

# **Using Ethnographies as a Classroom Strategy for Introducing Students to Language Issues, the Cultural Commons, and the Limitations of Print Technologies**

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The world is now witnessing powerful trends that are in conflict with each other. The pace of change driven by the digital revolution is accelerating while the centuries old patterns of thinking encoded in the vocabularies whose meanings are still taken for granted by supposedly highly educated people are still being perpetuated. The Internet of Things, for example, has emerged as a full blown movement in only the last decade or so. But it is now estimated that the objects that are part of our dwellings (appliances, door knobs, clothes) and physical environment such as roads and farm fields, plus factory equipment and engines of every sort, now fitted with sensors and connected to the Internet now number over 6.4 billion. By the year 2020, this number is predicted to rise to 20.8 billion Internet connected devices. At the same time, the Book of Genesis myth that created a human-centered world, and which was reinforced over the centuries by scientists such as Francis Bacon (1561-1626), continues to underlie the thinking of a vast number of Americans who continue to deny that human behavior is partly responsible for climate change.

What is important about the rate of changes now occurring in natural systems is how few decades it will take before the full impact on the 7.5 billion people dependent on the already degraded natural systems leads to social chaos. Children now in their first years of public school indoctrination to the century's long-held misconceptions will still be alive when the acidic levels of the world's oceans will have destroyed all the coral reefs, the world's major glaciers will have disappeared leaving billions of people without adequate water (all the glaciers in the South American Andes are predicted to be gone by the year 2045), and the world's top soil (disappearing at a rate of 1 percent a year) will be too limited to feed a world population estimated to reach over 9 billion by the end of the century. Yet the myth of progress in developing new technologies that eliminate the need for workers, in bringing more of everyday life under constant surveillance, and in expanding dependence upon a consumer-dependent lifestyle, continues.

In the face of these double binds where the misconceptions and silences that underlie our idea of progress, and which are promoted in our public schools and universities as cutting edge thinking that the rest of the world should follow, there is a need to consider if it is possible to introduce educational reforms that enable students to become aware of how their teachers and professors misrepresent their future prospects by preparing them to pursue an individualistic and consumer

lifestyle that is accelerating the rate of climate change. For example, will it be possible to promote an understanding of the existential and cultural amplification and reduction characteristics of digital technologies when their teachers are focused on how to make the technologies a more central and controlling part of learning? When teachers are unaware of how computers change human consciousness, will it be possible to introduce any of the following when the education of today's classroom teachers and professors fail to introduce the conceptual frameworks to necessary for understanding the following: (1) How today's thinking relies upon a vocabulary inherited from a past that ignored environmental limits, while most teachers and professors assume that individuals choose the words that communicate their own ideas to represent the external world; (2) How this conceptual double bind is supported by how teachers and professors indoctrinate students with the 17<sup>th</sup> century Enlightenment view of traditions as impediments to progress, when the reality is that every advance in achieving social justice becomes a tradition if it is not undermined by reactionary forces in society; (3) The need to understand how print, for all of its importance uses, promotes abstract thinking that leads to separating ideas and policies from different cultural contexts that encode ethnic differences in thinking and lifestyles. And how many are able to clarify for students that objective knowledge and now data are based on basic misconceptions that ignore the pervasive influence of the inherited vocabularies on all human activity—including what is written and interpreted as factual and what is collected as “objective” data? (4) How many teachers and professors possess the conceptual basis for enabling students to understanding within the context of their own lives that they live in an interpreted world? Or to explain that this does not lead to nihilism but to an ecological way of thinking that takes account of the reality that words have a history, and that their use requires giving close attention to whether they lead to behaviors and thinking that are ecologically sustainable? (5) A critical feature of the taken for granted world of most teachers and professors is that progress is based on the ability to monetize cultural achievements, whether in the form of ideas, creative arts, technologies, and so forth. The future survival for students now entering the first grade, and will still be alive when the failure of natural system is accelerating, will be dependent upon the ability to recognize that the non-monetized intergenerational relationships and activities, which can be called the cultural commons, that will be essential to forming communities of self-reliance and mutual support as climate changes lead to further social challenges. Again teachers and professors who have not thought about the lifestyle changes required by climate change and its social impacts, will continue to promote the progressive and modernizing mindset—that is, unless the computer scientists have not already

developed the digital technologies to the point where human decision making has been displaced by artificial intelligence that still encodes the western mindset.

The above observations were all qualified by the use of the word “most”. That is, there are people at all levels of society, and from every ethnic group, who are consciously aware of the challenges we now face, and who are engaged in lifestyles that carry forward values and traditions that have survived on the margins of the industrial and now the digital revolution. Most would also understand what I am identifying here as the conceptual roots of the mis-education now leading us down the ecologically unsustainable pathway we call progress. With these outliers in mind I would like to suggest how a number of fundamental educational reforms can be introduced. I have no illusions that any of them will be taken seriously by the majority of classroom teachers and university professors, but the following suggestions may be useful for the few teachers and professors who are radical thinkers—that is, radical in the sense of getting to the deepest conceptual roots of the ecological crisis. In an earlier essay on making language issues the central focus of the professional studies of classroom teachers, which should also be central in the graduate studies of academics across the disciplines, I identified three aspects of language that should become part of what teachers and professors bring to the attention of students. Included in each area are a series of concepts that, when introduced, will enable students to recognize cultural patterns that previously were taken for granted and thus not recognized as problematic. What follows are suggestions for how to introduce these understandings in ways that will enable students to recognize the otherwise taken for granted cultural patterns of thinking that reproduce the misconceptions of the past. Each of the three aspects of the languaging process we all rely upon will be introduced as distinct ecologies, I will be using the word ecology to highlight that all human activity, including thinking and communicating, involve multiple ongoing interactive patterns and relationships and ongoing message exchanges. Which means that none can be fully understood as discrete processes. All ecologies are emergent, relational, and co-dependent, and this must be kept in mind as the ethnographies of these three aspects of thinking and communicating are made explicit.

One further note. The listing of the processes, patterns, and naming that are intended to help make explicit what is hidden by the taken for granted cultural patterns re-enacted in daily life are available in chapter 3 *In the Grip of the Past* (2013). I will not be reproducing all of what is identified under the three different language ecologies, but will focus instead on how to use ethnographies as a way of bringing them to the attention of the students. In effect, what follows is how to turn the list that appears in chapter 3 into teaching strategies.

### **Ecology of Language:**

The key understanding here can be boiled down to recognizing that words have a history, which means that the selection of earlier analogs that framed the current meaning of words involved thinking of something new or updating old and tired meanings involves asking “what is it like” that we are already familiar with. The “as like” conceptual move becomes in many instances the analog that frames the meaning of the word that is then carried forward over many generations or until a new and more accurate analog is adopted. In the West, thinking of the environment as a source of threat to being an economic resource is an example of adopting a new analog. In the medieval era the individual was thought of as a subject in a hierarchically ordered society, while today the individual is thought to be autonomous.

Other examples can be introduced to students by asking them to identify the analogs that frame the meaning of current slang and stereotypes. The point is not to ask them to think in the abstract, but instead to do an ethnography that provides examples of how the analogs that frame the students’ current meaning of such words as “police”, “blacks”, “immigrant”, “terrorist”, “success”, “progress”, and all of the special vocabulary now part of social networking. What is any of the above words like, and hundreds of other examples that are part of their lived experiences? The understanding that needs to be clarified is that the analogs are generally settled upon by others, and that this often occurred in the past when different prejudices, misconceptions, and silences were taken for granted. Another key point here is that in using a vocabulary whose meanings were framed by analogs that encode the earlier forms of intelligence—including the prejudices and misconceptions of the era—the student is then exercising the mindset derived from the past. The best example of how old analogs continue to frame the meaning of a word such as “woman” and thus to ignore the current attributes, can be seen in the unequal pay for woman that continues to this day.

As the language ecology that students are immersed in also includes what is being communicated through the media, in conversations within and between different groups, and in print, the ethnography of language needs to be focused on important words that will affect not only the students’ future prospects but the well-being of the larger society. So as the list of words (metaphors) from different aspects of daily life is identified by students, such as how they think about work, technology, success, progress, surveillance, data, family, conservative, liberal, social justice, and so forth, the analogs that still frame the meaning of a word needs to be identified and discussed. And the question about whether more appropriate analogs that take account of cultural differences needs to be asked. The key concept to be discussed is how the meaning of words can be changed, and that this is part of the democratic process. Also, the connection between whose words are used and political and economic power needs to be considered.

It is also important to engage students in a discussion of how the vocabulary inherited from the past reinforces the misconception that students use words to express their own original and authentic voice. What are the misconceptions that reinforce the idea of individual autonomy when most thought and behaviors are based on taking for granted the meaning of words framed in earlier times by the choice of analogs that have gone unquestioned. Where did we get the idea that language functions like a conduit through which ideas are sent to others? How does the conduit view of language hide the metaphorical nature of most of our words? What are examples of this in the students' experiences? How does this view of language hide that words are mostly metaphors that encode the ideas, prejudices and misconceptions taken for granted in earlier times. There should also be a discussion of the nature and implications of taking for granted other cultural patterns. The generational differences in how gender specific behaviors were and now are understood needs to be used as an example of changes in taken for granted cultural patterns. The current shift in how "ageism" has now become a prominent practice in the field of digital technologies would be a lively topic for students to discuss

As language encodes the deep assumptions of the culture (such as the idea of progress, individualism, and a human-centered world), as well as influences both awareness and what is not recognized, what students need to discuss are the connections between what they regard as important social issues not being addressed and the lack of a vocabulary for articulating the nature of these problems and their possible solutions. To put this more simply: do we understand the dangers connected with the digital revolution, or those connected with climate change? Do we possess the vocabularies and conceptual frameworks necessary of articulating why cultural bio-conservatism needs to replace the current reliance upon libertarianism and market liberalism? What are the analogs that are still carried forward as part of the vocabulary of libertarianism and market liberalism? Another aspect of how the lack of language, including a change in the meaning of words, is that both can lead to a change in cultural memory. For example, students should be asked to consider what there was about the earlier forms of work, including worker decision making, that have been lost because the vocabulary workers used to claim their rights in the workplace no longer exists as nearly a third of the workforce is based on short term contracts. Is the threat of a strike going to bring management to the negotiation table when labor unions now represent few workers? Have the youth now entering what is called a contingency work force or gig economy been disempowered by the lack of the vocabulary that has been lost as efficiency experts in the central office now control the pace and skills previously exercised by workers?

The importance of recognizing the words have a history, and encode the assumptions and misconceptions of earlier eras and of culturally specific groups that establish power relationships, need to be explored in terms of the different cultural groups represented in the classroom. Also, enabling students to recognize that changing the analogs that frame the meaning of words in ways that are more culturally and ecologically informed is always of possibility, and it is this awareness that the power relationships established by the taken for granted status of language can be changed. Words do not have a universal meaning, and a fixed and absolute status. This awareness leads to recognizing that what is learned in the classroom, on the Internet, and later in everyday life, is that we live in an interpreted world and not in a world of universal truths and objective facts and data.

### **Ecology of the Cultural Commons:**

As pointed out in the opening paragraphs, climate change is already having a disruptive impact on the lives of everyone—including plants and animals. But the scarcity of protein, potable water, and other essentials to sustaining everyday life will increasingly include the scarcity of work opportunities as well as personal security as the digital revolution replaces people with computer driven machines. So the major question is: what are the educational reforms that will reduce the human impact on natural systems, that will provide alternative pathways into the future that will reduce dependency upon working for a salary that is already undergoing systemic changes as more people work on contracts that can be terminated—and more people are being forced out of jobs when they reach the mid-point in life. The automation now being driven by the digital revolution is already benefitting the already rich who own the machines that creates other problems that will lead to further social strife. And the increasing social chaos that will accompany climate change, and the lack of economic opportunities for billions of the world's population, already is leading to millions of people moving across national borders. The prospects for the future are increasingly diverging from the myth of progress that most Americans now base their lives upon.

The challenge for classroom teachers and professors is to offer an alternative pathway into the future that avoids the pessimism that comes from recognizing the enormity of the challenges that lie ahead—which the majority of Americans continue to ignore by holding onto the mythic thinking of earlier generations. The alternative pathway into the future is not based on abstract theory that will be contested by competing abstract theories. Rather, it is has been the main pathway that existed before the Industrial Revolution was imposed on people engaged in carrying forward the intergenerational cultural commons of their cultural groups,

and before the Enlightenment thinkers promoted the idea that progress required replacing face to face traditions with the scientific method, critical inquiry, and the mechanistic root metaphor (interpretive framework) that represented organic life as having the attributes of a machine—which the digital revolution perpetuates today. There were definite gains from this transformation, but the forces of modernization did not entirely eliminate the intergenerationally connected community-centered pathways. The use of ethnographies will help students recognize the continued existence of these cultural commons (that is the largely non-monetized activities and mutually supportive relationships) in their own communities, as well as their ethnic traditions requires, like the focus on the ecology of language, giving careful attention to the cultural patterns and relationships within which students find themselves. It requires, again, having students engage in ethnographies that focus on the various expressions of the intergenerationally connected cultural commons.

The modern paradigm has led to monetizing achievements, relationships, and work, while participating in the local cultural commons leads to discovering personal talents and skills, and developing them in ways that contribute the well-being of the community. Wealth becomes a skill or practice that is supported by the community, whereas the lack of a skill or talent that contributes to the community is a form of poverty. The cultural commons are not imposed by elites on the community, but arise from the everyday activities such as the growing and sharing of food, participating in ceremonies, engaging with others in one of the creative arts, practicing a skill in working with wood, metal, clay, further improving the use of technologies that take account of the natural ecologies. Playing games, passing forward knowledge of the interconnections between habitats and species, working collectively to resolve social injustice issues, engaging in face to face democratic decision making—as also part of the cultural commons that still exist in every community but go largely unrecognized because of the commercialism that is designed to occupy people’s attention and value system.

So how does the classroom teacher and professor help to revitalize this pathway into the future, while also helping students recognize the continued existence of wrongs done to others and to the environment. The first step is to encourage students to engage in ethnographies of the largely no-monetized activities and relationships carried on in their communities. That is, the skills and practices that depend largely on intergenerational knowledge passed forward in face to face relationships—reliance upon recipes and the sharing of food, the different traditions of weaving and their network of suppliers, the range of performing arts, and so forth. What students should be encouraged to observe are the mutually supportive relationships and forms of mentoring—as well as how being engaged in actually performing a task leads to slowing the pace of life to the

point where reflection, a deeper sense of self-awareness, a sense of connectedness to others including those in the past who made important contributions, and a clarification of one's place in the community-centered pathway.

The ethnographically informed curriculum should involve careful observations of the mentors that are passing forward the intergenerational knowledge about plants, the care of animals, the skills and techniques to be used in working with clothe, wood, metal, and so forth. Also to be considered is how the participants in the many cultural commons activities rely upon each other in ways that lead to reciprocity in the sharing of labor, time, and mutually supportive activities. Other questions to explore include whether people engaged in cultural commons activities experience a different quality of health, are less dependent upon a salary, and if there is less crime and violent behavior.

Engaging students in interviews, surveys, and actual experiences followed by comparative analysis of the differences between activities where their own skills are involved and where consuming industrial produced products will lead to other critical understandings. This would include discussions of how traditions are part of cultural commons activities—whether relying upon a recipe, working with ceramics, or helping to repair a neighbor's house. That the built culture and personal skills have a history and thus are examples of building on traditions is not easily learned by those living a consumer dependent lifestyle. Involvement, rather than just reading about the cultural commons, will also bring out how face to face relationships are less dependent upon the electronic devices that leave a digital footprint that makes one subject to further forms of entrapment by businesses and others who have something to sell or hack into one's privacy. The face to face relationships in mentoring relationships and in mutual exchanges of skills and products also become the basis of learning about the life experiences and challenges that others face, which leads to more informed democratic decisions—which is profoundly different from the political process mediated by computers and television attack ads. Yet another understanding that needs to be given attention is how the non-monetized cultural commons activities and relationships reduce the need to be employed, and the role that mutual exchange and a barter based economy play in the life of the community. Yet, as the ecology of relationships and mutual forms of dependency are carried on in different spheres of the cultural commons, the social forces still committed to expanding the industrial and profit driven economy, which the digital revolution promotes., are continually seeking to transform the achievements of the cultural commons into a product that can be sold to consumers, which leads to yet another form of dependency on being employed and on being indifferent to the impact of consumerism on the natural ecological systems.



Learning about the many lifestyle differences that are part of participating in the local cultural commons, and how they contribute to the health, sense of being a member of a larger whole, and self-discovery of what constitute the form of wealth that strengthens community while not destroying the environment, is also a matter of learning to exercise ecological intelligence (which will be discussed later). But learning to be aware of relationships within the larger natural and cultural ecologies is perhaps the most important thing for students to learn, especially as they are entering a period where climate change will lead to many forms of scarcity and actual threats to survival. That revitalizing what still exists of the cultural commons in every community is the way forward in an increasingly stressed and violent world can be seen if students consider the smaller footprint on natural systems, and the importance of building the mutual support systems that are strengthened through face to face relationships. Accountability in the world of the Internet, as is becoming clearer as elites develop new technologies that further increase the vulnerabilities, is increasingly being replaced by a corporate and police state mentality. The most recent expressions of this is the effort of the military establishment to develop autonomous weapon systems that are guided by artificial intelligence, and the Internet of Things which creates more opportunities for hackers and those engaged in cyber-attacks.

### **Ecology of Print-Based Cultural Storage and Thinking:**

The double bind is in how the more print mediates thought and communication, the more it will undermine awareness of the cultural contexts critical to our future survival as scarcity becomes the new norm. The source of this double bind is that print-based cultural storage and thinking has not only become the dominant technology the West uses to communicate beyond the boundaries of the face to face relationships but it also serves as the source of storage for historians and other interpreters who assume they were simply presenting objective narratives. And with data now becoming the dominant form of knowledge, its representation in print is now stored in the cloud that is accessible only to those who possess the skill of using complex digital codes.

So why is it important for students to understand that the technology of print is more complex than being yet another example of how technology has led to important cultural advances? What is there about the technology of print that can contribute to undermining the exercise of ecological intelligence, as well as lead us into more international conflicts? The problem, again, is that few classroom teachers have an understanding of the limitations and exploitive uses of print. For most teachers, print based cultural storage and thinking makes teaching students how to read a priority. Promoting the value of literature as broadening understanding and experience—and now, to becoming of citizen in the digital

revolution, exclude the possibility of helping students understand the many differences between literacy and predominately oral cultures.

So where can teachers, given their lack of the basic differences between orality and print-based cultural storage and thinking, begin? It is unlikely they will read the scholars who have written about the differences, and it is unlikely that anyone in the community will possess the wisdom of what oral communication can achieve that print cannot. If there are elders in the community who possess this knowledge, it is unlikely that the teacher would invite them to share this knowledge with the students. Like the other aspects of the lived culture such as how the inherited vocabularies passed on in families, in the media, and the classroom, the student's everyday life is surrounded with print. Indeed, it is quite impossible to do anything or go anywhere without first reading directions. So the cultural artifacts that need to be understood are all around the student.

But first, before discussing the understandings that should be central to learning about the down-side of print, it is necessary to restate what print misrepresents. That is, the basic reality is that the cultural and natural ecologies we participate in, and rely upon for sustaining life, are emergent, relational, and involve ongoing co-dependencies. This needs to be discussed with students otherwise the ways in which print misrepresents this key characteristic of existence will not be understood. What aspects of the students' world are absolutely permanent and free of all relationships? Is there anything beyond the print-based abstractions that do not change? When students come around to recognizing that even rocks and continents undergo change (albeit too slow to recognize the changes), and even ideas and mytho-poetic narratives undergo change and reinterpretations, the discussion can move on to what is there about the technology of print that influences power relationships, justifies life changing decisions that lead to the loss of a job, and privileges elites over those who lack the language competencies to challenge decisions.

A basic limitation of print is so easy to recognize that it is surprising it has not been introduced in the first grade. That is, print can only provide a surface knowledge of ideas, events, and processes. What is lost when relying upon print to give an account of the emerging, relational, and co-dependent world can be demonstrated by asking a student or even the teacher to write an account of what happened in any number of social situations ranging from a musical performance, a game, a conversation or even the act of bullying. The difference between the printed account and the local context— that is, the ecology of evolving relationships and verbal behaviors that includes how space and body language are used to communicate about relationships, will bring out that print always provides a surface account that ignores the emergent, relational, and interdependencies of the local context.

This should lead to a second understanding: namely, that what is encoded in print immediately becomes dated as the interdependent ecologies that sustain life and social relationships are constantly changing. Print creates the illusion of permanence which is seldom recognized because printed accounts can be updated. But this does not overcome the basic misrepresentation of fix events, ideas, and values. Many people are ready to engage in civil war in order to defend the idea that the words used in the Constitution are to be treated as absolutes—as it is wrongly assumed that those who hold this view do not engage in the process of interpretation that is based on the vocabularies inherited from the past. As what is in print is taken as representing an objective and fixed reality, thought moves more into the abstract realm of thinking that has been part of the legacy of Western philosophers and social theorists. And the more abstract, the more surface thinking and actions become—with the difference in contexts becoming ignored. This, in turn, leads to changes in power relationships that are easily justified by relying upon the inherited vocabulary about the superiority of rational thought, supporting data, and progress. This would be a good place to have an extended class discussion of how print is used to support the arguments of people in denial about climate change—or a discussion about the loss of jobs and the promise to restore them. How does the reference to progress or to data, change the power relationships? And does evidence of what is occurring in local contexts get taken seriously?

One of the characteristics of print is that it is inherently ethnocentric. That is, what is represented in print supports a number of Western assumptions about individualism, the power of critical thought, the importance of empirical evidence (which is always subject to interpretation) and the superiority of print over oral modes of cultural storage and communication. Students from ethnic backgrounds where face to face communication is still heavily relied upon need to identify differences in consciousness and communication patterns that are undermined by print—and now the dominance of the Internet. Which mode of communication strengthens memory, empathy, the negotiation of meanings, learning from the multiple semiotic message systems that are part of local context. And which mode of communication is used to establish treaties, legal rights, and fixed penalties and responsibilities. Does the metaphorical language used in print based efforts to take ownership of the land inhabited by indigenous cultures for centuries encoded the prejudices and misconceptions of the West? Does the reference to a culture as a “tribe” and to the West as a “civilization” affect power relationships? The important point to bring out in student discussions is that the power of print to control outcomes and relationships is also augmented by the metaphorical vocabularies that are used.

Until recently it has been assumed that print is the technology used by people; that is, by people who often are unaware of how their thinking has been influenced by the culture they take for granted. This is now changing. With the development of artificial intelligence, much of what is written is now done by algorithms. That is, computer systems are programmed to process vast amounts of information, and then to write reports and accounts that have all the appearance of having been authored by a human. Further progress, if this is the right metaphor here, is being made in the ability of software that now “mimic” the actual voices of people, thus making it difficult to recognize the difference between the voice of a parent or friend and the use of a technology that others are using to exploit people’s tendency for responding to someone’s need. While oral communication involves greater personal accountability, print-based communication makes accountability more problematic. The use of algorithms and artificial intelligence systems that replicate human speech, and other mannerisms relegates, in the name of progress, personal accountability to the junk-heap of history. These new technologies should also become the focus of an extended classroom discussion—including the issue of whether it is possible to reverse the flow of digital technologies that are now being recognized as undermining personal security, social justice traditions, and the intergenerational knowledge and skills that are essential to survival as the ecological crisis deepens. That is, should the digital technologies leading to deep cultural changes have been subject to the democratic process? Has the digital revolution relegated democracy to the junk-heap of history, or its recovery dependent upon the revitalization of the cultural commons? Most people now accept the word of computer scientists and venture capitalists that the new technological innovations represent the next expression of progress—which should be evidence of the failure of public school and higher education.

### **Differences Between Ecological and Individual Intelligence:**

The dominant way of thinking about what education should achieve is the promotion of critical thinking. This goal is, in turn, based on the assumption that critical thinking is the expression of an autonomous individual. A further assumption is that the critically thinking individual is able to make explicit both the misconceptions promoted by others as well as articulate what constitutes the correct way of thinking. This ideal view of the rational process can be traced back to the 16<sup>th</sup> and 17<sup>th</sup> century Enlightenment thinkers who did not understand that the vocabularies inherited at birth and learned at a taken for granted level of awareness reproduce past ways of thinking. Like the ideas of progress and a human-centered world, the idea that critical thinking as being free of unconscious cultural influences is also a myth. It is also important to recognize that the emphasis on print-based cultural storage and thinking also supports this myth, as print

reinforces individual observation of the printed word (and of the external world), and the ability to analyze different printed accounts. The processes of analysis is more difficult in oral cultures where the spoken word is part of the emergent, relational, and co-dependent local ecology where memory, negotiation of meanings, and differences in perspectives of what is occurring in the local context are ongoing.

So the question becomes: how is it possible to introduce students to the misconception that they are autonomous thinkers expressing their own ideas. And how can they become more explicitly aware of the individually-centered ecological intelligence they exercise in certain settings, and the exercise of ecological intelligence that takes account of how their participation in the natural and cultural ecologies affects the prospects of future survival. But first ethnographies will help students become more deeply grounded in an understanding of both types of ecologies. Science now understands natural ecologies as complex interactive systems where the participants, ranging from the micro level of organism to larger systems, are emergent relational, co-dependent, and engaged in information (semiotic) exchanges unique to each species. Scientists do not understand cultural ecologies that involve complex networks of information exchanges as people interact with each other and with the past assumptions encoded in the built culture. In terms of cultural ecologies, the historical influences on the vocabularies people take for granted always influence both the present and the future, unless made explicit and transformed by the introduction of new analogs.

The conversations occurring in the classroom are examples of cultural ecologies, just as a game is an ecology, as well as computer mediated learning, reading a book, talking with friends and family, participating with social media, and so forth. They are ongoing networks of communication. How much attention is being given to the complexity of the messages. including the historical influences on culture that is also present, is the important issue. Seldom does the purchase of a car, or the convenience of having fruit shipped from half way around the world, involve consideration of the environmental impact. Personal interests tend to dictate awareness. How many of the different contexts students find themselves in do they fully recognize that their behaviors and ways of thinking have long-term sustainability implications? The differences between the ecology of different cultural commons activities and the ecology of a consumer relationship (including the building and its contents that communicate no sense of scarcity or environmental limits) should be discussed. Students should also discuss the ecology of racial and ethnic relationships involving the police, gang violence, and efforts by community groups to achieve social justice. What is being communicated by the promoters of the digital culture related to work opportunities and to the prospects of computers replacing the need for humans in the work

place? Are the information pathways loaded with words that suggest that the loss of privacy, the turning of behaviors under constant surveillance into data that will be used by strangers, and the need to constantly buy the latest technological innovation, are all expressions of progress?

Everyone exercises a self-centered form of ecological intelligence in that the information relevant to making strategic decisions about achieving an objective (getting through an intersection, passing people on the sidewalk that are moving too slowly, ending a conversation, and so forth) is taken into account. Playing a game of basketball or becoming aware of gender or racial bias in the treatment of others involves a less self-centered form of ecological intelligence. The experiences of being part of a larger network of relationships where the athletic moves of other players are taken into account and lead to changes in one's own moves, or being aware of the historical roots of racial bias, the forms of injustice experienced by members of a minority group, and awareness of the changes that need to be brought about. Awareness of the larger network of patterns of interaction, language use, and what should be supported is less individually centered, and thus reflects a deeper level of ecological intelligence.

If the teacher has difficulty in getting students conditioned to thinking of themselves as autonomous thinkers and actors, have them observe how the difference in the behavior (actions) of a player in a game of soccer leads to differences in the behavior of the other players. Each move represents a difference in the information constantly circulating through the game, which leads to changes in the behavior of the other players. And then have them observe other examples of how a difference (which is a form of communication) leads to differences in the responses of the Other. This will help in getting across the idea that ecologies are emergent, relational, and co-dependent, and that these characteristics also hold for natural ecologies. Hopefully, this will lead to understanding that they are not autonomous individuals who are separate from the world they observe and act upon. This understanding is also dependent upon revisiting the language issues, including how printed accounts marginalize awareness of the interactive and emergent nature of the world they live in, and the differences between participating in the local cultural commons and in consumer dependent relationships. Ecological intelligence, in effect, is becoming more explicitly aware of the emergent nature of relationships and forms of interdependencies, and adjusting one's responses in ways that strengthen the mutually supportive and sustainable nature of communities.

### **Overcoming Discouragement:**

The suggestion here that an ecologically-oriented curriculum needs to be based on giving careful attention to the lived cultural ecologies, rather than the abstractions

presented in textbooks and on computer screens, is likely not to be taken seriously, especially now that the Internet has further elevated the importance of the printed. Learning to give careful attention to what were previously taken for granted cultural patterns is not something that has been valued in the past, and besides it is difficult and often leads to awarenesses that may be disturbing and thus call for actions that others disapprove of. Such as challenging various misconceptions, patterns of discrimination, and so forth. Also, what is being suggested here as an ecologically informed approach to educational reform places the teacher in situations where encouraging students to become aware of relationships, and to consider both the historical influences as well as challenges in the future, goes against the grain of the certainties required by current ways of thinking about and measuring educational outcomes. Both parents in denial about climate change and having been socialized to take for granted the consumer dependent lifestyle, as well as teachers and administrators socialized to accept the modern myths, are likely to resist an approach to learning that leads to a basic paradigm shift in consciousness. The ecologically-centered teacher will be very much alone, and even under constant scrutiny as being a radical thinker that threatens of old order. The ability to keep going when there may be little reinforcement requires being deeply grounded in the conceptual frameworks relating to the multiple influences of language, the nature and importance of the cultural commons, and the importance of making the transition from living the myth of individual intelligence to recognizing how the future depends upon exercising ecological intelligence in ways that reduce the threats to both natural and cultural ecologies. There may be a few supporters from the community, and the students who have not been indoctrinated by the certainties of print and the excitement of the social media, will also be important sources of support. But in a culture that conditions people to ignore that their approach to progress does not have take consider climate change, ecologically oriented teachers will experience discouragement that will be like an ever present fog that obscures the genuine progress that is being made—which a few students may not acknowledge until later in life. Knowing that the curriculum that addresses the language, cultural commons, and ecological intelligence issues is what is missing in the denial about climate change will also be a source of support. Hopefully, other professors and classroom teachers will begin to realize that educational reforms leading to ecologically sustainable pathways of development requires a paradigm shift, which cannot be achieved by including an ecologically informed reading or two into a course that promotes the old mindset.

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Chet Bowers is now retired, but his books are listed on his Wikipedia and website.

