence, no idea that does not adhere to a domain of history and of geography. Not that it is *confined* there and inaccessible for the other, but because, like that of nature, the space or time of culture is not surveyable from above, and because the communication from one constituted culture to another occurs through the wild region wherein they all have originated. (p. 115)

Hence, for Merleau-Ponty (1962, 1968), there can be no pure objects (things) of vision, because, there is no pure visibility. He insists even the future and the past are caught up in the "cohesion" that is "visibility."

Following Merleau-Ponty (1968), the regularities we devoutly seek as well as the unmanageable differences that offend our sense of conformity springs from the fact objects cannot ultimately be taken as isolable and interchangeable individual things permanently fixed in an objective time and space. Certainly there are regularities, even lawful structures, but this does not permit us to assume that the world is laid out before us like some perfect topographical map. Rather, the world is

inhabited with beings, each possessing a certain manner of managing the domain of space and of time over which it has competence to pronounce judgment and to articulate (pp. 150-154). In other words, people should understand that such a map depends upon the ways it depicts and that what depicted are not fixed entities, rather, are ways of catching up time and space.[34]

One example illustration helps to understand Merleau-Ponty's embodied vision more clearly. Let's suppose a situation that both the photographer and the cameraperson of a film decide how much time the recoding should take. There is an important difference between them concerning the "sense" of time perception. The cameraperson has to pay attention to time while the camera "work." This is a way of paying attention to time that the photographer doesn't have to deal with. This sense-difference between these two ways of paying attention to time becomes clearer when we try to imagine the conditions of recordings as similarly as possible.

In order to do this, one can imagine someone recording a short film showing only one room, nothing changing in it, just a desk, a chair, and a lamp. The movie would show no change, just some static picture. This movie-or part of a movie-would show the same thing as could be shown by a diapositive. Let's imagine that for technical reasons, the photographer, in order to produce this diapositive, has to look through the viewfinder, as long as it takes to take the shot; this time being as long as

---

[34] In the same vein, Dreyfus and Rainbow (1983) indicate that Foucault "should be seen not as a historian but as a new kind of map-maker—maps made for use not to mirror the terrain" (p.128). Dreyfus and Rainbow suggest that Foucault's "genealogical" approach to the past reflects Foucault's awareness of the contingent character of every historical "truth," his recognition that knowledge is moved by pragmatic concerns. "Genealogy," a term Foucault borrows from Nietzsche, implies the interpreter's involvement in the activity of making sense. For Foucault, the correspondence theory of reality is dead. Therefore, Foucault cannot claim that to give us a true history of the past in the sense of one that is fully adequate to the past, which represents it correctly, which gets the whole picture. The history of the present explicitly and self-reflectively begins with a diagnosis of the current situation.

the cameraperson would use to produce his or her funny static film. Even though the two seems to "do" exactly the same. However, we would say there is, still, a huge difference between what they are doing. The cameraperson, while filming his or her movie, has to pay attention to the duration of what he or she sees, while the photographer has to pay attention only to the measurable time that is necessary to take photograph. In the first form of interaction, the duration of the perceived process is communicated, which is not the case in the second one. Even though they "seem to" see the same picture, the 'embodied' viewing is totally different. The difference stems from the context of "I can" and "I would like to."

Overdetermination and communication (semiosis)

With relation to the notion of "embodied vision," the concept of "overdetermination" illustrates a characteristic nature of communication, the co-constituting process of communication. As Merleau-Ponty indicates, there is no pure object of 'vision,' communication, always and already, implies noncomprehension and non-clarity. The whole of one's attention sways between two rather fuzzy categories, focal and subsidiary. Therefore, Bennington (1994) insists, "Communication takes place, if at all, in a fundamental and irreducible uncertainty as to the very fact and possibility of communication" (p. 2).

Focal attention, the term coined by Michael Polanyi (1958), is one of conscious awareness (or perception), such as one's concentration on a book one is reading, while one is subsidiarily or relatively unconsciously aware of other processes in one's surroundings. Subsidiary attention can be booted up to focal attention, and focal attention can switch to subsidiary attention, as one's field of interest and

practical needs so dictate. What was previously one's focal attention became subsidiary attention, and vice versa.

On Merleau-Ponty's view (1962,1964), the unity of the thing is exhibited in the perceptual grasp of the thing as showing itself through a given perspective. The thing is not built up out of perspectival showings. It is evident to us in these showings. However, it is never "given exhaustively" in these showings. Merleau-Ponty (1964) concludes from this that there is "a paradox of immanence and transcendence" in perception. Perception, or, in other word, vision, is "immanence, because the perceived object cannot be foreign to the one who perceives; transcendence, because the things always contains something more than what is actually given" (p. 16). From this paradox, Merleau-Ponty draws the concept, "overdetermination."

Given that people see things, and not mere sensory profiles, then, it must be the case that perception "asserts more than it grasps," that is "overdetermines" the showing given to any particular bodily point of view (Merleau-Ponty, 1962, p. 361; 1968, p. 240). Merleau-Ponty (1962) provides the following as the example of overdetermination,

> When I say that I see the ash-tray over there, I suppose as completed an unfolding of experience which could go on ad infinitum, and I commit a whole perceptual future. Similarly, when I say that I know and like someone, I aim, beyond his [*sic*] qualities, at an inexhaustible ground which may one day shatter the image that I have formed of him. [*sic*] (p. 361)

Thus, Merleau-Ponty concludes,

> It is, thus, of the essence of the thing and of the world to present themselves as 'open,' to send us beyond their determinate manifestations, to promise us always 'something else to see'. . . . there is nothing to be seen beyond our horizons, but other landscapes and still other horizons, and nothing inside the thing but other smaller things. (p. 333)

In fact, it is the mystery of things that solicits the overdetermination inherent in our perceptual experience. Accordingly, Merleau-Ponty (1962) insists that conscious life, which taken to be "the seat of clear thinking," is, on the contrary, "the very abode of ambiguity." (p. 332) Therefore, Merleau-Ponty (1968) proclaims, "there is no vision without the screen" (p. 150). Not so much surprisingly, Peirce insists almost same points.

Following Peirce, a conception of semiosis based on habit disrupts the notion of referentiality. In the same vein, it unsettles the objectivistic bias. Form the standpoint of Peirce's notion of habit, meaning is *not* attached to a sign by a habit. Meaning is the relation itself. Meaning is the habit, just as the result of a quantum mechanics experiment is the interactional relation of object, instrument and observer. Peirce indicates "the whole function of thought is to produce habit of action . . . .To develop its meaning, we have therefore, simply to determine what habits it produces, for what a thing means is simply what habits it involves" (5.400). Habit refers to more than the relationship that holds between a one-to-one, signifier-signified dyad. Habit, as institutionalized body or as Merleau-Ponty calls, "habit-body," leads the

way toward a conception of communication/semiosis as inter-actional, as a concretization, and as a production of relations.

At a given time and space, what is considered "true" might be "false" from the perspective of another time and space; or, from different consciousness structures. In this manner, within the sphere of pure possibilities of overdetermination, contradictory interpretations can, quite easily, live in peaceful coexistence with one another, so the classical principle of contradiction does not necessarily apply. These sphere of overdetermination, whose signs are exceedingly vague, is complementary with the sphere of underdetermination, consisting of signs of generality, which is chiefly of the nature of, what Peirce calls, Thirdness. As what was previously neither "true" nor "false" can emerge as an underdetermined sign, the classical principle of excluded-middle does not necessarily regarded as unbreakable "principle."

In short, a thing is never given simply "on its own." In other words, it is impossible to remove the screen of vision, so as to gain an unbiased and "all-seeing" point of view, i.e., a god's eye view, on transcendent reality. In a similar vein, were people to remove the screen of vision, people would lose their access to reality of world, so that instead of seeing "all," people would in fact see nothing.

People do not first "constitute" a sense through which the world and things are given "as existing." Rather, Merleau-Ponty (1968) seems to arguing that people are first in reality; only then do people try to make "sense" of it. In addition, what people are trying to make sense of is not the thing, not the world, but rather the "mark" or "trace" that the thing and world have made on them (p. 194). Hence, the constituting activity is always already a situated activity, always already my activity, the activity

of a being whose insertion in the common sensible world is already a point of view. Following Merleau-Ponty (1962), the constituting life of transcendental subjectivity is, thus, already a particular subject's way of "taking up" the world, of "taking note" of facts, or of "taking in" the spectacle of world as flesh (p. 395). For Merleau-Ponty, our primary initiation to meaning comes in the world, in the contact between the flesh of my body and the flesh of the world.

All my knowledge of the world, even my scientific knowledge, is gained from my own particular point of view. Therefore, Merleau-Ponty (1962) concludes, "We must begin by reawakening the basic experience of the world of which science is second order expression" (p. viii). In this vein, Merleau-Ponty (1968) acknowledge us that "we do not see, do not hear the ideas, and yet they are there, behind the sounds, or between them" (p. 151). Merleau-Ponty (1968) stresses the point that people are, neither a pure spectator standing before pure objectivity, nor an absolutely active being who is capable of bringing about the detachment necessary for the sort of objectivity that might result from people's "changing into their meaning" (p. 108). Merleau-Ponty (1964) says:

> Do I not know that there is a life of ideas, as there is a meaning of everything I experience, and that every one of my most convincing thoughts will need additions and then will be, not destroyed, but at least integrated into a new unity? This is the only conception of knowledge that is scientific and not mythological. (p. 20)

In this vein, the more people have learned about language, the less its structures have come to look like portraits of the speaker or pictures of reality. (Pinker, 1994) When

language informs people about reality, it does not picture what is remote in time, space, or conception, but reminds people of the eloquence of things or prompts people to imagine their voice.

Though such eloquence emerges from the physical structure of persons and things, it does so in contingent and unforethinkable ways. In this sense, signs are vehicles and vectors. The meaning they convey directs us beyond themselves to things. Because, things are a part of institutioning (or co-constitutioning) of reality, of ever-present vision of the world, of a structuring of time, or, of a transformation of space.

Referentiality of sign: A broken arrow

Referentiality or representational theory of sign is a typical form of objectivistic bias that broadly influenced on communication theories. However, if things are intimate and active participants in a world-structure that undergoes continual transformation as a result of its essential openness, then, it is absurd to insist that language remain a representational structure when what it supposedly represents is no longer taken as more than half made up. Hence, if perception does not capture the visible "print" of things, then it seems that language is not entirely willing to consort with perception. This is what the notion, "overdetermination" indicates.

For Merleau-Ponty (1962), signs, as the bodies of language, do not simply "stand for," nor straightforwardly "stand in" for, what they signify, any more than perceptual things are entirely accessible and fathomable by the observer's gaze. Merleau-Ponty (1962) insists,

> If the body expresses at each moment the modalities of existence, we shall see that it is not like stripes signifying rank or like a number designates a house. The sign in question here does not merely indicate what it signifies, it is inhabited by it. (p. 188)

It means "the meaning is not on the phase like the butter on the bread" (Merleau-Ponty, 1968, p. 155) because, in sign action or semiosis, the situation is complicated by an essential property of embodiment, a property of embodiment which may differ in the shape it takes, such as written sign, speech, human body, etc., while remaining nonetheless essentially a bodily phenomenon. In the same vein, Heidegger (1962) indicates,

> A sign is not a Thing which stands in for another Things in the relationship of indicating; ... A sign to mark something indicates what one is "at" at any time. Signs always indicate primarily "wherein" one lives, where one's concern dwells, what sort of involvement there is with something. (pp. 110-111)

Accordingly, signs point to our preoccupations and concerns, not as simple, artificial indicators, but rather, as intimate participants in what and where we live.

Semiosis (or communication), then, is not properly speaking linguistic, but rather, is the general interpretive activity that makes language possible. Accordingly, in a sense, language (e.g., "Argument,"$R_3O_3I_3$, in Peirce's semiotic analysis in Chapter IV) is the most abstracted form (structure) of semiosis. For Merleau-Ponty (1962), the question of language is investigated, for the most part, in terms of the body's nascent potential of expression, on the contrary to the idea that expression

stems from intentional power that are the property of the subject and the subject alone. Therefore, the semiotic/communicating subject is not a subject at all, at least, not in the sense of the Cartesian "thinking subject."

The visibility or opaqueness of an object is decided by the movement of things-in-the-world; actions that are already underway. From this standpoint, to render objects thoroughly transparent and persistent is, paradoxically, to obscure their most proper possibility and make their nature thoroughly inaccessible. Stated differently, to make objects unquestionably visible is to make them unquestionably opaque. From this standpoint, it is crucial point that Cartesian objectivistic bias paved the way to the annihilation of communication and semiosis. Because, as Kramer (1997) indicate, the inclination to the obvious transparence and reliability of tools and instruments sides with the emergence of the modern perceptual authority as the Cartesian notion of presence. It is the tendency in which tools come to have an intermediate or intervening status between objects and works, which indicates the advent of modern (scientific) perception.

To sum, following Merleau-Ponty (1962,1968), when we perceive something, bringing it into perceptual focus, other things must remain in the background. To perceive something is to leave other things behind, even if these other things are actually in front of us. Perception involves not only what is behind and before us literally, but also what is "before" us in a very different manner, one that is referred to by the historical sense of the word, "before." This sense of "before" describes the way in which our perception always begins in the middle of things.

Merleau-Ponty (1962,1964, 1968, 1970) struggles to show that the world is not filled with a collection of objects that are radically distinct from consciousness, rather the world is an open-ended domain in which sensible and invisible things, bodies and ideas, come to arise, however, it is never regarded as pure or absolute essences. According to Merleau-Ponty (1962, 1968), perception, what engenders our capacity for revealing, also limits it, it is because of the openness of things in the world. In other words, people find themselves in a typical perception that is threatened by other possibilities.

This tension between the typical perceptual form that people adhere to faithfully and the other forms that threaten it engenders their perceptual power. This is the very nature of perception and semiosis: "overdetermination." Stated differently, things provide more than the raw material for some thoroughly constructive subject; they lend themselves to endeavors that people call their own, but always in a provocative, even appropriative manner. When people act as if things are always given in a simple and unambiguous manner, the participation of the things surrounding us is distinctly repressed. Thus, people face the "distantlessness," between them and the things. Therefore, people assume that the work they are pursuing stems from them and them alone, everything about them serving merely like furniture or impediments. The computer, typical thing of present days, is not the exception. This is not a kind of "embodiment" of technology or "embodied vision" for technology, but rather it is the "technicization" of human being. Therefore, people, only who embodied technological vision, can "see" or "perceive" the distance between technology, e.g., computers and themselves.

With the development of state-of-the-art computer mediated communication technology, there are two distinctive way of transforming the relation of the world (things) and human being. By mutating both communicational and physical (technological) potential of participation in the communication or semiotic process, the author argues, communication of present day faces two different directions or tendencies: metric and topologic. Metric tendency is an extremized configuration of and the acceleration of objectivistic biased viewpoints (Cartesian, Newtonian, and Galilean viewpoint, interchangeably). Topologic tendency is, if properly understood, a way of configuration that is close to Gebser's 'aperspectivity' and Merleau-Ponty's 'embodied vision.'

Metric and Topological characteristic of communication technology

As many scholars, such as Heidegger (1962,1977), Ellul (1964), Mumford (1963; 1970), and Gebser (1985), have already discussed in previous chapters, to overcome the confinement of time and space has been a powerful tendency since the beginning of modern technology. However, communication technology does not so much bring near what is far as it cancels the metric of time and space. Because, communication technology relieves mere physical, not communicative, effort. As Heidegger illustrates (1977), technology, rather, provides vast distances over communication. Consequently, everything merger together into the uniform distancelessness. This is the result of the outermost tendency of annihilation of space: the realization of objectivistic bias in an extreme from.

The modern technological milieu that is founded on computer mediated networking, e.g., Internet, has two characteristic tendencies that need special

attention; metric and topologic. Modern communicational setting has little metric, as in typical Newtonian sense, rather does have a topologic characteristic. In topological space, distances are irrelevant, rather connections and continuities matter. For example, maps of subway systems are more topological than metric. What matters for maps of subway system is what line connects with which and which station comes after. However, highway maps are metric, because what matters for it is distances and locations; i.e., people want to know how far it is from here to there. In similar vein, an airline schedule is metric, yet, concert programs are topological, in that all the programs tell is where one item is placed in relation to all other. In this sense, the characteristic feature of Internet, hyper-link that allows people to skip what people think unnecessary is typically topological. Thus, what matters to user is the connection and continuity of their own interests.

In metric space, people measure distances with a "rigid ruler" that is established by Galilean/Newtonian worldview. This rigidity of the ruler is an indication of the unyielding extension of metric space, i.e., Euclidean space (Heelan, 1983, pp. 27-45).

However, Gebser (1985) illustrates, in a setting of natural information, i.e., the magic and the mythic world, integration of information and reality is normally inconspicuous and even automatic. In other world, the magic people, literally, lived in the signs: without dissociating self from the objects, because there is no such kind of dissociation.

Money, as Kramer (1997) and Borgmann (1999) demonstrate, can serve as an extreme example of metric consciousness. Money can even show the value of sexual

attractiveness and the amount of an acquittal cost, at the same time. More clearly, even than clock time, the information that money indicates about reality leads to the transformation of reality. Thus, the reality loose it depth, there just remains the calculation based on one powerful metric space, money.

As already discussed, even though the referentiality of sign is an absurd and unsustainable notion, at least from the phenomenological standpoint, for Plato, the founding father of metaphysics, the image has been understood as a kind of derived reproduction, the value of which is determined by the proximity and similarity to the original or real. Likewise, traditional communication theory insists that the effect of communication can be "measured" by the amount of agreement or similarity with the original message or contents, which sent from the sender to receiver. The desire to represent or imitate the reality as similar as possible comprises a technique of imitation that attempts to close the distance separating the copy from its formal referent by producing an image or icon so accurate that it could be confused with the real thing by reducing, further finally annihilating, the distance things-in-the-world. Therefore, seeking, what Biocca (1995) calls, the 'essential copy' is to search for a means to fool the senses, which provides a perfect illusory deception (p. 7).

The transition or the transformation from analog to digital form demonstrates, on the one hand, the accelerating tendency of Newtonian, objectivistic biased paradigm, i.e., the metric aspect, and the possibility of the demise of objectivistic paradigm, i.e., topological aspect, on the other hand. Analog information contained in photographs and on maps, film, tapes, and vinyl records, an outdated mode compared to digital mode, is, yet, more massive than written or printed information, and it can

be handled a little more easily and quickly by means of the traditional editing and displaying devices. However, analog information is in constant danger of falling back into reality, i.e., every time it is copied or displayed, it suffers irreversible damage. Then, analog signs are abraded and come closer to being mere and useless things. Moreover, the structure of analog information is, once fixed, difficult to manipulate. In other words, analog information system has the more eloquence of things as a sign than digital; analog has its own contextuality.

Digital information has a marvelous performable potential, and pliability. All the same, digital information seems opaque and mysterious to most people. State-of- the-art, present days digital technology holds the promise that, if properly linked with reality on the input side, the rigor of its algebra will faithfully preserve and process meaning, and yield reliable and valuable information on the output side. Further, digital technology prepossesses the metaphysical assumption that the progress of information technology yields information more instantaneously and easily. However, at the same time, digital technology disengages people from reality, and diminishes people's expertise, thus, narrows people's embodied vision, due to the distantlessness of digital information.

With the articulation of digital technology, simulation seems to consist in a double gesture that, on the one hand, it inverts the dual hierarchy of real/imitation in an almost absolute proximity to the notion of symbolic constructivism, and, on the other hand, displaces the so-called representational or referential system that has been overturned by employing conceptual frames that allegedly extends the scope of the conceptual field in question. Hence, some theorists, such as Baudrillard (1983)

insists, "It threatens the difference between 'true' and 'false' and 'real' and 'imaginary'" (p. 5). Simulation, therefore, not only inverts the relative positions of imitation and reality, but also disperses or dissolves the very difference that would hold them in opposition.

Accordingly, VR can no longer be understood as a technology to be evaluated or judged according to the criteria of realism. Because virtual worlds do not re-present the primary lifeworld. Thus, they are not realistic, only, in the sense of photo-realism (Heim, 1998).

However, it is crucial to realize that even though the adjustments and alterations that can be introduced in cyberspace, the adjustments and alterations remain nothing more than strategic variations deployed from and delimited by what is already called and legislated as real. Stated differently, simulation lacks of, what Peirce calls, Thirdness. Because, as already indicated, by nature of simulation, the rigor of its algebra will faithfully preserve and process input meaning, and, yield reliable and valuable information that is already legislated by Thirdness (lifeworld commonality) from the input stage. Accordingly, simulation as a sign goes back to the Secondness stage, an index. Simulation itself has no meaning; rather, it is a mere mechanism, more correctly, a calculation with binary digits, i.e., 0 and 1. From phenomenological standpoint, VR is not necessarily a tool for grasping the real through illusion, nor a potentially dangerous delusion. Rather, as repeatedly discussed, the metaphysical dualism of reality and imagination, or of real and imitation, is absurd and unsustainable as much as the objectivistic biased paradigm does. What really matters is that the co-constitutional process between human being

who embodied technological vision (i.e., who has the power to deal with distances set by technology) and VR or simulation as things-in-the-world.

If information is a relation rather than a thing, it is far from obvious what in information is reducible or measurable and what is not. As letters, decimal number signs, punctuation and function signs can be rendered in binary notation by assigning s specific number to each character, and that is, exactly, what the *American Standard Code for Information Interchange* (ASCII) does. In fact, a binary system of signs is sufficient to express anything that can be rendered in any notation whatever. Hence, if the typical characteristic of rational consciousness is the obsession of "efficiency" and the nature of technicization is the transformation to calculation, a system of two signs, a binary system, is, in fact, the fulfillment of people's desire in rational consciousness world and the realization of most efficient calculational form.

It is often thought that two signs also provide the elementary measure of information, i.e., the amount of information that is carried by one of two possible signals, by a binary digit. The basic bit of information can be thought of as a contraction of binary digit. Departing from this presumably basic unit of information, Shannon (Shannon & Weaver, 1949) gives an account of how to measure information and how to judge the fidelity and economy of communicating information. In his argument, Shannon himself seeks to confine his project to the technical problems of signal transmission (pp. 3- 91). However, not so is Weaver. He (Shannon & Weaver, 1949) acclaims, "the mathematical theory is exceedingly general in its scope, fundamental in the problems it treats, and of classic simplicity and power in the results it reaches" (pp. 114-115). While engineers refer to the billions of bits on the

hard drive of a computer as disk space rather information, futurologists such as Feinberg (1977) and Sola Pool (1990), to the contrary, easily slide from the fact that people store and manipulate millions and billions of bits to the questionable assertion on the fact how efficiently and beneficially information storage and processing will transform human experience of reality.

In a notebook computer used for word processing, the keys and the mouse are typically the input devices, and the screen is the output device. The writer, as the anchoring point of perception, can embody the unpredictable contingency of the world. Between input and output, however, there is nothing but the pure structures of "Yeses" or "Noes." The stability of these internal structures rests entirely on, mere and pure, difference. In other words, the two kinds of inputs, the yeses and noes or Os and 1s, must be kept clearly distinct.

Hence, the more closely you look at a computer chip, yet, the more remote its function becomes. With a VR system, people cannot see the computer anymore; it's gone. It is this invisibility of the computer that renders the representations of VR virtually indistinguishable from reality. It is the alibi of VR. The automaticity and invisibility is the best alibi. However, Compared with the vividness and interactivity of actual reality, virtual reality turns out to be a pale and fragile world and is, by nature, bound to remain so.

As early stubborn structuralists wished, transparency of communication would approach perfection if all information about reality could be united in one well-ordered information space. Today's prototype of such a space, the Internet or, more vaguely, cyberspace, is far from all-inclusive, and well structured. However, such a

dream survives in today's notions of spatial navigation, i.e., hyperlink and search engines as an extended form of Euclidean/ Newtonian space; the extremization of metric and objectified space.

Although, Internet has the characteristic desire of proto-typical structuralism or Platonic metaphysic, i.e., 'metric aspect,' Internet also has the 'topological aspect" that comes from the same phenomena, such as hyperlink and search engines. Because, firming up boundaries and highlighting differences requires a delicate interplay of computerized methods and human judgment. There is no hope of mechanizing and generalizing the process from raw data to visualization, nor can the dream of smooth and universal information navigation ever be realized. Therefore, what is a necessary condition in this Internet technological milieu is the embodied vision that enables to view (or perceive) the world with the backdrop of invisible, not merely with the visible.

Information technology can, at most, assure that the information with the right content of frequent readership, such as by counting Web-page view, is brought up. However, they cannot guarantee that the stuff is accurate and worth viewing or reading. Stated differently, Even if AI expert's argument that computer can know a context as limited form is acceptable, however, as Searle (1980) illustrates, computers cannot know the contextuality of context.[35] Computers cannot know which context is proper context among various contexts. Therefore, computers seem to

---

[35] Searle (1980) demonstrated in his example, "Chinese Room," we can not understand human life merely in terms of individual subjects who frame representations about and respond to others, because a great deal of human action happens only insofar as the agent understands and constitutes him or herself as an integral part of "we."

communicate, however, it just looks like so. What computers really does is a mere processing as programmed, not communicating.

While the texts become superficially more available, the machinery that supports such availability becomes invisible and unintelligible. Reading a traditional linear text, people are compelled to narrow the possibilities into a single narrative. However, when through digitizing and information processing, a text has become a network, it no longer has a univocal sense; it is a multiplicity without the imposition of a principle of domination. This is one topological aspect of modern communication technology.

However, there is, also, a metric aspect. An example of the fortifying tendency of metric aspect is the convergence of hardware. Integration of hardware will advance, as it already had in the "convergence technology" that fuses television sets with telephones and personal computers (See, Ad. 5 & 6). Many diverse analog media converges in one medium with digitalization. In other words, present days people do not live in a so-called "multimedia" age, rather, live with mono-digitalized-medium that can do multi-function. What only matters in this situation is the 'compatibility.'

As Carey (1989) argues, "reality is not given, not humanly existent, independent of language and toward which language stands as a pale refraction. Rather, reality is brought into existence, is produced by communication-by, in short, the construction, apprehension, and utilization of symbolic forms" (p. 25). Yet, as Rorty (1989) indicates, the tendency of mainstream thought is to reduce the

component of givenness and sheer presence to randomness and meaninglessness (pp. 63-69).

Based on all the arguments heretofore, Diagram 5 integrates Peirce's semiotic process, Gebser's idea of 'plus mutation,' Merleau-Ponty's embodied vision, and Kramer's notion of dimensional accrual/dissociation. The line "- - - " in Diagram 5 indicates the dimensional accrual/dissociation. As signs or semiotic process moves from the Firstness, i.e., latency or potentiality, to the Thirdness, i.e., conventionality or law, the degree of abstraction goes up. In that sense, as Peirce indicates, Argument is the most abstracted sign class. However, one thing should be remembered is the Thirdness goes back to the Firstness as time goes. More properly speaking, when the Thirdness is fully incarnated, or embodied by the people, thus, when the Thirdness becomes transparent to people, it is more closer to the Firstness, potentiality or possibility. In Merleau-Ponty's term, it becomes my embodied vision or my flesh. Stated differently, the more one's own cultural context or law embodied, the less it is visible. Therefore, what people can see comes from the invisible; embodied cultural context. Accordingly, what representational theory of sign focuses is, only, the visible. That is typical expression of objectivistic bias or dualism. The "Argument" or the Thirdness, i.e., law, indicates this aspect.

From the standpoint mentioned above, modern technological communication/semiosis situation has two different, yet happening at the same time, aspects. One is the aspect that the extremization or fortification of objectivistic bias through the technicization; this is the metric aspect of modern technology. The other

is embracing the potency and concrete, or visible and invisible, through the embodied vision; this is topological aspect.

The term, topology, needs careful interpretation. The author use the term, topology, in the sense that the human being-in-the-world has one's own topology; in other words, through the embodied vision, one can set one's own topological world, not be merely placed in the objectified time and space. As Merleau-Ponty (1962) insists,

> World, a certain predisposition, it can be called the prepersonal topology of the flesh. It is precisely my body which perceives the body of another person, and discovers in that other body a miraculous prolongation of my own intentions, a familiar way of dealing with the world. Henceforth, as the parts of my body together comprise a system, so my body and the body of the other are whole . . . . and the anonymous existence of which my body is the ever-renewed trace henceforth inhabits both bodies simultaneously (p. 354).

In other words, Merelau-Ponty's embodied vision can be regarded as a form of topology. In this vein, signs can be regarded as a vehicle, at the same time, a vector.

Communication/semiosis in modern technological milieu has tendency to being transformed or confined to the realm of "Index," the class of sign that has the characteristic of fixation and classification which make calculation or computation easy. As indicated, digital mode of information, in particular, is the best type of index that consists of just binary digits, 1 and 0. This is what Gebser (1985) characterizes as

the phenomenon of rational consciousness structure. In the name of efficiency, semiosis demised by fixed, so-called object time and space.

The transformed Indexical communication looses its cultural roots. In other words, the more it looses its cultural roots, the faster or the more efficiently it can be communicated, properly speaking, calculated and transmitted. In sum, the desire to overcome time and space, i.e., a goal of objectivistic biased paradigm, is realized as the "uniform distancelessness;" the deficient form of communication/semiosis. As Peirce indicates, the sign that lacks of Thirdness, i.e., cultural, communal characteristic, or what he calls "law," is not "genuine" sign. The semiosis that is based merely on the indexicalized sign, leads in, therefore, the annihilation of semiosis/communication.

The line "----" indicates the other aspect of modern technology, it is 'topological.' The communication technology has the topological aspect as far as people know the fact that only my body and further 'flesh' can serves as an anchor point for my topological vector. Merleau-Ponty (1962) writes of the 'intentional threads' that run out from my body, from my arms and legs, projecting the trajectories of my motility in a vectorial field and composing a reality of intertwining identities. (p. 130). Merleau-Ponty, further, insists, "My body is the fabric into which all objects are woven" (p. 235). If someone does not have the ability to set the topological anchor point as the form of "I can," the topological characteristic of modern technology, e.g., hyperlink, is a mere different form of same tendency; the metric extremization. In other words, only the one topology (or matrix) that is anchored by

the some experts who can calculate which one is the allegedly 'best' topology for every people.

As there are many dangers in modern technology, so does much possibility to set the topological vector following each people's embodiment vision. As far as this kind of embodied vision is realized, in other words, aperspectivity is concretized, people can overcome the modern technological paradox that Heidegger, Ellul, Gebser, Mumford warned.

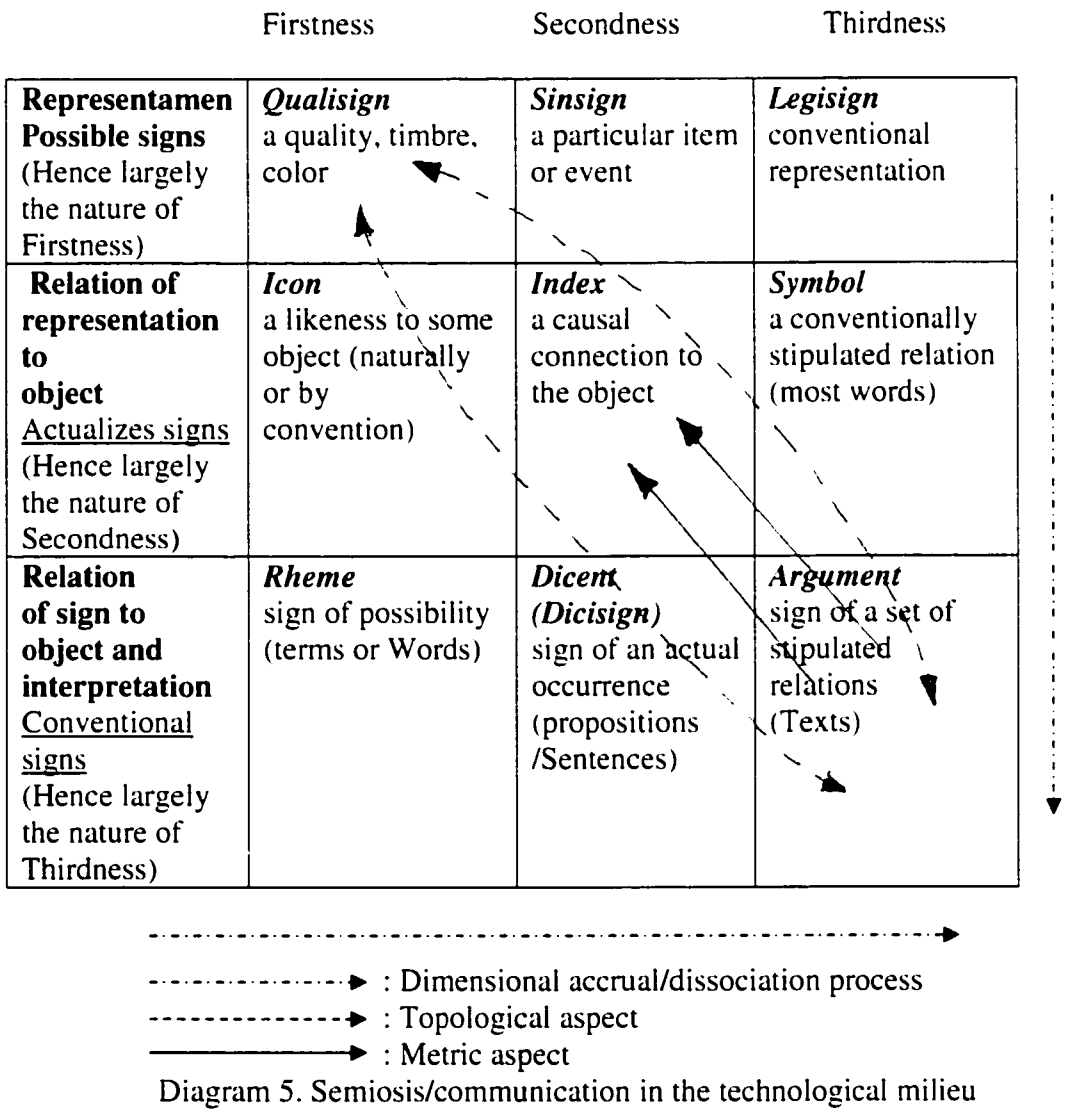


Diagram 5. Semiosis/communication in the technological milieu

Examination of example advertising picture

A few advertising picture provided here will show modern technological tendency. Advertising pictures succinctly demonstrates some already discussed aspects how objectivistic biased view penetrates modern everyday life. These advertising pictures comes from a few Korean and American journals, which regarded as demonstrating typical characteristic of modern technological tendencies.[36]

Advertising 4: "How real can an image be? is this real enough?" This ad demonstrates what McLuhan committed errors. The metaphorical invocation of tactility for technology or for electricity is nothing but a clever ploy to incite the primordial emotion of touching intimacy to fortify the framework of technology.

Advertising 5: "I copy, fax, print and scan. All he does is push the green button. DO I HAVE TO do everything?"

Advertising 6: "Get out of here, Half Internet!" When we use wire and wireless Internet, both system can be called "half-Internet. All utilities and media should be merged. PC, Hand phone, PDA, VMT etc... The more the media increase, what reality matter is the Internet service which can deal with all these different media.

Both Ad. 5 and Ad. 6 illustrates what remains in the technological milieu is the compatibility among media. By converging all the media into one, multi-

[36] As a result of some government projects, the number of Korea's Internet users reached 21 million, which was almost half of the total population in Korea as of March 2001. About 5.5 million households have high-speed Internet connections over 1 Mbps in Korea. With nearly 40 percent of all households having high-speed Internet services, the broadband penetration rate in Korea is the first in the world (*Internet White Paper*, Korea National Computerization Agency, 2001).

functional, medium, people can 'save' time, and people live in more convenient life. However, as Gebser (1985) acknowledges, the driving force of this time-'saving' technology is, not, so-call, the desire for freedom from time, but rather "time-anxiety," the inevitable result of modern rational objectivistic bias.

Advertising 7: "Honey bee say only by dancing" "If we know honey bee's dancing, we can see where the honey is? Yes, the dancing is the highly articulated communication technology in honey bee's world .. . . when it dance shaping the '8,' it means the honey is within 50 miters. Honey bee's communication is marvelous compared to human language with which we can not fully communicate, sometimes even we are in trouble."

LG electronics enhances the most accurate communication technology just like honey bee's. The power of changing world. Digital LG.

The Ad 7 illustrates the metaphysical assumption of objectivistic biased paradigm. The most desirable communication is clear and unambiguous transmission. All the organic systems can be utilized by the technological system, the digital.

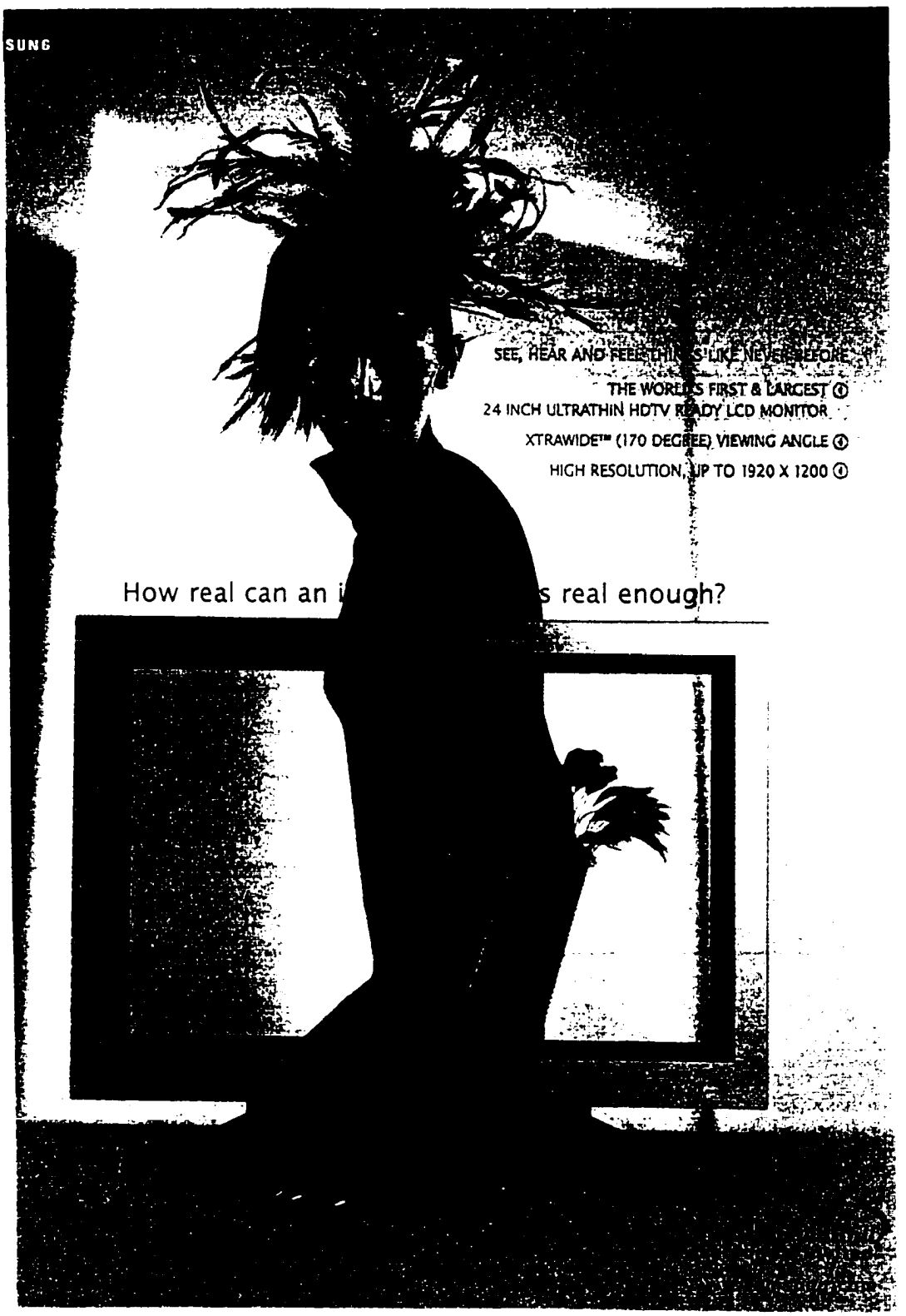
Advertising 8: "The science of making connections, elevated to an art form." European's fastest, most efficient connections to 238 destinations in 88 countries."

Advertising 9: "We make the world connected with the light, LG Cable" "Even though Song yi's grandfather lives in Seoul, he can have story time everyday with Song Yi living in Italy. Without OPTIC FIBER, it is possible?"

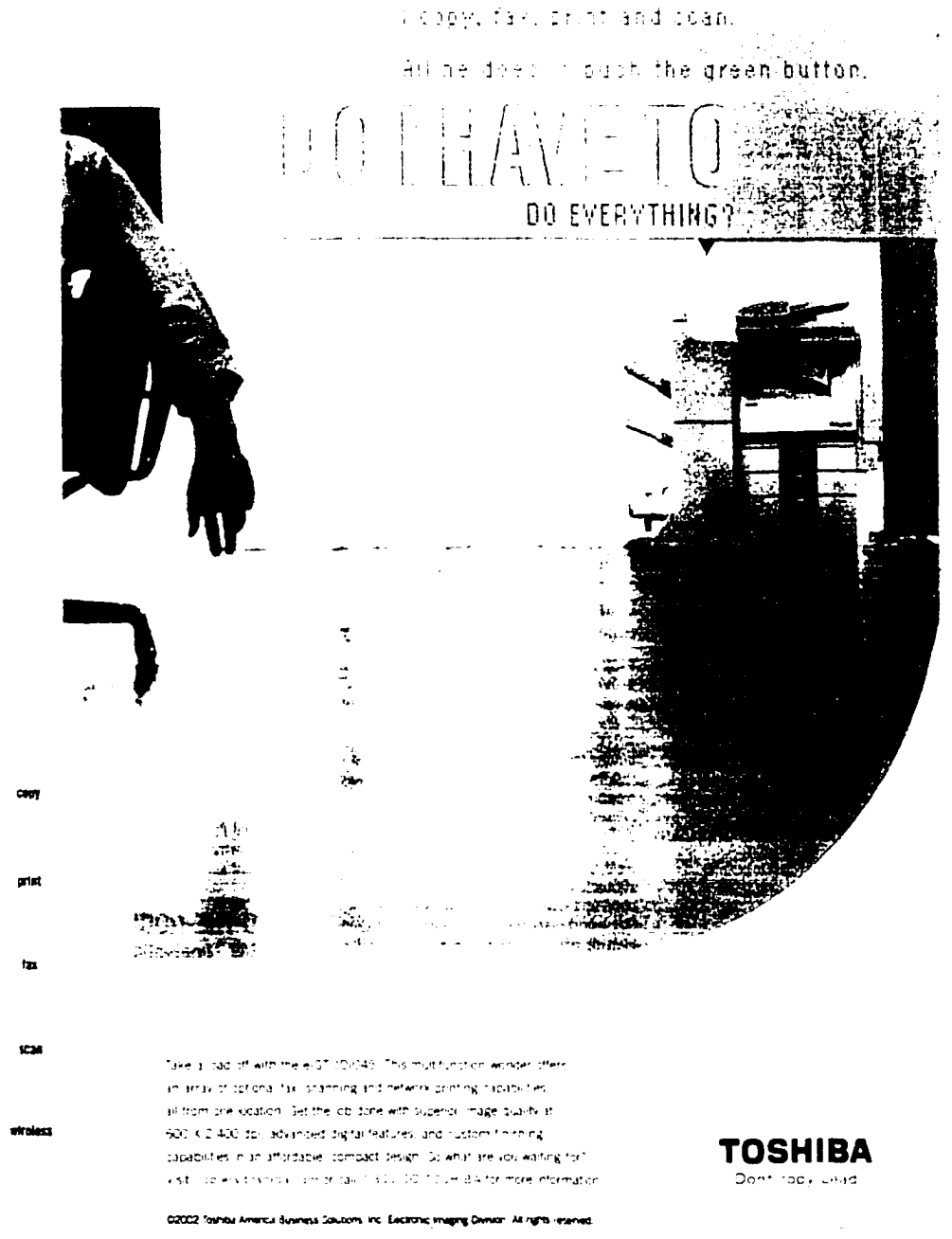
Adverting 10: "We make the world connected with the light, LG Cable"

"Even though Mr. Jung is, now, in Sydney for his job training, he usually spend his leisure time with family in Gangreung, Korea. Without OPTIC FIBER, it is possible?"

Ad. 8, Ad. 9, and Ad. 10 illustrate the extended form of metric aspects and the possibility of topological aspect. Ad 8 indicates exact metric aspect of modern technology. By utilizing technology, modern people try to overcome time and space. As Ad 9 and Ad 10 shows, in state-of-the-art technological networking society, as many futurologists asserts, metric distance can no more be an obstacle. Technology makes the metric distance almost obsolete. However, metric distance still has the power of its own, contrary to futurologist. Mr. Jung and Song Yi's grandfather cannot touch each other. If they live together with their family in a world, in spite of the metric distance, it is not the object world, rather it is their embodied world, their flesh. Space (Ad. 9 & 10), in a global network of computers, is a "fuzzy" concept when compared to the "place" (Ad. 8) defined by the modern technological milieu.


SUNG
SEE, HEAR AND FEEL THINGS LIKE NEVER BEFORE.
THE WORLD'S FIRST & LARGEST
24 INCH ULTRATHIN HDTV READY LCD MONITOR
XTRAWIDE™ (170 DEGREE) VIEWING ANGLE
HIGH RESOLUTION, UP TO 1920 X 1200
How real can an i s real enough?

Ad picture 4


copy, fax, print and scan.
All he does is push the green button.
DO I HAVE TO
DO EVERYTHING?
copy
print
fax
scan
wireless
TOSHIBA

Ad picture 5


SK
반쪽
인터넷은
가라
유무선 인터넷은 통합되어야 합니다
모든 기기에서 만날 수 있어야 합니다
이제 모든 인터넷은 네이트로 통한다

Ad picture 6



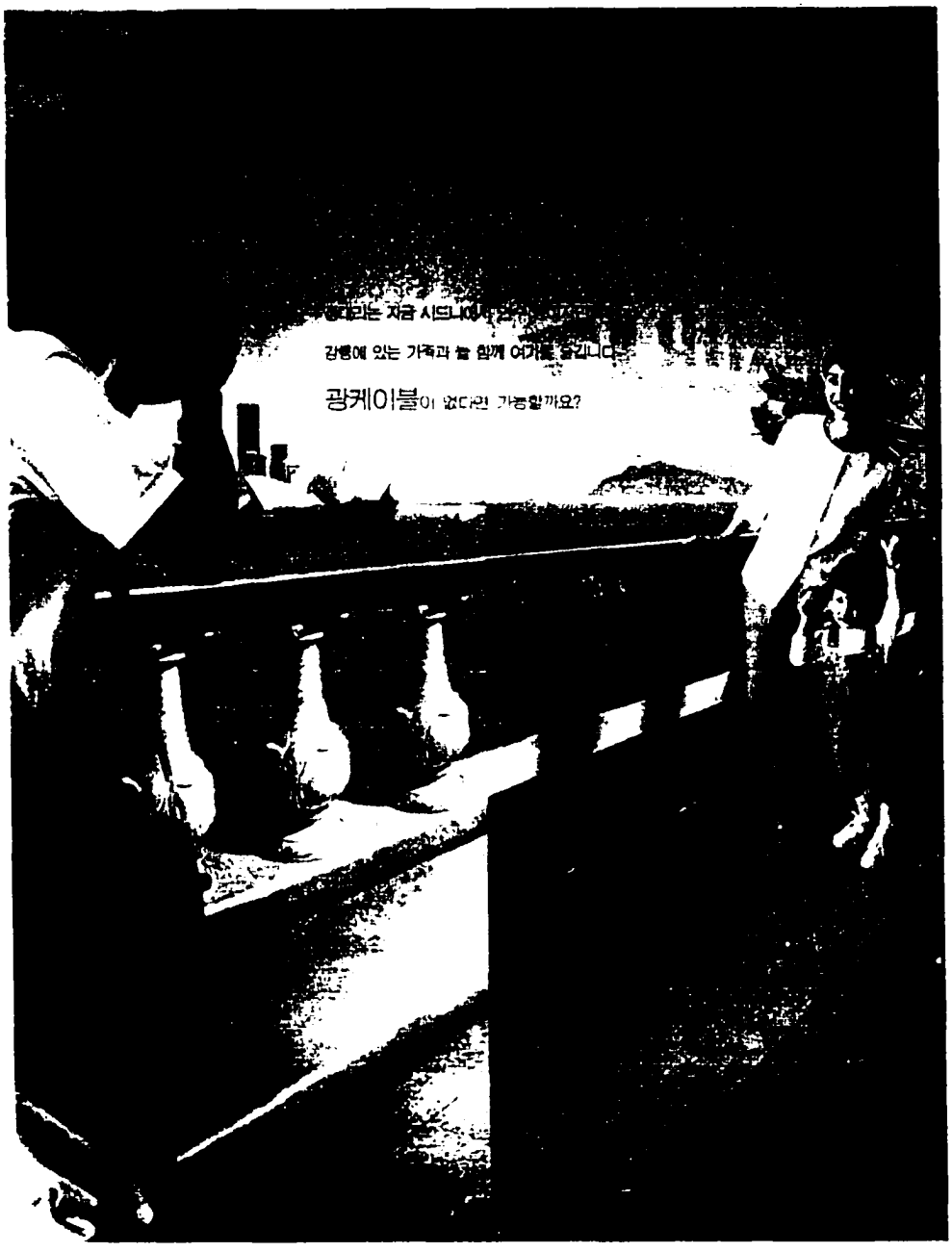
Ad picture 7



Ad picture 8



Ad picture 9



빛으로 이어지는 세상을 만듭니다

LG전선

Ad picture 10

VII. Conclusion

It is eminently worthwhile to inquire as to what sustained or reinforced the "development" over past four centuries that led to the results, the tendency of the annihilation of time and space and, consequently, the annihilation of communication and semiosis. As Gebser (1985), Mumford (1963; 1970), Ellul (1964, 1980), and Heidegger (1977) commonly indicate, it can be found in the notion of technology that brought about the age of the machine with the aid of perspectival, technical drafting; in the notion of "progress" that spawned the "age of progress."

The theoretical abstractions of limitless power, profit and prestige are inherent in the myth of the technology that abundance guarantees the "good life," and are inherent in the magic of the technology that it can make happen without the limits of time and space. The concept of time and space as boundaries of social interaction is countered by the concept of place i.e., an abstract or metric space and moment i.e., in the form of time-anxiety as a socially desirable relational position from which to relate the world and realize the modern-rational discrete individual self.

Where, i.e., in what time, and space (or place), one dwells shapes and frames the world that one can claim as one's own. What makes the modern rational people's world characteristically their own is the manner in which they situate themselves in the world through technological equipments. Perception that had always been intimately linked to the human talent for manipulation, what Merleau-Ponty (1962) calls motility; the capacity to train our "projectors" in all directions, inside and out, to situate ourselves in the world is characterized by a dominant technological and mechanistic manipulation in the technological milieu. The promise and dangers of

modern technology is the sterilization of space, the myth of technical progress, and the absolutization of space and time. In detaching facets of reality from their actual context, and setting them afloat in cyberspace, information technology not only allows for trivialization and glamorization, but also for the blurring of the line between fact and fiction. The ambiguity of cyberspace dissolves the contours of facts, of persons, and of places. As consequence, human loose horizon or flesh of their perception and the ground of meaning.

Regardless of how large, fine-grained, three-dimensional, and photo-realistic the displays, no matter how universally accessible and smoothly integrated every imaginable piece of information, the rule of simple desire, having conceived of flying carpets, genie in bottle, and magic wands, has *always* and *already* preempted the most sophisticated feats of technology. Hence, to be sure, reality as things-in-the-world remains inescapable and enigmatic. The world as "flesh" is the ground on which the decontextness of technological information can be rehabilitated and its fragilities repaired.

At the beginning stage of researcher, what students are told is that scientist comes up with a hypothesis, does some experiments to check it out, and if the hypothesis can withstand the "test" of experimental verification, then a theory arises. Further, At the risk of the danger resulting from the author's too simple description, it could be said we are told that a theory is a good theory, only if the experiment can be repeated in different places with the same result. This attitude is a legacy of Newtonian science, the view that makes experimentation the faithful assistant of theory. However, as many scientists already recognize, it is a naïve story. As Heelan

(1983) and Ihde (1998) illustrate, scientific theory and scientific phenomena generally emerge together at the end of a scientific inquiry. Expressed differently, Hacking (1983) represents that experimentation need not be taken as simply blind on the one hand or completely theory-laden on the other; rather experimentation and theory are interdependent. Together they "create" new scientific phenomena. The laboratory, according to Latour (1993), is not only the place where scientists do their work, it is the place where inscriptions are produced. The instrument, while producing the visual display, is not itself visible, nor is in forefront. Therefore, the tendency to see new "scientific" phenomena as awaiting to be discovered stems from a objectivistic biased and theory-dominated philosophy.

Contrary to the pre-supposed maxim of objectivistic biased paradigm, Max Planck's quantum theory that nature does make leaps effectively demolishes our prevailing view of time. Our world is not constructed continuously, or with respect to time, as a constant, as the mechanistic view of classical physics had held, but rather, discontinuously and unpredictably. This implies that a perception from physics reveals the complexity of what has been hidden "behind" the mere concept of time. Further, the probability theory which has undergone an unheard-of refinement and is still progressing into all of the sciences on its triumphal march, and is about to remodel the classic world-image dominated by laws into a 'statistical world-image' in which there is no certainty but only 'degrees of probability.'

The invention of photography can be seen as a genuine technological breakthrough. Technologies as perception-transforming devices not only magnify (and reduce) referent phenomena, but also, often, radically change parameters either

barely noted, or not noted at all. It is the dramatic appearance of a transformation of *time* which photography brought to scientific attention. The stoppage of time produced a repeatable image of a thing, which could be analytically observed and returned to time and again. Further, Virtual reality (VR) audaciously insists it can "make" time, yet, virtually. However, the hallmark of virtual reality is escape and seclusion from the actual world. VR is already defined and further pre-designed or programmed in detail. The more the program meticulously defined, the more it looks like the actual world, yet, virtual world goes further from real world. That implication can be applied to CD music. A compact disc tends to have a preternatural purity and perfection that make any live performance sound rough and flawed. Similarly, the space we traverse in virtual flight promises to have more captivating shapes and more saturated colors than anything in the actual world. Nevertheless, virtual reality provides no information about the world out there, and that is, in this regard, totally ambiguous, although perfectly transparent within its world.

All forms of abstract rationality, such as VR, are actually substantiated by the lifeworld. In this sense, rationality is thought to be a social product as instituted consciousness and not a prescriptive logic. Time is a fabulous example and, at the same time, a crucial theme for overcoming objectivistic bias. For Gebser (1985), the mental/rational, three-dimensional world is ordered temporally; yet this time is thought to possess its own ratio. Therefore, time is basically autonomous or anonymous. What this mean is that each moment of time is mutually exclusive of each other, and that the entire temporal system is thought to posses its own organizational principle.

The modern objectivistic notion of the mechanical world might best exemplify this three-dimensional world. The point here, however, is that each component in this temporal system is self-contained, and is dualistically removed from every other. Most important is the fact that the individual is thought to exist in time, and therefore, be moved by its basic direction. As Gebser (1985) illustrates, the consequences of the perspectivization of the world evident in the isolation and mass phenomena of present day; the isolation in thinking in the form of the deceptive dazzle of premature judgments or hypertrophied abstraction devoid of any connection with the world. In addition, it is the same with mass phenomena; overproduction, inflation, rampant technology, atomization in all forms.

In the integral world, on the other hand, the organizing principle is not the system, but the *systasis*. This understanding of world as integration announces a new conception of time. As Gebser (1985) says, it actually dissolves time, but does not renounce it. Rather, time comes to be viewed as "time-freedom," instead as time location. History is no longer understood to be in time, as if time merely labors to connect discrete historical episodes. In terms of social action, the individual is not comprehended as existing in time, but rather, instead is believed to upsurge as the temporal capacity to structure the dimensions of existence. Because of this, temporal moments are not consigned to a status of mutual exclusivity, and the individual social actor is not viewed as subsisting in a manner that is categorically removed from the world. As Gebser says, the integral world is a world without opposite.

What Gebser advances with this notion of the systatically integrated world is what might be called in Merleau-Ponty's term a "fleshy" transcendental. What this

means is that the world and the constitutional acts of human consciousness are to be understood to be intimate correlates. Accordingly, the world can no longer be perceived as a mere empirical referent, which provides the social world with its required organizational principle. What is important here is that the world does not possess an autonomous status, rather it must be understood to be as another part of the embodiment.

The purity of mathematical structures is a reflection of signs that do not refer to things, but to structures; simply, to lawful relations whose objects are free of empirical or causal contingency. As Borgmann (1999) illustrates, mathematical structures can be applied to music or cosmology, however, they do not of themselves encapsulate the essence of a cantata or the universe. As for pleasure, an organist as well as a listener will enjoy the performance of Bach's music, even if player and audience are quite familiar with the piece. Nevertheless, it is doubtful that many mathematicians would once more go through the proof of the Pythagorean theorem just for the delight of it. Because concretization based on spontaneity make the delight of music what is lacked in the process of proofing the Pythagorean theorem. It is a crucial to a piece of music that it be realized and richly.

In jazz music and oral poetry, their composition is their performance. McLuhan (1964), yet paradoxical to his notion of technology, indicates this point as,

> If jazz is considered as a break with mechanism in the direction of the discontinuous, the participant, the spontaneous and improvisational, it can be also seen as a return to a sort of oral poetry in which performance is both creation and composition. It is a truism among

> jazz performers that recorded jazz is "as stale as yesterday's newspaper." Jazz is alive, like conversation; and like conversation it depends upon a repertory of available themes. But, performance is composition. (p. 28)

For a musical score to become real, it requires its proper place and time and a communal tradition of extraordinary discipline and training as well. Human beings need to struggle with the recalcitrance of things and awkwardness of their bodies before ease and grace of music making descend upon them. Once they are trained, musicians give voice to the grandeur of reality.

From this standpoint, the first prerequisite for our future survival is a revolution in our thinking. As questioning is the piety of thinking, and as it makes a way, our survival depends on the questioning of technology as enframing. The saving power of humanity will hopefully come with recognizing the danger of technology as the metaphysics of the present technological milieu. As Gebser (1985) indicates, the world is currently undergoing a new mutation. This new mutation embodies what Gebser refers to as the integral or diaphanous world. This world is not really a new world, but actually subtends all other worlds and provides them with their dimensions.

However, as Gebser (1985) cautions, for acceptance of what is "new," and the willingness for it always meets with fierce resistance, because it demands the overthrow of what has been handed down, i.e., various kinds of objectivistic biases, which are acquired and painfully secured. Also, new situations pose a threat arising from our inability to understand them, because we are still too enmeshed in the old

structure of awareness. This is why what is "new" looks as if it were beyond the real; as if it were, perchance, supernatural. Further, it not only appears that way, when considered on the basis of the structured awareness, it transcends the reality people are accustomed to. Then, the only possible way that can save the situation is the attempt to accommodate the new to the old. Of course, in so doing, the new loses its genuineness. In attempt to explain the new by concepts rooted in tradition, misunderstandings, misinterpretations, and wrong attitudes are bound to arise. In order to avoid these misconstructions and do justice to the originality of the new, people have to realize that the complete novelty of a situation must be appreciated if it is not to be hopelessly wasted in its adjustment to living reality. However, Merleau-Ponty, likewise, insists in his notion of "embodied vision," this can only be accomplished if people are clear in their own mind about what has gone before. That is the reason why Gebser's genius grasps of the mutational unfolding of human consciousness is crucial for this study.

Peirce uses the term, *semiosis*, with respect to the general phenomenon of sign process. The very idea of semiosis challenges the objectivistic biased view of sign; signs are relatively static instrument as tools used to describe, and thus "mirror," the world. Semiosis is a dynamic process over which the sign users are capable of exercising only limited control. In other words, the conception of language as an abstract and static mechanical system devised for communication is untenable and inaccurate. As Peirce explores, the infinite production of signs and infinite expansion of sign-fields acknowledges that there is no possibility of permanent fixation, even in a partial context. Any interpretation of signs must admit bias, and acknowledge the

eventuality of being surpassed or relativized by, yet other interpretative moments from different contexts.

Meaning, truth, and "reality" are all the relative, related products of a triadic relation of Object-Representamen-Interpretant; they, in turn, relate to other triadic fields or contexts. Meaning and knowledge must be conceived of solely as a production and interrelation of signs. The only way to study semiosis at all is to isolate certain contexts, while also taking into account people's own critical-interpretative contexts. However, it is impossible to pose laws of semiosis, which are fixed and absolute.

The continuous interaction of sign-relations is the communicative procedure of allowing many voices and perspectives to coexist and interact without reducing or subsuming one to the other. The fixation is the typical characteristic of modern rational consciousness in terms of language and symbolic signs, while ignoring or relegating to the background signs of indexical and iconic nature; ignoring the aspect of potentia and latency that is also real phenomenon, yet, invisible.

As Gebser (1985) and Ellul (1964) warn, communication, either political or cultural, is threatened by an ultimate loss of quality in that the people are threatened by submergence into the autonomous mass, and consequent atomization. In everyday life, few are aware that the mechanization and technicization that impose quantitative conditions on human leading to an immeasurable loss of freedom; the atomization of human being.

Have no fears about automation McLuhan (1964) assures us that, in the end, electronic technology as synesthetic tactility promises to confer upon us a "global

embrace" and "a perpetuity of collective harmony and peace" (p. 359). Because, "electronic technology does not need words any more than the digital computer needs numbers. . . . .Today computers hold out the promise of a means of instant translation of any code or language into any other code or language" (p. 80). In this regard, McLuhan cannot escape from the criticism of an ideologue of technology or a technophile. If McLuhan's world can be realized, it means the end of communication. There only remains calculation process by already programmed computers.

The historical moments of technological change from the oral tradition, through the era of the printing press, to the current era of the computers, shifting the language of technology and the exploration of philosophical inquiry from the analysis of conversation, to that of text, and currently, to the metaphoric analysis of communication as a program or algorithm manifest in a system of technologies and practices (Carey, 1989). Therefore, the cultural moment of now is, irresistibly, the moment metaphorically represented by the symbol of the computer as the defining (if not as determining) technology of contemporary cultural change.

The computer as a communication technology, connects, controls or organizes all other communication technologies and their content (Mosco, 1989), as interconnected appliances and systems that include television, telephone and telecommunication networks, as well as text and talk. As cultural mechanism, the computer as the ultimate refinement of the machine in form and function, serves to challenge the modern technology as the focal point of power (Mumford, 1970; McLuhan & Powers, 1989). The computer, the mediating organizer of the machine that is the totality of the technological complex, will absorb the modern technological

milieu, usurping its manifold functions and forms of social intercourse. Space, in a global network of computers, is a "fuzzy" concept when compared to the "place" defined by the modern technological milieu. As many communication theorists do, de Sola Pool (1990) theorizes technologies of communications as "without boundaries" and implies that the world is also. From this typical viewpoint of mental-rational consciousness structures, we can draw the characteristic of "time-anxiety" and the desire to conquer the space.

In the case of technologies of communication, their deconstruction coincides with their internalization. This is a social and consensual process that alters the group's consciousness of culture as that which is taken in as part of the social organism providing constructs that define the individual in terms of interaction. This dynamic of social interaction is formed by, and formative of, the communication technology. The materialization of technology and the internalization of practice are symbolic exchanges of dramatic representation of the utopian project of preserving and bettering the quality of life in the present, here, in concrete, in form and function. Therefore, to McLuhan, ultimately, electronic technology culminates in "automation" or "cybernation" in which the invisible tactile contact is made between human and technology. Cybernation is a retribalization and a return once again of the synesthetic interplay of the senses. The fact that people today, still, think in terms of the spatial, fixed, three-dimensional world of conceptuality is an obstacle to our realization of the more complex significance of the phenomenon. As Gebser (1985) and Husserl (1970) demonstrate, time, however, is a much more complex phenomenon than the mere instrumentality or accidence of chronological time. In this sense, topological aspect of

modern communication technology has much implication, as far as it is understood properly.

There are still unsuspected, although probably merely one-sided technological, dehumanizing "progressive" development within the realm of communication. If the destructive power of so-called "progress" is not weakened, as Ellul (1964) and Heidegger (1977) significantly warned, these developments, according to their nature of emframing the world, will automatically occupies the place of the law of the earth. However, Gebser (1985) relieves this fear as, if people are soberly prepared for this, then there is nothing terrifying about it. The modern technicization will be terrifying only to those who feel threatened, and thus, they will be the ones affected.

People are not doomed to calculate with each other in the pale, and pure objectified technological world. For this, what is today called "free time" must not be squandered leisurely but rather, employed to acquire "time-freedom." People can always surrender their vision of realizing and learning the danger or paradox of modern technological milieu, i.e., what this study tries to provides the various aspects of it, then, go back into the natural attitude, back to the straightforward pursuit of one's own theoretical or other life-interests. In doing so, however, one must recognize the fact that he/she has undergone a fundamental re-schooling. In other words, from the phenomenological standpoint, people go back as before, and yet not quite as before. For they can never again achieve the old naivete; they can only understand it. This is a way this study tries to find to solve the technological paradox. There is an old saying in the Orient, "You can see, as much as you have realized."

Reference

Barthes, R. (1973). Mythologies. (A. Lavers, Trans.). London: Jonathan Cape.

Bateson, G. (1972). Steps to an ecology of mind. New York: Ballantine Books.

Baudrillard, J. (1983). Simulations. (P. Foss, P. Patton & P. Beitchman, Trans.). New York: Semiotext(e), Inc..

Baudrillard, J. (1995). The Gulf war did not take place. (P. Patton, Trans.). Bloomington, IN: Indian University Press.

Bell, D. (1976). The cultural contradictory of capitalism. New York: Basic Books.

Benjamin, W. (1969). Illuminations. (H. Zohn, Trans.). New York: Schocken Books.

Bennington, G. (1994). Legislations: The politics of deconstruction. New York: Verso.

Berger, P. L. & T. Luckmann (1966). The social construction of reality: A treatise in the sociology of knowledge. New York: Doubleday

Bernstein, R. (1983). Beyond objectivism and relativism: Science, hermeneutics, and praxis. Philadelphia, PA: University of Pennsylvania Press.

Biocca, F. & M. R. Levy (1995). Communication in the age of virtual reality. Hillsdale, NJ: Lawrence Erlbaum Associates Inc.

Birdwhistell, R. L. (1973). Kinesics and context: Essays on body-motion communication. Harmondsworth: Penguin.

Boedeker, Jr. E. C. (1998). The concept of showing in the early writings of Heidegger and Wittgenstein. Unpublished doctoral dissertation, Northwestern University.

Borgmann, A. (1984). Technology and the character of contemporary life: A philosophical inquiry. Chicago, IL: Chicago University Press.

Borgmann, A. (1999). Holding onto reality. Chicago, IL: The University of Chicago Press.

Bourdieu, P. (1977). Outline of theory of practice. (R. Rice, Trans.). Cambridge: Cambridge University Press.

Bourdieu, P. (1990). The logic of practice. (R. Nice, Trans.). Stanford, CA: Stanford University Press.

Braverman, H. (1975). Labor and monopoly capital: The degradation of work in the twentieth century. New York: Monthly Review Press.

Carey, J. W. (1975). A cultural approach to communication. Communication, 2, 1-22.

Carey, J. W. (1981). McLuhan and Mumford: The roots of modern media analysis. Journal of Communication 31. 162-178.

Carey, J. W. (1989). Communication as culture: Essays on media and society. Boston: Unwin Hyman.

Carey, J. W. (1990). The language of technology: Talk, text, and template as metaphors of communication. In M. J. Medhurst, A.Gonzalez, & T. R. Peterson (Eds.), Communication and the culture of technology (pp. 43-62). New York: Pullman/Washington state University.

Carpenter, E. & McLuhan, M. (1960). Acoustic space. In E. Carpenter & M. McLuhan (Eds.), Explorations in communication: An anthology, (pp. 65-70). Boston: Beacon Press.

Carr, D. (1977). Husserl's problematic concept of the life-world. In Ellison & McCormick (Eds.), Husserl expositions and appraisals. University of Notre Dame Press.

Chang, B. (1996). Deconstructing communication. Minneapolis, MN: University of Minnesota Press.

Chuang Tzu (1961). Inner chapters-Chuang Tzu. (H. A. Giles. Trans.). London: Ruskin House.

Cubitt, S. (2001). Simulation and social theory. Thousand Oaks: Sage.

Culler, J. (1976). Ferdinand de Saussure. Middleesex: Penguin.

Culler, J. (1982). On deconstruction, theory, and criticism after structuralism. Ithaca: Cornell University Press.

Deledalle, G. (2000). Charles S. Peirce's philosophy of signs. Bloomington, IN: Indiana University Press.

Derrida, J. (1976). Of grammatology. (G. C. Spivak Trans.). Baltimore: Johns Hopkins University Press.

Devettere, R. J. (1976). The human body as philosophical paradigm in Whitehead and Merleau-Ponty. Philosophy Today, 20, 323-344.

Dienstag, J. F. (1998). Wittgenstein among the savages: language, action and political theory. Polity, 30, 579-605.

Dreyfus, H. (1972). What computers can't do: A critique of artificial reason. New York: Harper & Row.

Dreyfus, H. (1995). Heidegger on gaining a free relation to technology. In A Feenberg & A. Hannay (Eds.), Technology and the politics of knowledge. (pp. 99-107). Bloomington, IN: Indiana University Press.

Dreyfus, H. (2001). On the internet. London: Routledge.

Dreyfus, H. & P. Rainbow (1983). Michel Foucault: Beyond structuralism and hermeneutics. Chicago, IL: University of Chicago Press.

Eco, U. (1976). A theory of semiotics. Bloomington, IN: Indiana University Press.

Ellul, J. (1964) The technological society. (J. Wilkinson, Trans.). New York: Alfred A. Knopf.

Ellul, J. (1980). The technological system. (J. Neugroschel, Trans.). New York: Continuum.

Faubion, J. (1995). Introduction. In Rethinking the subject: An anthology of contemporary European social thought (pp. 1-27). Boulder, CO: Westview Press.

Feinberg, G. (1977). Consequences of growth: Prospects for a limited future. New York: Seabury Press.

Feuerstein, G. (1987). Structures of consciousness: The genius of Jean Gebser. Lower Lake, CA: Integral Publishing.

Finlay, M. (1990). The Potential of modern discourse. Bloomington, IN: Indiana University Press.

Florman, S. C. (1976). The Existential pleasures of engineering. New York: St. Martins Press.

Foucault, M. (1972a). Power/Knowledge. New York: Random House.

Foucault, M. (1972b). The archaeology of knowledge and the discourse on language. New York: Pantheon Books.

Feenberg, A. (1991). Critical theory of technology. New York: Oxford University Press.

Gebser, J. (1985). The ever-present origin. (N. Barstad & A. Mickuna, Trans.). Athen, OH: Ohio University Press.

Geertz, C. (1973). The interpretation of culture. New York: Basic Books.

Gier, N. F. (1981). Wittgenstein and phenomenology: A comparative study of the later Wittgenstein, Husserl, Heidegger, and Merleau-Ponty. Albany, NY: SUNY Press.

Glazebrook, T. (2000). Heidegger's philosophy of science. New York: Fordham University Press.

Guignon, C. (1990). Philosophy after Wittgenstein and Heidegger. Philosophy and Phenomenological Research, 50. 649-672.

Gunkel, D. (2000). Rethinking virtual reality: Simulation and the deconstruction of the image. Critical Studies in Mass Communication, 17. 45-62.

Gurwitsch, A. (1966). Studies in phenomenology and psychology. Evanston, IL: Northwestern University Press.

Gurwitsch, A. (1974). Phenomenology and the theory of science. Evanston, IL: Northwestern University.

Habermas, J. (1995). Peirce and communication. In K. L. Kenneth (Ed.), Peirce and contemporary thought (pp. 243-266). New York: Fordham University Press.

Hacking, I. (1983). Representing and intervening: Introductory topics in the philosophy of natural science. New York: Cambridge University Press.

Hall, E.(1966). The hidden dimension. New York: Anchor Books.

Heelan, P.(1965). Quantum mechanics and objectivity. The Hague: Martinus Nijhoff.

Heelan, P. (1983). Space-perception and the philosophy of science. Berkeley: University of California Press.

Heidegger, M. (1962). Being and time. (J. B. Baillie, Trans.). New York : Humanities Press.

Heidegger, M. (1977). The question concerning technology and other essays. (W. Lovitt, Trans.). New York: Harper & Row.

Heim, M. (1993). The Metaphysics of virtual reality. New York: Oxford University Press.

Heisenberg, W. (1958). Physic and Philosophy: The revolution in modern science. New York: Harper.

Hekman, S. (1992). The embodiment of the subject: feminism and the communitarian critique of liberalism. The Journal of Politics, 54, 1098-1119.

Hofstede, G. (1991). Cultures and organizations. London: McGraw Hill.

Hofstadter, D. (1985). Metamagical themas: Questioning for the essence of mind and pattern. NY: Basic Books.

Horosz, W. (1970). Is there a third alternative to knowledge? Philosophy and Phenomenological Research, 31, 273-281.

Hosle, V. (1998). Philosophy in an age of over information, or what we ought to ignore in order to know what really matters. In Objective idealism, ethics, and politics (pp. 186-199). Notre Dame: Notre Dame University Press.

Husserl, E. (1970). The crisis of European science and transcendental phenomenology: An introduction to phenomenological philosophy. (D. Carr, Trans.). Evanston, IL: Northwestern University Press. .

Hyde, M. (1982). Communication philosophy and the technological age. University of Alabama Press.

Ihde, D. (1967). Some parallels between analysis and phenomenology. Philosophy and Phenomenological Research, 27, 577-586.

Ihde, D. (1979). Technics and praxis. Boston: D. Reidel Publishing Company.

Ihde, D. (1990). Technology and the lifeworld: From garden to earth. Bloomington, IN: Indiana University Press.

Ihde, D. (1998). Expanding hermeneutics: Visualism in science. Evanston, IL: Northwestern University.

Ikeda, R. & Kramer, E. M. (1998). The Enola Gay: The transformation of an airplane into an icon and the ownership of history. Keio Communication Review, 20, 49-73.

Inkinen, S. (Eds.). (1999). Mediapolis: Aspects of texts, hypertexts and mutimedial communication. Berlin: Walter de Gruyter.

Innis, H. (1951). The bias of communication. Toronto: University of Toronto Press.

Jackson, M. (1983). Knowledge of body. Man, 18, 327-345.

Johnston, P. (1976). Phenomenology of space & time. Chicago, IL: Adams Press.

Jung, H. Y. (1981). The medium as technology: A phenomenological critique of Marshall McLuhan. In S. Skousgaard (Ed), Phenomenology and the understanding of human destiny. (pp.45-80). Washington: University Press of America, Inc.

Kearney, R. (1984). Dialogues with contemporary continental thinkers. Manchester: Manchester University Press.

Koyre, A. (1965). Newtonian studies. Cambridge: Havard University Press.

Koyre, A. (1968). Metaphysics and measurement: Essays in scientific revolution. Cambridge, MA: Harvard University Press.

Kramer, E. M. (1988). Television criticism and the problem of ground: Interpretation after deconstruction. Unpublished doctoral dissertation. Ohio University.

Kramer, E. M. (1992). Consciousness and culture: An introduction to the thought of Jean Gebser. Westport, CT: Greenwood Press.

Kramer, E. M. (1993). Understanding co-constitutional genesis. Integrative Explorations: Jouranl of Culture and Consciousness, 1, 41-47.

Kramer, E. M. (1997). Modern/postmodern: Off the beaten path of antimodernism. Westport, CT: Praeser.

Kramer, E. M. (2000). Contemptus mundi: Reality as disease. In V. Berdayes and J. Murphy (Eds.), Computers, human interaction, and organizations. Westport, CT: Praeger.

Kramer, E. (in press). The body in Communication.

Kramer, E. M. & R. Ikeda (1998). Understanding different world: The theory of dimensional accrual/dissociation. Journal of Interculturesal Communication, No. 2, pp.37-51. Japan.

Kuhn, T. (1962). The structure of scientific revolutions. Chicago, IL: University of Chicago Press.

Langer, M. (1989). Merleau-Ponty's phenomenology of perception: A guide and commentary. Tallahasse, FL: The Florida University Press.

Latour, B. (1993). We have never been modern. Cambridge, MA: Harvard University Press.

Levin, D. (1985). The body's recollection of being. London: Routledge & Kegan Paul.

Lovekin, D. (1977). Jacques Ellul and the logic of technology. Man and World, 10, 251-272.

Lovekin, D. (1980). Technology as the sacred order. Research in Philosophy and Technology, 3, 203-222.

Lovekin, D. (1990). Technology and the denial of mystery: The sacralization of the familiar. In G.L.Ormiston (Eds.), From artifact to habitat :studies in the critical engagement of technology (pp. 74-98). London: Associated University Press.

Lovekin, D. (1991). Technique, discourse, and consciousness: An introduction to the philosophy of Jaques Ellul. Bethlehem: Lehigh University Press.

Low, D. (2000). Merleau-Ponty's last vision. Evanston, IL: Northwestern University.

Loy, D. (2001). Saving time: A Buddhist perspective on the end. In J. May & N. Thrift (Eds.), TimeSpace: Geographies of temporality (pp. 262-280). New York: Routledge.

Madison, G. (1981). The phenomenology of Merleau-Ponty. Athens, OH: Ohio University Press.

Mander, J. (1978). Four arguments for the elimination of television. New York: Morrow.

Manovich, L. (2001). The language of new media. Cambridge, MA: The MIT Press.

Marcuse, H. (1964). One dimensional man: Studies in the ideology of advanced industrial society. Boston: Beacon Press.

Matthews, E. (1999). Temporality, subjectivity and history in Merleau Ponty's phenomenology. Philosophical Inquiry, 21, 87-98.

McLean, A. (1998). Media effects: Marshall McLuhan, television culture, and 'The X-Files'. Film Quarterly, 51, 2-11.

McLuhan, M. (1964). Understanding media: The extension of man. New York: Sphere Books.

McLuhan, M. & F. Quentin (1967). The medium is the message. New York: Bantam Books.

Medhurst, M., Gonzalez, A., & Peterson, T. R. (1990). Communication and the culture of technology. Pullman, WA: Washington State University Press.

Merleau-Ponty, M. (1960). Signs. (R.C. McCleary, Trans.). Evanston, IL: Northwestern University.

Merleau-Ponty, M. (1962). Phenomenology of perception. (C. Smith, Trans.). New York: Humanities Press.

Merleau-Ponty, M. (1964). The primacy of perception and other essays. (Eds.) J. M. Edie. Evanston, IL: Northwestern University.

Merleau-Ponty, M. (1968). The visible and invisible: Followed by working notes. (J. O'Neil, Trans.). Evanston, IL: Northwestern University.

Merleau-Ponty, M. (1970). Themes from the lectures at the College de France 1952-1960. (J. O'Neil, Trans.). Evanston, IL: Northwestern University.

Merrell, F. (1995a). Peirce's semiotics now: A primer. Toronto: Canadian Scholar's Press.

Merrell, F. (1995b). Semiosis in postmodern age. West Lafayette: Purdue University Press.

Merrell, F. (1997). Peirce, signs, and meaning. Toronto: University of Toronto Press.

Meyrowitz, J. (1985). No sense of place: The impact of electronic media on social behavior. New York: Oxford University Press.

Mickunas, A. (1986). Technological culture. In J. W. Murphy, A. Mickunas, & J. J. Pilotta (Eds.), The underside of high-tech: Technology and the deformation of human sensibilities (pp. 1-14). Westport, CT: Greenwood Press.

Mickunas, A. (1998). Permanence and flux. In B.C.Hopkins (Ed.), Phenomenology: Japanese and American perspectives (pp. 253-272). Netherland: Kluwer Academic Publishers.

Mickunas, A. & J. Oastler (1972). Toward a raapprochement. Philosophy and Phenomenological Research, 33, 241-248.

Miers, P. (1982). A cognitive program for semiotic functions. MLN, 97, 1129-1146.

Mitcham, C. & Macket, R. (1971). Jacques Ellul and the technological society. Philosophy Today 15, pp.102-121.

Mosco, V. (1989). The pay-per society: Computers and communication in the information age. Norwood, NJ: Ablex.

Mumford, L. (1963). Technics and civilization. New York: Harcourt, Brace & World.

Mumford, L. (1967). The Myth of the machine: Technics and human development. New York: Brace & Jovanovich.

Mumford, L. (1970). The Myth of the machine: The pentagon of power. New York: Brace & Jovanovich.

Murphy, J. (1981). Jean Gebser: A guide for humanistic rhetorical analysis. In S. Skousgaard (Ed), Phenomenology and the understanding of human destiny. (pp.169-186). Washington: University Press of America, Inc.

Nelson, C. (1985). Poststructuralism and communication. Journal of Communication Inquiry, 9, 2-15.

Nelson, J. L. (1986). The other side of signification: A semiotic phenomenology of television experience. Carbondale, IL: Southern Illinois University

Nietzsche, F. (1967). The will to power. (W. Kaufmann & R. J. Hollingdale, Trans.) New York: Random House.

Nietzsche, F. (1974). The gay science. (W. Kaufmann Trans.) New York: Vintage.

Nietzsche, F. (1989). On the genealogy of morals. (W. Kaufmann Trans.) New York: Vintage.

Noe, R. A. (1994). Wittgenstein, Phenomenology and what it makes sense to say. Philosophy and Phenomenological Research, 54, 1-42.

Oehler, K. (1995). A response to Habermas. In K. L. Kenneth (Ed.), Peirce and contemporary thought (pp. 267-271). New York: Fordham University Press.

Ong, W. J. (1977). Interfaces of the word: Studies in the evolution of consciousness and culture. Ithaca, IN: Cornell University Press

Peirce, C. S. (1931). Collected papers of Charles Sanders Peirce, Vol 1-6. Cambridge: Harvard University Press.

Peirce, C. S. (1958). Collected papers of Charles Sanders Peirce, Vol 7-8. Cambridge: Harvard University Press.

Pilota, J. J. & Widman, T. L. (1986). Overcoming communicative incompetence in the global communication order: The case of technology transfer. In J. W. Murphy, A Mickunas, & J. J. Pilotta (Eds.), The underside of high-tech: Technology and the deformation of human sensibilities (pp.159-176). Westport, CT: Greenwood Press.

Pinker, S. (1994). The language instinct. New York: W. Morrow Co.

Polanyi, M. (1958). Personal knowledge: Toward post-critical philosophy. Chicago, IL: University of Chicago Press.

Polkinghorne, D. (1983). Methodology for human science: Systems of inquiry. Albany, NY: State University of New York Press.

De Sola Pool, I. (1990). Technologies without boundaries: On telecommunications in a global age. Cambridge, MA: Harvard University Press.

Postman, N. (1992). Technopoly: The surrender of culture to technology. New York: Random House.

Poster, M. (2001). What's the matter with the Internet. Minneapolis, MN: University of Minnesota Press.

Preston, P. (2001). Reshaping communications. Thousand Oaks: SAGE

Purdy, M. W. (1973). Communication and institution in the phenomenology of Merleau-Ponty. Unpublished doctoral dissertation. Ohio University

Ramo, H. (1999). An Aristotelian human time-space manifold: From *Chronochora* to *Kairotopos*. Time and Society 8, 309-328.

Richiko, I. (1997). History of communication theory: A Gebserian analysis. SIETAR, 1, 35-55.

Ricoeur, P. (1975). Phenomenology and hermeneutics. Nous, 9, 85-102.

Rorty, R. (1989). Contingency, irony and solidarity. New York: Cambridge University press.

Rozak, T. (1969). The making of a counter culture: Reflections on the technocratic society and its useful opposition. New York: Anchor Books.

Ryan, A. (1997). Exaggerated hopes and baseless fears. Social Research, 64, 1167-1193.

Saussure, Ferdinand. de. (1966). Course in general linguistics. (W. Baskin, Trans.). New York: McGraw-Hill.

Scannell, P. (1995). For a phenomenology of radio and television. Journal of Communication, 45, 4-19.

Schiller, C. H. (1957). Instinctive behavior: The development of a modern concept. New York: International Universties Press.

Schiller, H. I. (1989). Culture, Inc.: The corporate takeover of public expression. New York: Oxford University Press.

Schrag, C. O. (1986). Communicative praxis and the space of subjectivity. Bloomington, IN: Indiana University Press.

Schutz, A. (1945). On multiple realities. Philosophy and Phenomenological Research, 5, 533-576.

Searle, J. (1980). Mind, brains, and programs. Behavior and Brain Sciences, 3, 417-457.

Sebeok, T. A. (1976). Contributions to the doctrine of signs. Bloomington, IN: Indiana University Press.

Sebeok, T. A. (1994). An introduction to semiotics. Toronto: University of Toronto Press.

Seigel, J. (1991). A unique way of existing: Merleau-Ponty and the subject. Journal of History of Philosophy, 29, 460-482.

Seung, T. K. (1982). Structuralism and hermeneutics. New York: Columbia University Press.

Shannon, C. & Weaver, W. (1949). Mathematical theory of communication. Urbana, IL: University of Illinois Press.

Sheriff, J. K. (1989). The fate of meaning: Charles Peirce, structuralism, and literature. Princeton: Princeton University Press.

Toffler, A. (1970). Future shock. New York: Random House.

Turkle, S. (1997). Computational technologies and images of the self. Social Research, 64, 1093-1112.

Williams, R. (1983). Keywords. New York: Oxford University Press.

Willis, J. (1991). The shadow world: Life between the news media and reality. NY: Praeger.

Wiser, J. L. (1990). Technological consciousness and the modern understanding of the good life. In G.L.Ormiston (Ed.), From artifact to habitat : Studies in the critical engagement of technology (pp. 60-73). London: Associated University Press.

Winston, Brian. (1998). Media technology and society: A history from the telegraph to the Internet. London: Routledge.

Wittgenstein, L. (1953). Philosophical investigations. (G. E. M. Anscomb Trans.). Oxford: Basil Blackwell.

Wittgenstein, L. (1969). On certainty. Oxford, England: Blackwell.

Wolff, R. P. (1966). Hume's theory of mental activity. In V. Chappell (Ed.), Hume (pp. 95-110). New York: Anchor Books.

Yoon, Sunny. (1997). Discourses of democratic communication and the archaeology of information technology in South Korea. In M.Baile & D. Winseck (Eds.), Democratizing communication?: Contemporary perspectives on information and power (pp. 173-193). Cresskill, NJ: Hampton Press.

Zimmerman, M. E. (1975). Heidegger on nihilism and technique. Man and World, 8, 394-414.

Zimmerman, M. E. (1979a). Marx and Heidegger on the technological domination of nature. Philosophy Today, 23, 99-112.

Zimmerman, M. E. (1979b). Technological culture and the end of philosophy. In P. T. Durbin & C. Mitcham (Eds.), Research in philosophy and technology, Vol II. CT: Jai Press.

Zimmerman, M. E. (1990). Heidegger's confrontation with modernity: Technology, politics, art. Bloomington, IN: Indiana University Press.

Zimmerman, M. E. (1993). Rethinking the Heidegger-deep ecology relationship. Environmental Ethics, 15, 195-224.