The Stratification of Cultural Networks

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Abstract: The study of culture consists of multitudinous relationships among different social realms. Clifford Geertz (1973) referred to this as the cultural web. However, he did not have the mathematical instruments for the explication of this phenomenon. Modern social network analysis (SNA) provides a rich and complex model of social relationships in terms of graph theory (Kadushin, 2012; Prell, 2012). It also allows one to investigate groups and subgroups of relationships within a complex entity and define the various structural subgroups within culture. This presentation provides an overview of what constitutes a mathematical framework of cultural theory and how it can be used to explain the social and cultural structures among various groups. It argues against the limitations of traditional communicative theory and enhances it with a communicative network model. However, there are limitations to social network analysis and a model of the torus is suggested as replacement for how intercultural communication operates over time. The concepts of popular culture and deep culture are introduced and their relationship is discussed within the context of Bourdieu's (1977, 1984) theories of a modular model of Field and Habitus. Hence, it is argued that a toroidal model of the stratification of culture also explains the mechanisms of cultural change and the phenomenon of communicative resonance.

Keywords: Cultural stratification, social network analysis, cultural change, cultural capital, cultural logic, communicative resonance, cultural modules, neural network systems, toroidal systems.

1. Introduction

When a child is born into a society, it must be socialized. Culture is not innate; it must be learned. The parents begin at birth when babies are dressed in pink or blue by some hospitals to signify their gender. This process continues with the parents who provide them with a range of social archetypes. After this period, the school system takes on the role of socializing children. In school, they are taught formal aspects of culture. From the mass media, they are taught various aspects of popular culture, as shown in Figure 1 (Bernstein, 1975).

The Theory of Cultural Laminations

Modern Popular Culture

Hip Hop Cultue

Past Popular Culture

Earlier Popular Culture

Era of Rock and Roll

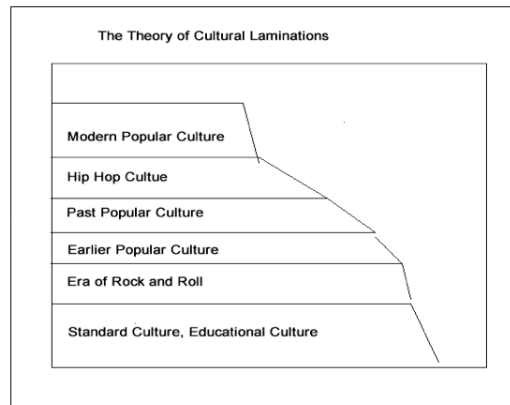Standard Culture, Educational Culture

Figure 1. The Social Stratification of Culture

In other words, each generation differs from other generations by being socialized in a slightly different way from them. Each generation has its own heroes and villains. It has its own visual icons and music idols. Each generation has its own popular culture. This means that culture is stratified and that one must excavate the history of the past in order to better understand the events taking place in the present. Michel Foucault (1969) best captured this phenomenon in his metaphor of the archeology of knowledge. In this model, there is no monolithic concept of culture. There is, however, a lamination of cultural expressions expressed by separated generations and their social practices.

2. The Parameters of Culture

Although there is no monolithic concept of culture, it functions, nevertheless, as a system of intercalated levels and each of these levels is structured. These structures are most evident in the dichotomy between popular culture (mass mediated knowledge) and deep culture (formal and professional education).

Popular Culture	One is born into this culture. It contains the displayed forms of music, art, and technology of the times.
Deep Culture	This is the culture that is taught by means of formal or professional education. It is the culture that one achieves through work and study.

Both are forms of mass culture. Popular culture is the most recent form of mass culture. It is distributed through mass media. Deep culture is distributed culture. In the lower educational system it is mediated for the masses. In the more advanced stages, it is controlled by professional groups that require certain standards for entrance into the system. Deep or profound culture represents the specialization of knowledge and social practices through

advanced training. Academic knowledge and apprenticeship training are constituents within this category of culture.
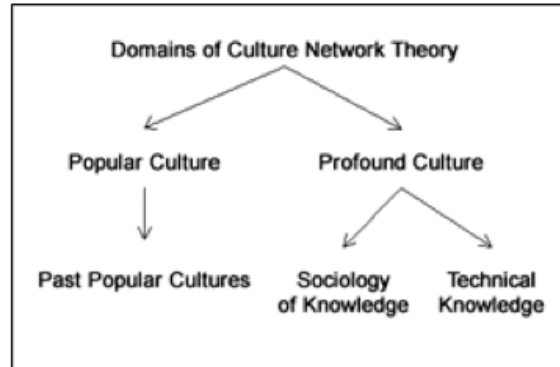

Figure 2. The Domains of Culture

Some forms of popular culture are institutionalized and function as aspects of deep culture. A good example of this is the work of Shakespeare. They began as part of the popular culture of Elizabethan England and now they are formally studied and analyzed as the deep culture of English literature. As new popular cultures emerge, they replace the older forms of popular culture. These older forms do not disappear. They remain as stratified layers of popular culture with the contemporary layer being the most recent and the embedded layers as remnants of the past.

      Although one is born into a popular culture, the impact of that culture is most profound during the teenage years of individuals. It is at this time that they become active participants in this culture. They have their own favorite songs, and artists. They know the words to those songs and sing along whenever they hear them over the radio or television. They even attend rock concerts where they can meet with other "groupies" and share memorabilia of other staged events. Old popular culture may continue for long periods after their major performing artists have disappeared. Their audiences keep them alive but when the spectators are gone, this older popular culture also fades away. Popular cultures form space bubbles or cultural modules around their performing artists. As the artists grow older, they are remembered by their age related audiences. The size of this space bubble diminishes, but it never bursts. It just continues as a memory of the past. If one were a teenager during the 1950s and 1960s, one would be immersed in the popular culture of the time. Some of these artists and their genres are listed below:

Table 1. Popular Artists of the 1950s and 1960s.

Crooners	Frank Sinatra, Tony Bennett, Perry Como, Bing Crosby, Rosemary Clooney, Dean Martin, Judy Garland, Eddie Fisher, Arthur Godfrey, Nat King Cole, …	These were the popular singers of the previous decade. These artists were favored by the parents of the Baby Boomers. Many of these appeared in film and on television.
Country Western	Frankie Laine, Patti Page, Kay Starr,Teresa Brewer, Kitty Kallen, Peggy Lee, Doris Day, Tennessee Ernie Ford, ..	Country Western had its own niche and was regionally favored.
Rock-n-Roll	Elvis Presley, Chuck Berry, Fats Domino, Little Richard, James Brown, Bo Diddley, Buddy Holly, Bobby Darin, Ritchie Valens,Connie Frances, Johnny Mathis, Neil Sedaka, Pat Boone, Ricky Nelson, Bill Haley, …	These performers dominated the air waves and television (American Band Stand). It was a highly creative era for popular music. Elvis Presley dominated the charts. Top Rock-n- Roll songs were Johnny be Good (Chuck Berry), Jailhouse Rock (Elvis Presley) and Rock Around the Clock (Bill Haley and the Comets).
Jazz Singers	Charlie Parker, Dizzy Gillespie,Miles Davis, John Coltrane, Thelonius Monk, Dave Brubeck,the Miles Davis Quintet, the Modern Jazz Quartet, Ella Fitzgerald, Ray Charles, Sarah Vaughn, Billie Holiday, ...	This group had its own niche and was regional before the advent of television. With television, the genre spread and ranged over a wider audience.
American Folk Music	The Weavers, Kingston Trio, Christy Minstrels, The Four Freshmen, The Four Preps, The Highwaymen, ...	The Weavers popularized this genre. Many of these groups appeared regularly on television shows.

In sociology, one tends to think of groups of individuals who form around a performing artist. However, a more realistic account of this interaction is one of individuals who are connected to others through a network of six or less degrees of separation. This is the new
approach to social interaction (Prell, 2011).
The recording artist, the theatrical agent or a recording company may be at the center of these networks. This is why it is represented as an ego-centered network. Rock concerts maintain these networks. Record sales renew these networks and strategically timed appearances on national television also enhance these networks
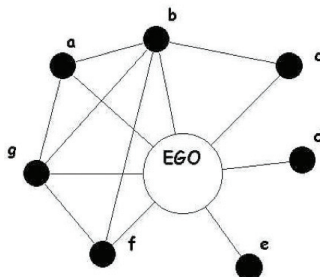
Figure 3. Ego-centric Network

Deep culture is more of a continuum rather than layers of experience and it co-exists alongside of popular culture. It is a different kind of cultural interaction and it actually competes with formal education as an audience. Popular culture is more visual whereas deep culture is print oriented. They require different kinds of cognitive processes. Once one completes the process of formal education by graduating from secondary education, the process, nevertheless, continues through various forms of advanced training and professional education. One may enter into a profession that advances the individual through apprenticeship training or one may enter a profession that requires more formal education and internship training. In either case, there are entrance requirements and more complex forms of testing for academic competence or performance skills.

2.1. The Business of Culture

The culture of modernity is an outgrowth of the Second Industrial Revolution in Europe which began during the late 1800s when large populations were driven to major cities such as Paris and London. These cities quadrupled in size in a short period of several decades (Sennett, 1978). As a consequence of this shift in population many social changes took place in Europe and North America. Stuart Ewen has documented these changes in the history of advertising in the United States (Ewen, 1977). He noted that prior to 1915 advertising in the United States was directed to the wealthy citizenry. Unfortunately, that was the year in which manufacturers encountered a crisis because their warehouses were full and the distribution of their goods were stalemated. It was during this year that business leaders came together with members of the Sociology Program at Ford to find a way to revitalize their market flow. They began a series of experiments that would encourage the masses to become consumers of their products. They shortened the work week; increased the factory workers' pay; and created shopping malls (emporia) in which to display their merchandise. Their intent was to create a strategy that would make factory workers into mass consumers. This experiment was a success and a consumer culture was established in the United States. It is important to note that this shift towards a new public culture started as a business venture. Culture became the business of the power elite who wanted to successfully market their goods to the general public. Other changes in American culture have since taken place and they all involved the business of culture in which the economic base determined the cultural superstructure.

Table 2. Popular Culture Periods and Business Rationale

Popular Culture Periods	Business Rationale
The Great Gatsby Era	Advertising was directed to the wealthy and not to the masses.
Suburbia 1950s	After the Second World War, the economy came to a halt and veterans were returning home to a bleak situation. Once again, business leaders found a solution, by building suburbia. They created the highway system across the United States and they created suburbia. With houses situated outside of the city, families had to buy new homes, buy two cars (one would be a station wagon), and buy new supplies for that home (furniture, gardening equipment, outdoor grills, etc.).
The Inner City Culture 1970s	Advertisers created the mystique of the inner city as a marketing area because of the high revenue that they received from inner city in alcohol and music sales.
The Exportation of America	America was used as a model for international business. English, it was claimed, was the language of business. The Harvard MBA was used as a model of how to do business across nations. American businesses sold their products overseas.

As noted these cultural changes mirrored the Marxian axiom that the economic base often determines the cultural superstructure (Marx, 1977). In other words, the economic base often determines the culture of a society. This relationship between the economic base and American popular culture has been the focus of concern for members of the Frankfurt School of Social Research who immigrated to the United States prior to the Second World War. These scholars wanted to restore Marxist ideology. Theodor Adorno, for example, criticized American popular culture. He argued that in the modern world, culture has become an industry that is commercially controlled. He was an accomplished pianist who had strong opinions on modern music (Adorno, 1991). He despised the commerciality of American popular music (Praxis) and favored the music of European deep culture (*Theoria*), especially the music associated with Arnold Schoenberg and his coterie of followers (Jay, 1996). It will be argued that these scholars misjudge the rich cultural capital that is characteristically associated with popular culture.

2.2. The Cultures of Theoria and Praxis

As noted earlier, there are two cultures of modernity. One is theoretical and abstract (deep culture) and the other is based on social experience (popular culture). It is the relationship between these two cultures that been the subject of criticism by critical theorists such as Max Horkheimer and Theodor Adorno. They contend that popular culture is a business. It is a model that exploits the music

and art of a culture for commercial gain (Horkheimer & Adorno, 2002). This criticism may be partially true but it does not fully account for the relationships between the cultures of theoria (deep culture) and praxis (popular culture). Pierre Bourdieu did not concur with this Marxist perspective. Instead he argued that in every discipline there are struggles over cultural capital. Those at the top of the hierarchy are invested with a different kind of cultural capital (Bourdieu, 1977) from those at the bottom. Those at the top espouse a dominant theoretical ideology and a system of values they want to impose them on those beneath them who possess a different kind of cultural capital (Bourdieu, 1990). Why is this a problem? It is wrong because they assume that there is only one kind of cultural capital. They do not realize that those who profess to know deep culture or theoria have a different kind of cultural capital from those who are engaged in popular culture or praxis. They are based on different kinds of logic (Bourdieu, 1984). The logic of theoria is abstract whereas the logic of praxis is based on the sociology of everyday life. The former is theoretical and the latter is applied. In order to break out of this historical bind of dominance and control, sociologists must make their discipline into a reflexive one (Bourdieu & Wacquant, 1992).

What is a reflexive sociology? For Bourdieu, reflexivity does not mean that one reflects on one's theories, but also on one's practices. It means that those who create theory have an abstract logic that is different from the practical logic of those who live in the social word. Reflexivity is a social inquiry that allows sociologist to uncover the hegemony within their own disciplines. It allows them to see that individuals are socially situated in a discipline that is dominated by cultural capital and that individuals exist in a social trajectory within this system. What he is saying, in essence, is that those who have cultural capital are the producers of their own destiny and that the other participants in that discipline are comparable to their followers. This is tantamount to a restatement of Marx's concept of a two tier class structure: producers and workers. What is new in this restatement of Marx? It takes the class struggle out of its larger contexts across all disciplines and demonstrates that the same kind of dominant ideological control over individuals occurs within every Field (Bourdieu, 1990). But this is not the only difference. One needs to consider the role of Habitus in Bourdieu's concept of Field.

Before discussing the concept of Habitus, it is important to understand that this distinction between producers and workers can be found in Bourdieu's discussion of communication in a mass mediated society (Baron, Field & Schuller, 2000). Bourdieu asks why people spend their time and energy in making cultural products (1977, 1984). He asks what meanings are attached to these kinds of practices. What are these games of culture (Bourdieu, 1984)? He notes that these are all social products that belong to a single class, the producers of the consumer society. They have produced the symbol of economic taste as social capital because it serves their economic interests. As noted earlier, the dominance of the business culture in America is evidenced by several cultural shifts within the United States (St. Clair, 1997). It was the elite culture of the United States at the turn of the 19th century (1900s) that created the culture of conspicuous consumption. This business campaign was successful and it resulted in a consumer culture (Ewen, 1977). Consequently, the cultural ideology of the United States is that of corporate business. They are the creators and the controllers of cultural capital that constitutes the culture of modernity in contemporary America. The culture of America is not merely a mass culture. It is not a popular culture that was constructed to serve the economic interests of the few,

for the few and by the few. In other words, the Field of popular culture has its producers and consumers.

Currently, the business focus is on the marketing of America (St. Clair, 1997). Outside of the United States, the most recent project involves the exportation of the business model as the exemplar of the model of world capitalism. It is based on the Harvard MBA and it assumes that English is the language of business. This project, however, has met with strong international and intercultural opposition (Turner & Trompenaars, 1993). Turner and Trompenaars argue that there are many models of international business and these differ from culture to culture. In addition, they note that many international languages besides English also function to drive international commerce. In his reanalysis of Marxism, Bourdieu says that art as expressed in popular culture has been trivialized for the commercial needs of a few (Bourdieu, 1984, 1992). His concept of art and commerce is similar to that of Panofsky. Artists are no longer agents in the distribution of their creative achievements (Panofsky, 1972). Their talents are dominated by the agents of cultural production. Their social trajectories have been defined by the dominant ideologies of others.

2.3. Social Habitus

Whereas G. W. Hegel (1977) and Jürgen Habermas (1988) were concerned with Theoria, Bourdieu turned his attention to Praxis. He noted that what people do constitutes their practical knowledge. Scientists do not only talk theory, they also practice it. Is the theory that they discuss the same as the one that they are practicing? Bourdieu has his doubts about this. He wants to study practical knowledge. He calls this venture: A Theory of Practice (Bourdieu, 1977). How does he accomplish this? Bourdieu uses the participant observer model and argues that he is studying practical knowledge as an anthropologist. Whereas G. W. Hegel (1977) and Jürgen Habermas (1988) were concerned with Theoria, Bourdieu turned his attention to Praxis. He noted that what people do constitutes their practical knowledge. Scientists do not only talk theory, they also practice it. Is the theory that they discuss the same as the one that they are practicing? Bourdieu has his doubts about this. He wants to study practical knowledge. He calls this venture: A Theory of Practice (Bourdieu, 1977). How does he accomplish this? Bourdieu uses the participant observer

Table3. Bourdieu's Theory of Practice

THE OBSERVER
A Theorist is condemned to see all practice as a spectacle. He develops an abstract theoretical model of what the participants are doing.
THE PARTICIPANT
Praxis is what one does; it belongs to the world of action; it has its own practical logic. The logic of the observer is not the same as the logic of the participants in a popular culture.

The distinction between observers and participants comes right out of social anthropology. Sociologists, according to Bourdieu, are spectators. They observe participants and then develop

a theory of what these participants are trying to do. Their descriptions are referred to as the "social analysis". Occasionally, sociologists enter the word of practical knowledge and play the role of the participant. They believe that this experience empowers them with greater legitimacy to define the world of the participants. They claim to have practical knowledge of this world of action. However, they operate from a theoretical logic that is not concomitant with the practical logic of the participants. Their "theoretical gaze" is still that of an observer. Their gaze is based on a different set of interests than those of the world of practical knowledge. Culture is a map that allows a person to understand the territory in which he exists. The problem with observers is that they have a map of the world of participation, but it is a different cultural map from those who reside there. The map of the participants structures the practical space of the world of action. It is based on a practical logic. Maps are re-presentations. Consequently, they should re-present something that is actually present. The map of the observer does not represent the practical knowledge or the practical activities of the world of action. This leads to the participant-observer paradox which has to do with a person's point of view. One is either a participant or an observer. The paradox emerges when one realizes that it is only as an observer that one comes to know that he is a participant and what that entails. This interrogation leads one to revisit intercultural communication. What kinds of cultural maps are being used in this discipline? Do they relate information from the perspective of the observer or the participant? Is the theory grounded? In other words, is it based on a set of social practices? How is theoria used in this discipline? Is it reflexive? Is it grounded in social practice?

2.4. Popular Culture as Practical Logic

Bourdieu prefers to use sports as an example of Habitus functions (Bourdieu, 1984). Another interesting example of how theoretical logic differs from practical logic, and one that is pertinent to this essay, can be found in the difference between classical music and modern jazz, the music of popular culture. In an earlier discussion, it was noted how Theodor Arnold favored classical music over jazz (Adorno, 1991). Classical music is based on chords known as triads. They are created with a Root (I), a Third (III), and a Fifth (V).

C–Major Triad (M)   C–Minor Triad (m)

C–Augmented Triad (a)   C–Diminished Triad (d)
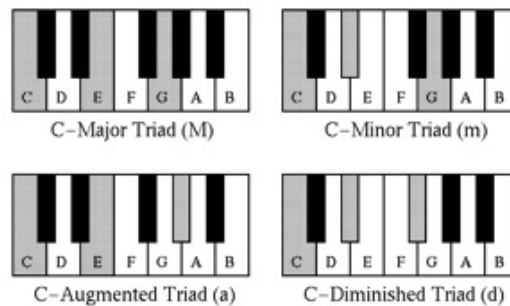
The four types of triad.

Figure 4. Musical Triads in Classical Music

Classical tonal music is based in the chords patterns of I-III-V. If the root is C, the third is E and the fifth is G. Hence, the major triad of the C chord is C-E-G. Within the historiography of music theory, classical music revolutionized the music of the previous centuries. However, when Adorno criticized the popular culture of Modern American music, he was invested in the music of musical deep culture; in particular, he was a follower of Arnold Schoenberg and his theory of atonal music. Much has changed in the music history since the time of the classical composers. The music of the Americas was influenced by the beat of the polyphonic drums of Africa. The old heroes were Mozart, Bach, Handel, and Beethoven but now the new heroes are Jelly Roll Martin, Art Tatum, Teddy Wilson, Bud Powell, Thelonius Monk, Herby Hancock and many others. This resulted in a new kind of music practice that created a revolution in music theory. Instead of playing music based on the traditional 12 note scale, the new music favored pentatonic scale of I, II, III, V, VI and the progressions were not based on I-III-V but on II-V-I. In addition, music was not always placed in the same key. Jazz musicians were innovators. They were highly flexible and highly creative. This music began in the late 19th century in the jazz styles of New Orleans and Dixieland. It favored playing music with inverted chords and in a different key. It is important to note that the differences between classical music and jazz are concomitant with the concepts of Habitus and Field (Bourdieu, 1977).

Table 4. Classical Music and Jazz Music

	Classical Music	Jazz Music
Logic	Theoretical logic	Practical Logic
Cultured of Modernity	Deep Culture	Popular Culture
Theoria	Classical music theory based on I-III-V Progression	Jazz music theory based on II-V-I progression
Innovation	Discouraged after a composition is written	Encouraged after a composition is written
Conductor	Required	Not required. The one who controls the beat leads the band. Members of the group take turns in leading the group.
Chord Structures	Maintained	Chords are restructured (phasing). Root played with the left hand and II-V-I played with the right hand.
Cultural Capital	Formal training – Theoria and Field	Apprenticeship training, learning by copying others – Praxis and Habitus.

The cultural capital of classical music can be found in the institutions that provide formal musical training for musicians. It is based on theoretical logic. The cultural capital of jazz music is

applied music that is learned in the interaction with other jazz musicians. It is based on practical logic. Adorno was wrong in trying to apply formal music theory to jazz, gospel, country western, rhythm and blues, and rock n' roll. His attack on popular culture was misplaced. Popular culture has to do with Habitus (Bourdieu, 1984). It has its own cultural capital and is based on apprenticeship learning (Habitus) and not on theoretical learning (Field).

2.5. Making Science Reflexive

Metacognition is defined as thinking about thinking. The problem with this kind of reflexivity is that it is based on theory. Bourdieu (1977) argues in favor of the metacognition of practice. If rules preserve practices, then customs provide the rationale for legal societies. In a sense, customs constitute pre-law. But theories of jurisprudence deal with abstract laws. The question that Bourdieu wants to ask is: Can these laws account for customs? Customs, after all, deal with particular cases. Laws deal with generalizations. Bourdieu argues that laws can only account for particular cases when they are written vaguely so that they are open to interpretation. Where does interpretation come from? Are the observers providing the correct interpretation of the laws (hermeneutics of jurisprudence) or are the participants implementing these laws as a cultural tradition? Bourdieu argues for the latter. Interpretations emerge from a theory of practice. They are similar to precepts of custom, sayings, and proverbs. They have nothing in common with the transcendental laws of juridical code. He goes on to ask about the use of rules in legal theory. What is this legalism all about? It is fallacious to think that they are based on scientific knowledge, even in a homogeneous community. Rules exist because they reflect practices that have been institutionalized. They express a group memory. They reflect a social habitus. They are based on a philosophy of practice. What is important from a phenomenological point of view is that native experiences of the social world differ from the system of objective relationships found among scientific models. Agents possess their own habitus. Their discourse is one based on familiarity, custom, tradition, and practice. There is a great difference between the learned reconstruction of the native world and the native experiences of that world. The theoretical accounts of the former gives the impression of symbolic mastery of the practices found in the latter. They are based on different practices. One is based on habitus; the other is based on rules. Bourdieu sees many limitations involved in the objectivist approach to practices. He wants to develop a grammar of practice based on the sociology of everyday life.

2.6. A Theory of Practice

Bourdieu (1992) wants to develop a theory based on practice and not a theory that is divorced from practice. He wants this model to reflect the French tradition of the "*l'explication de texte*" (opus operatum). Human beings are creatures of habit. They perform routines and live episodic lives. This has been clearly stated by Mehan and Wood (1975), two ethnomethodologists who were students of Garfinkel. They argue that culture is habit. Bourdieu agrees with them, but with some exceptions. They believed that this interaction takes place through interaction, from one mind to the other. Bourdieu argues that the interaction is not only between minds but also between individuals who share the same

social practices, a mindset of dispositions that guide and direct their social interactions. He chose the word "habitus" rather than "habit" because habitus means much more as a technical term. People are involved in doing things (opus operatum) and only when one takes a different mode of thinking (modus operandi) that one begins to understand the nature of praxis.

Table 5. Theoria and Praxis

Theoria	*Modus operandi* (the theoretical mode of thinking about practice). This mode produces structures that are abstract.
Praxis	*Opus operatum* (the creation of products, and acts of behavior). This practice produces structures that are concrete.

Practices are produced by Habitus and these routines go on to reproduce themselves.

They are modular. They create evolving patterns of behavior that reproduce themselves. They generate variations of a theme. These products are determined by past conditions. What Bourdieu (1984) is trying to address in his theory of practice is the problem of agency. He wants his fellow social scientists to realize that agency does not have to be limited to human beings but can emerge from human practices. When the latter occurs, this form of agency is teleological but has no definable goals. The original goals have been lost in the traditions of the past. The agency is purposeful but has no overt purpose. The original purposes have been obscured by time and place. They are functional but have no single determined function. The original functions have been severely attenuated. Habitus produces practices. These practices cannot be ascertained from the objective conditions. They cannot be discovered by looking at the context of the situation, but they tacitly exist as social practices. Habitus has social and cultural agency, but that agency does not exist in any one individual. It exists in tradition, practice, and other forms of tacit knowledge. Hence, Habitus is a product of history, an opus operatum. It is a system of dispositions, a past that survives into the present and perpetuates itself into the future. Children learn not solely by means of theoretical models but also by imitation. Concrete operational thought means that one learns by example. It is earlier in life that formal operational thought emerges in which one learns by models and other cognitive concepts.

3.   Social and Cultural Networks

Society is studied from a network perspective. This means that it studies individuals embedded in a network of relations. It seeks explorations of behavior based on the structure of these networks rather than on the individuals alone. Manuel Castells refers to this as the network society (Castells, 1996). This kind of social network analysis (SNA) has a long history in the social sciences (Prell, 2011). It is part of small group theory, sociogram analysis, and the social web (Kadishin, 2012). It is a model that is used in computer science, transportation systems, finite mathematics (graph theory), and organizational communication.

        The study of graphs is made up of vertices (or nodes) and lines (or edges) that connect them. Graphs are one of the prime objects of study in the field of discrete mathematics.
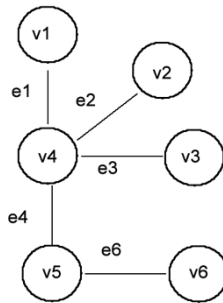
Figure 5. Graph of Relationships

In the graph in Figure 5 (G), there are six vertices, V (G) = {v1, v2, v3, v4, v5, v6}. And the edges that connect these vertices are E (G) = {{e1,e2}, {e1,e4}, {e2,e4}, {e3,e4}, {e4,e5}}. In graph theory, one wants to know how the vertices and the edges are connected to each osther. Graphs are used to display certain common patterns.
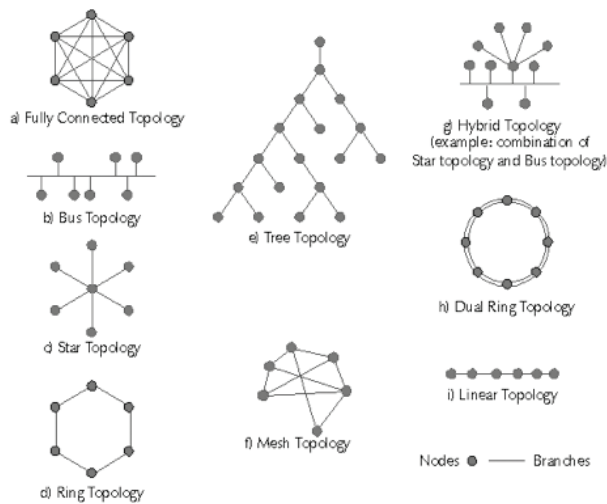

Figure 6. Different Patterns of Analysis

In the study of American popular culture, graphs can be revealing as they demonstrate who the artists are and how they are managed. The typical cultural icon in the industry is controlled by an agent, just as Elvis Presley was controlled by his manager Colonel Tom Parker.
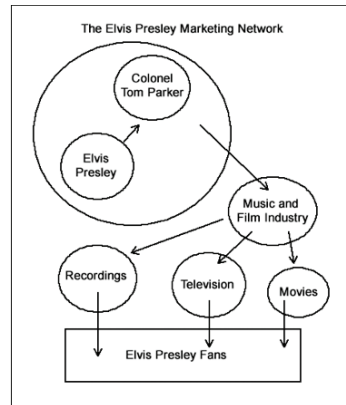
Figure 7. Marketing Networks

Some artists are sponsored by wealth. Jackson Pollock had a benefactor, Peggy Guggenheim. Some artists became entrepreneurs. Andy Warhol became his own agent and sponsor. Nevertheless, culture can be analyzed as social networks. They can be subjected to a range of mathematical analyses for density, degrees of separation, betweenness, etc.

Table 6. Functional Analysis of Social Networks

Functional Analysis	Commentary
Degree of Separation	The number of ties to others in the network
Betweenness	The degree an individual lies between others
Closeness	The degree an individual is near all others (being in the grapevine)
Eigenvector Centrality	The measure of importance of a node in a network
Clustering	High clustering is identified with cliques
Structural Holes	If there is only one link between two people, that individual can control the information flow between them.
Radiality	The degree to which an individual reaches out into society.

3.1. Cultural Change

In order to explain cultural change, one needs to explain the relationship of the past to the present. The present is never separated from the past. The present is always embedded in the past. Since one lives

in the present, and since the present is always changing, one must always reinterpret certain aspects of the past in order to make it fit into the present. This interface is called the co-present. The reinterpretation of the past is called the new-past. The past is the background upon which the present is interpreted. The co-present is the readjustment of the past to make it concomitant with the present. This becomes the new-past. The creation of new ideas constitutes the new-present and they become a part of the future. (St. Clair, 2007) This fits well with the concept of reflexivity espoused by Bourdieu.
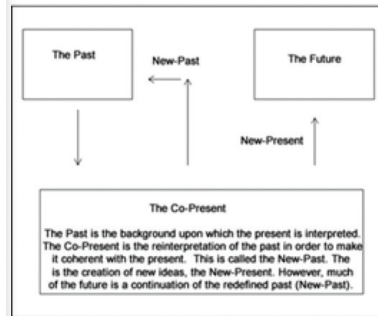
Figure 8. The Dynamics of Semantic Change

One of the consequences of this model is the dictum that the present is embedded in the cultural past. The dynamics of change in a cultural space always occurs in the co-present, a place where the reconstructed past is linked with the co-present. It is in this co-present space that the social construction of cultural space takes place. Bourdieu and his colleague explain how meanings are contextualized and interpreted within the co-present (Bourdieu & Wacquant, 1992). Rather than viewing culture as a superorganic entity, a collective consciousness, existing outside of human experience, culture is considered to be a set of practices, habits, and recipes for daily interaction emerging from the experiences of everyday life. It is by using the past to make sense of the present that the social construction of culture comes into existence (Mehan & Wood, 1975). Such social practices are internalized through daily interaction in the form of social scripts (St. Clair, 2006). Cultural change involves the retaining of some cultural practices along with the modification, revision, and re-invention of events in the most contemporary level of the emerging present. Just as the present is embedded in the past, the future is embedded in the present. Events that deal with the future are created in the present.

4. The Limitations of the Standard Model of Communication

The standard model of communication was created in the late 1800s and it was based on the metaphor of the train depot. It assumes that one stands at a depot and places goods into a container, and this package is placed in a train and sent to another depot where it will be received and where someone will open the box and take out the merchandise. Hence the standard model of communication is a transitive system that moves the semiotic sign from the sender to the receiver and vice versa. This model has been expanded and revised by adding new channels of communication, but it is no longer

sustainable. There are several reasons for this. One has to do with the concept of the semiotic sign which is treated as the conflation of meaning and form. This packaging of meaning and form into a single unit or sign fails to do justice to the complexity of mapping relationships between meaning and form. Hence, it has been argued (St. Clair, 2014) that the concept of the linguistic sign needs to be revised if it is to account for other kinds of signifying relationships (linguistic, visual, tonal, and kinetic).
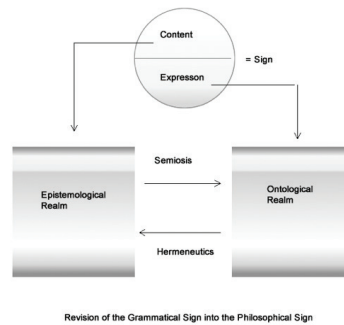
Figure 9. Theoretical Revision of the Semiotic Sign

This revision argues that the linguistic sign was created for how language functions within a linguistic space based on a Cartesian coordinate system of oppositions and contrasts. Therefore the linguistic sign cannot explain how visual space is organized or how tonal space is organized. They all function within different systems. Visual space is not organized in the same manner as linguistic space or tonal space.

In addition to revision of the semiotics of the sign, it should be noted that the standard model of communication is basically a dyadic function between a sender and a receiver. By employing social network analysis as a system of communication, one can improve that model to show that people function within several networks simultaneously and that some of these interactions are dyadic in nature. In social network analysis one makes contact with others. These contact points are called vertices and the channels between people are referred to as edges. When communication is directed in only one direction, the point of contact is called an arc and the channels are marked by arrows as directed edges.
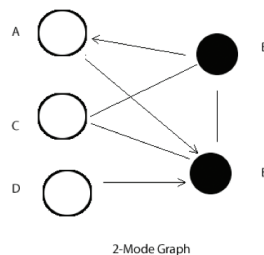

Figure 10. Arcs, Vertices, and Edges

This may be an improvement on the standard model of communication, but it is still laden with problems having to do with cultural renewal and maintenance and communicative resonance.
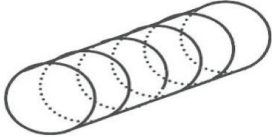
4.1. Communicative Resonance

There has been a major change in communication theory that has many implications for intercultural communication. A group of researchers at University of Parma in Italy under the guidance of Giacomo Rizzolatti discovered there are neurons within the neural motor system in the brain that fire when one observes someone performing an action. They referred to these as mirror-neurons (Rizzolatti & Craighero, 2004). Further research demonstrated that these mirror-neurons play an important role in understanding the actions of others (Rizzolatti & Sinigaglia, 2008). What does this research have to say about traditional communication theory? It argues that there is no overt agency involved in the communicative process. Many times there is deliberate agency involved between human beings. It argues that there is a field of interaction between human beings in which motor neurons play a major role in how people understand each other, have empathy and sympathy for another and this phenomenon constitutes a kind of communicative resonance. For example, when one observes another person picking up a cup, he mentally mirrors this action within his own motor neuron system. He resonates with this experience. A common example of this experience of resonating with others is the act of yawning. When another person yawns, one imitates that action unconsciously.

Another problem with the standard theory is that it cannot explain cultural change as the renewal of the past and the modification of the past. As noted earlier, people are born within a cultural milieu (cultural modules); they renew those experiences, they relive those experiences of the past as part of their own personal cultural heritage. How does one explain this? Because this experience is a modular one, it repeats itself. However, communication as it is currently practiced is seen as a transitive and linear experience from the sender to the receiver. Hence, it cannot explain how people belong to cultural milieus (modular cultural bubbles) and how they renew their membership within those groups. In order for one to renew an again, the process has to be modular.

4.2. A Modular Theory of Communication

The torus provides a good model of how modular cycles function. If, for example, one were to represent a clock in mathematical terms, it would be a ring torus. The hour hand makes a repeating cycle from zero to twelve and this repetition can be seen as a cylinder.

Figure 11. Rotating Circle	Figure 12. Rotating Cylinder
The module begins at 0, 12 and moves clockwise. There are 12 segments in this module.	The rotating cylinder has 12 segments that represent the clockwise motion of the hour hand of a clock.

The second hand also rotates clockwise and it can also be represented as a rotating cylinder. If the cycle is based on an analog clock, the rotating cylinder forms a spiral; if it is based on a digital clock, it forms a series of concatenated rings. By uniting the ends of the cylinder, one creates a three dimensional object known as the torus. It is the three dimensional representation of the torus that provides the answer to a modular theory of communicative resonance because the central force in a torus circulate and recirculate information. A torus recycles information back unto itself. It is a self-generating milieu. Hence, the representation of the clock in a three dimensional model is represented by means of a ring torus.
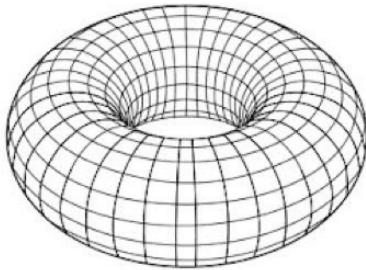
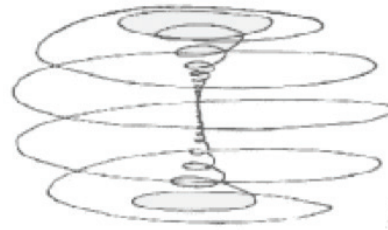|	
Figure 13. The Ring Torus	Figure 14. Toroidal Energy
The torus is a very common mathematical form in nature.	Toroidal energy emerges from the center and circulates around the torus only to reenter the center.

The ring torus provides an adequate representation of the social and cultural forces that operate within a cultural milieu (modular space bubble). The intensity of the energy within a torus can be modified by forces that are external to it. As shown in Figure 14, toroidal energy emerges from the center of the torus upwards and circulates around its exterior only to reenter the center from the bottom of the torus. This means that over time, the center of a toroidal function may be modified and a revised torus will replace it. If this energy is not externally enriched, the energy eventually dissipates.
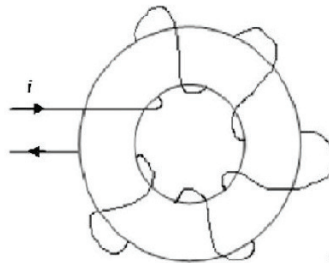

Figure 15. External Forces that Enhance Toroidal Functions

Instead of focusing on how a sender encodes a message and sends it through a channel where it is decoded by a receiver, one should be looking at energy flow patterns. These patterns, it turns out, are modular; they repeat themselves. Many of these patterns of toroidal flow are in resonance with each other. What patterns repeat themselves within a field is the focus of Morphic resonance (Sheldrake, 2009).

Most people do not realize that human beings are dynamic energy systems that employ the toroidal flow of energy (Haramein, 2014). The flow of electricity within the human heart, for example, creates a very strong magnetic field around the individual. When two individuals interact, their toroidal flows of energy interact. This interaction can account for sympathy, empathy, the excitation of motor neurons, and communicative resonance. Hence, this model of the torus provides a more insightful model for how people communicate within and across cultures. It argues that communication is not a transitive relationship but a more dynamic one that is concomitant with the new mathematics of quantum mechanics and torsion physics (Hatcher, 2002).
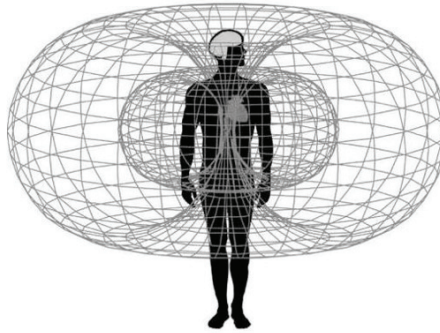

Figure 16. The Heart is an Electromagnetic Torus

The traditional model of human communication cannot account for a wide range of phenomena such as social networks, social and cultural change, communicative resonance, the mirror neuron system effect, revised information flows such as when the past is revised to accommodate the present, cultural milieu (space bubbles) that are formed during the formative years and are renewed and rehearsed over several generations for individuals from that group. However, the model of the torus does have the capability of representing and theoretically explaining these phenomena.

5.   Concluding Remarks

Culture is not an object but a set of relationships and social practices that evolve over time. Each incoming generation is re-socialized. They are born into a complex cultural context. They do not adhere to all that has been given to them. They modify the social practices around them and create new ones in the process as cultural modules. This creation of culture has been investigated within the context of the archeology of knowledge in which each new generation is embedded withi n its own framework of a popular culture. Around the time that these individuals are teenagers,

they have bonded emotionally and socially with this cultural milieu. This has been represented as layers of culture, the lamination of culture. However, the process is much more complex because each generation or groups of generations create their own cultural space, a kind of space bubble (cultural modules) that they will carry with them as they encounter future generations, and they will judge other generations from the perspective of their own cultural milieu, their own popular culture. The standard model of communication cannot begin to explain these aspects of communication. It is not dynamic enough to explain how the past is either retained or renewed and modified over time, a modular process of semantic reinterpretation. It cannot explain the phenomenon of communicative resonance, how the flow of information operates among groups. It cannot even begin to explain mirror neurons and how communicative resonance works. The proposed changes suggest an exploratory model of how communication functions. As research within this new framework continues, it will eventually emerge as an explanatory model (Brown, 1989). It is offered as a new research paradigm.

References

Adorno, Theodor. (1991). *The culture industry.* London: Routledge.

Adorno, Theodor & Horkheimer, Max. (1987). *The dialectic of enlightenment*. Oxford, UK: Oxford University Press.

Baron, Stephen; Field, John & Schuller, Tom. (Eds) (2000). *Social capital: Critical perspectives.* Oxford, UK: Oxford University Press.

Bernstein, Basil. (1975). *Towards a theory of educational transmissions*. London: Routledge & Kegan Paul.

Bourdieu, Pierre. (1977). *Outline of a theory of practice.* Cambridge, UK: Cambridge University Press.

Bourdieu, Pierre. (1990). *The logic of practice*. Stanford, CA: Stanford University Press.

Bourdieu, Pierre & Wacquant, Loïc. (1992). *An invitation to reflexive sociology.* Chicago: University of Chicago Press.

Brown, Richard Harvey. (1989). A *poetic for sociology: Toward a logic of discovery for the human sciences.* Chicago, IL: University of Chicago Press.

Burt, Ronald S. (1992). *Structural holes: The social structure of competition.* Cambridge, MA: Harvard University Press.

Castells, Manuel. (2000). The rise of the network society (2nd ed.). U.S.: Blackwell Publishing.

Chartrand, Gary. (197). *Introductory graph theory.* New York: Dover Publications, Inc.

Ewen, Stuart. (1977). *Captains of consciousness: Advertising and the social roots of the consumer culture.* NY: McGraw-Hill.

Foucault, Michel. (1969). *The archaeology of knowledge.* London and New York: Routledge.

Geertz, Clifford. (1973). *The interpretation of cultures*. New York: Basic Books.

Geertz, Clifford. (2000). Available light: Anthropological reflections on philosophical topics. Princeton: Princeton University Press.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology* 81, 1287-1303.

Habermas, Jürgen. (1988). Theory and Practice. [German original: Theorie and Praxis, 1971]. Boston: Beacon Press.

Haramein, Nassim. (2014). *Resonance project.* http://resonance.is/

Hatcher, Allen. (2002). *Algebraic topology.* Cambridge University Press.

Hegel, Georg Wilhelm Friedrich. (1977). Phenomenology of spirit. [German original: Phänomenologie des Geistes, 1807]. Oxford: Clarendon Press.

Horkheimer, Max & Adorno, Theodor W. (2002). Dialectic of Enlightenment. [German original: Dialektik der Aufklärung, 1947]. Stanford: Stanford University Press.

Ishii, Hiroku & St. Clair, Robert N. (1966). *Understanding the business of advertising.* Indiana: Social Systems Press.

Jay, Martin. (1996). *The dialectical imagination.* Berkeley, CA: University of California Press.

Kadushin, Charles. (2012). Understanding social networks: Theories, concepts, and findings. Oxford and New York: Oxford University Press.

Marx, Karl. (1977). Das Kapital. Chicago: University of Chicago Press.

Panofsky, Erwin. (1972). *Studies in iconology*: Humanistic themes in the art of the Renaissance. New York: Harper & Row.

Prell, Christina. (2011). *Social network analysis: History, theory & methodology.* Los Angeles, CA: Sage.

Rizzolatti, Giacomo & Craighero, Laila. (2004). The mirror-neuron system. *Annual Review of Neuroscience* 27; 169–192.

Rizzolatti, G. & Sinigaglia, C. (2008). *Mirrors in the brain. How we share our actions and emotions.* Oxford University Press.

Sennett, Richard. (1978). The fall of public man. NY: Vintage Books.

Sheldrake, Rupert. (2009). Morphic resonance: The nature of formative causation. Rochester,VT:

Inner Traditions/Bear & Co.St. Clair, Robert N. (1997, Spring). The reigning social metaphors of European culture. *Journal of European Studies.*

St. Clair, Robert N. (2006). *Language and the sociology of knowledge.* Lewiston, NY: The Edwin Mellen Press.

St. Clair, Robert N. (2007). The sedimentation theory of cultural time and space: The present is embedded in the past. CÍRCULO de Lingüística Aplicada a la Comunicación (clac) 31, 52-90. Madrid: Universidad Complutense de Madrid. Accessed 20th Oct 2014 from http://pendientedemigracion.ucm.es/info/circulo/no31/stclair.pdf

St. Clair, Robert N. (2014). *The semiotics of the visual sign.* New York & London: Routledge.

St. Clair, Robert N. & Song, Wei. (2009). *The many layers of culture within each city: A theory of cultural geography.* Lewiston, NY: Edwin Mellen Press.

Turner, Hampden & Trompenaars Alfons. (1993). *The seven cultures of capitalism: Value systems for creating wealth in the United State, Japan, Germany, France, Britain, Sweden, and the Netherlands.* NY: Doubleday Business.

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