

Review

The paradox in environmental determinism and possibilism: A literature review

Fekadu K.

Department of Geography and Environmental Studies, Arba Mnich University, Arba Mnich, Ethiopia.

Received 12 August, 2013; Accepted 20 August, 2014

This article provides in-depth review of the prevailing controversy among environmental determinists and possibilists, and searches the linkage among them. The issue of environmental determinism and possibilism is still being debated for more than a century among both geographers and non-geographers, which is a paradox. This work was analyzed based on content and document. The article tries to analyze the thesis differently, looks for the gaps and makes an Interface. And it also identifies the gaps in the existing literature and an inference for the further research which would be conducted in the area and also a better tool to be used as a teaching material for both underground and postgraduate levels. Determinist argues that 'man is entirely under the influence of nature'. However, the possibilist believes that man is never entirely free from the influence of environment, but there is a room for the effort of man, such as technology, attitude, habits, and values of human, which influence man's action and it also bring the physical environment. So, it is obvious that both factors (Man and nature) are equally important to make an influence on each other. The geographers have not denied the vis-a-vis effects of both man and environment like early determinist says 'man influences environment, just as the earth influences man.' Therefore, both viewers should lessen their stand rather than to elasticize it into different extreme; they should come to a common ground and do more on how much the environment can influence man and how man can influence the environment.

Key words: Determinism, paradox, probabilism and possibilism.

INTRODUCTION

There are various views that can be seen within geographers and non-geographers. The geographers have different concepts about the question of the subject matter of Geography, but leave alone determinism. The difference in subject matter is seen in dynamism, multiplicity of variables, methodology and approaches in the subject. However, this and other factors have given rise to a number of debates and dichotomies in geography. Among the other dichotomies, dualism in environmental

determinism and possibilism are the dominant ones. Till date, it is considered as an irreconcilable paradox among them. It has been a debate for years that flourished from ancient to modern period. Among geographers, a great number of them have strongly emphasized the effect of environmental determinist on man's activity. And also a great number are supporting the notion of possibilism.

However, on these opinions, debates that have been raised by some scientists are enormous. Like Relph

E-mail: mailfkdu2003@gmail.com.

Author agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

(1987) said, "the landscapes and places we live in are important. Whether we shape them or they shape us, they are the expressions of what we are. Our lives are impoverished precisely to the extent that we ignore them." He has been acting as a soft and neutral determinist, who has accepted both concepts. The other scientists have for years supported the notion that traits are determined by specific genes encoded in each human cell, not only by environment. The nature theory takes things a step further to say that more abstract traits such as intelligence, personality, aggression, and sexual orientation are also encoded in an individual's DNA; not only the environment influence and advancement of science and technology (<http://www.mutualresponsibility.org/science/3-ways-the-environment-shapes-human-behavior>). Therefore, it seems to open the room for other interlinking idea of probabilism; it is nonetheless considered a half-way point between *determinism* and *possibilism*, an interface of both.

Both theories are still open for debate. However, in this article tries to debate by making references to incidence in order to convince geography and non-geography scholars. It has been shown that arguments start from previous writers to recent ones. This debate has been forwarded in a jeopardize manner and interwoven trend, and thus difficult to understand the influence of environment on human. In this article, the writer is trying to present determinist argument by split its effect into various topics and sub topics for easy understanding.

To begin first, let us see the notion of both terminologies. "Determinism" is a term widely used in various fields, from natural and social scientist prominently in various circles with varying connotations such as philosophy, religions, mathematics, physics, geography and other disciplines. However, the dictionary meaning of determinism is the theory that says everything which happens must happen as it does and cannot occur in any other way. For introduction, environmentalist argues that nothing is free of the influence of environment, "peoples and their environments are inseparable". Whereas, the counter writers to the determinists view are termed 'possibilist or possibilism'. They commonly argue that it is not the physical environment that influences man but also human effort has to be considered. However, the idea of environmentalist is dominant and widely accepted than that of possibilist.

Environmental determinist view

This view is highly supported by most geographers and non-geographers from Ancient to modern periods. In ancient to medieval periods, the concept of geography by itself and determinism was promoted by non-geographer and unscientific scholars with simple interest and observation. Even the prominent scholars were non-

geographers like Hippocrates, Eratosthenes, Strabo, Aristotle, Herodotus, Ptolemy and others. However, in modern periods, geographers have clearly addressed both thesis and the subject matter. They argue that "people and their environments are inseparable" (Singh, 2007). The other holistic concepts of these viewers are that "the character of people is seen in the light of the physical environment they inhabit." Several studies express this term in connection with the influence of environment on human.

Determinism is the "theory that examination of one or more definable factors allows for a complete explanation and prediction of the characteristics of society or the individual" (Online Dictionary of the Social Sciences). And Doyle (2011) says determinism is a theory or doctrine based on the occurrences in nature, or social or psychological phenomena causally determined by preceding events or natural laws. From a metaphysical and philosophical position, for everything that happens there are conditions, such that without those conditions, nothing else could happen. It is also the view that every event has a cause and that everything in the universe is absolutely dependent on and governed by causal laws. Since determinists believe that all events, including human actions, are predetermined, determinism is typically thought to be incompatible with free will. This "environmentalist or determinist concept" of geography was given by Barrows, who reversed the usual form of "human ecology," as the study of man's adjustments to natural environment (Hartshorne, 1939).

Andrew et al. (2003) forward the fundamental argument of the environmental determinists that aspects of physical geography, particularly climate, influence the psychological mind-set of individuals. The key proponents of this notion include Ellen Churchill Semple, Ellsworth Huntington, Thomas Griffith Taylor, and possibly Jared Diamond or Philip M. Parker. Although Diamond's work does make connections between environmental and climatic conditions with societal development, it is published with the stated intention of disproving racist and Eurocentric theories of development. Therefore, in this review, the writer fully mentioned the influence of environment on various aspects such as the livelihood of human being (economic activity like trade, employment and agriculture), culture, civilization, resource, anatomy, behavior, political and knowledge or intellect, health and religion. In short, it is basically how far man is affected by his physical environment. Here under, the writer fully pointed out the effect of physical environment on the various activities of human being in turns.

Human livelihood

The livelihood of the society is an inclusive word that basically infers to the mechanism of people's engagement on various aspects such as trade, job, dressing, and

agriculture. Determinists perceive that the most dominant effect of environment is on the livelihood of human being. It can also influence the economic activity and livelihood strategy associated with the real life style and mold of their life as well. Semple and Ratzel argue that environmental manifestations like climatic influences are persistent, often obdurate in their control. And also agriculture and sedentary life in the arid region is possible only with the help of irrigation. For example, "Egypt is the gift of Nile". Domolins also explored that physical environment influences the livelihood of man. For example, in Steppe region, grass used for nomadism is produced. People in cold areas use and depend more on some equine like horse and mule for their livelihood. The animals also determine the type of societal engagement like craft and their diet (Singh, 2007). This implies that the climatic situation influences the livelihood of human being.

Hartshorne (1939) also shares similar concepts with the previous writer. He clearly stated that the environment affects the day to day activity of man. For instance, the valleys, high mountain and grazing lands offer more to pastoral peoples for summer Trans-human around the margins. Since the lowland breeds of *Bos Taurus* (European cattle) and *Bos indicus* (Zebu cattle) cannot survive outdoor during winter, on scanty natural grazing, the nomadic grazers who live throughout the year around the central areas are restricted to flocks of sheep and goats, which they use together with salt as partly exchange for grains. Also during winter, they move from areas like Zanskar where there is heavy snow.

Another early adherent of environmental determinism was the medieval Afro-Arab writer, Al-Jahiz, who explained how the environment can determine the physical characteristics of the inhabitants of a certain community. He cited a stony region of black basalt in the northern Najd as evidence for his theory. [It] is so unusual that its gazelles, ostriches, insects, flies, foxes, sheep, asses, horses and birds are all black. The blackness and whiteness are in fact caused by the properties of the region, the God-given natural water and soil, the proximity or remoteness of the sun and the intensity or mildness of its heat (Lawrence, 1982).

Neeraj (2006), wishing to argue this point at an even deeper level on the Apple Growers and Climate in Kullu Valley in North western India, focused on Human-Environment Interaction. The perceptions of climate, although proximately structured by the salience of the phenomenon in question, as well as its impact on livelihoods, are a subset of the broader relationship between the apple growers and their environment. The thesis of Henney also strengthened the influence of environment on the study in Ladakh, a mountain wilderness, where only 0.25% of rice is cultivated. Though to a large extent, this is true, by regarding man as the puppet of environmental factors is liable to discount the extent to which innovation, adaptation or sheer hard work can be

used to escape from these bonds. Laura (2003) argues that the origins of Black earth, an anthrosol is associated with Native American settlements. The cultivation of Black earth today and many of its derivatives have relatively recent technological, political, economic and ecological influences. Thus, the physical environment determines the nature and type of settlements, engagement, trade, culture and dressing, agriculture etc.

It also influences migration. Andrew (2003) argues that it was important to trace the migrations of groups to see what environmental conditions they had evolved under. This idea also supports that environment contributes to migration. Fullilove (2004) pointed people are uprooted from familiar, supportive environments through the processes of urban 'renewal'. It can be compared to the phenomenon of 'root shock' in plants and its effects can last for decades.

Health and talent or knowledge

Selected scholars forward that physical environment also influences the health and talent of the people. Emmanuel Kant also said that physical environment affects health. For instance, the people of New Holland (East Indies) have closed eyes and cannot see any distance without bending their heads backward to touch their back. This implies that they are short sighted. Karl Ritter strongly emphasized that Turkmen people have narrow eye lids because of desert environment. He also said that the environment can affect the mind (Kong, 1990).

Huntington (1915) argues that the blacks from the Caribbean had dark skin because of the climate, and that the tropics cause a host of climatically specific diseases. Around Cape Horn, there is the risk of having malaria, yellow fever, and heat because Panamanian jungle is just fifty miles away from there. He illustrated that environment also affects the health and longevity of human beings. He explained that people dwelling in cold area (higher altitude) live more than those in low altitude. Aristotle also believed that we dominate in all aspects like elitist because of our temperate environment, but people in the tropics are absent minded. In this thesis, he argued that Europeans are civilized and developed because of the best temperature (temperate climate). Again, he also explained the difference in region in terms of climatic difference. He said the people of middle latitude are endowed with intelligence. In the cold areas, the people are brave, courageous but unintelligent (Singh, 2007).

The other idea emphasizes that the environment also influences human talent and knowledge. Andrew (2003), a fundamental environmental determinist, argued that the physical geography, particularly climate influences the psychological mind-set of individuals. According to Emmanuel Kant, the inhabitants of hot lands are lazy and timid; people of temperate regions are more talented and energetic than those of the north and more energetic than

those of the south. And Ellsworth Huntington also illustrated that the environment best suits the intellectual and manual activities. Thus, the environment has more influence on health and intelligence. And, it also determines that different ability among racial groups is due to regional differences in terms of the quality of the natural environment (Dikshit, (2007).

Human behaviors

Many scientific researchers have shown an obvious fact, that the behavior of man is also molded by the environment. Environmental determinism has been adopted by the urban design to describe the effects of environment on behavior. This is the basis of the concept of crime prevention through environmental design which attempts to modify disruptive behaviors by designing the physical environment appropriately. This concept is also the basis of active space which tries to encourage activity through the design of space (Andrew, 2003). The environmental influences who we are instead of biologically inherited traits. Bolin (1550) categorized the people of the northern land as brutal, violent, cruel, and those of the south as vengeful, cunning but gifted with the capacity to separate truth from falsehood (Singh, 2007). Montesquieu also pointed that the people in colder climate are courageous, frank, less suspicious and less cunning than those in the warm climate.

Andrew (2003) said climate influences the psychological mind-set of individuals, which in turn defines the behavior and culture of the society that those individuals form. For example, tropical climate is said to cause laziness, relaxed attitudes and promiscuity, while the frequent variability in the weather of the middle latitudes lead to more determined and driven work ethics. The environment also makes people to operate slowly, as seen in human biology. Masudi forwarded that the people inhabiting areas with abundant water are gay and humorous while those inhabiting dry area are short tempered. Semple and Ratzel argue that that man is a product of the earth's surface, so that environment influences the physical traits of man (Singh, 2007).

Politics and civilization

The environment has effect on resource and civilization (modernism and development). Aristotle explains the difference in region in terms of climatic difference. He considered the people of the middle latitude to be endowed with the finest attitude and thus destined to rule over others, but those in warm climate, especially tropics lack political organization and capacity to rule their neighbors. He also emphasized that the environment inactivates the political strength of the inhabitants of the area. Again, Ellsworth Huntington in the 20th century

emphasized that the physical environment has an effect even on the rate and level of civilization. These writers argue that civilization could develop only in regions of stimulating weather in contrast to the monotonous heat of the tropics, which forbid the attainment of higher level of civilization.

Bowman also indirectly associated the environment with civilization. It will decline because the possibilities of the land are exhausted. This also implies that natural endowment creates good opportunity for the existence of civilization. The framework of environmental determinism allows the linkage of climatic conditions and other aspects of the physical environment to virtually everything, from culture, regional character, and political organization to the rise of civilization. Huntington (1915) argues that environment also impedes the level of development, like climate region. It is stated that the northern Europeans are energetic, provident, serious, thoughtful instead of being emotional and cautious instead of being impulsive (Semple, 1911, 620).

The existing advantage of Eurasian civilization has conquered and dominated much of our modern world not due to genetics, but environmental factors. The opportunities and necessity of the Eurasian situation have allowed their civilization to exceed beyond the necessity of superior intelligence. Consequently, the Eurasian condition resulted from a chain of developments that were only made possible by selective environmental conditions. Because Eurasia had a greater availability of suitable plants and animals for domestication, they were able to bring about an earlier advantage compared to other people. It also contributes significantly to the civilization of the area endowed environmentally. Dikshit (2007) pointed out that the environment also contributed to the civilization of indo china world.

Culture and religion

Climate is a principal determinant of culture. Culture is an inclusive terms which hosts language, religion, and others. The cultures in the tropics where living is 'easy' and where heat is thought to induce lethargy are inertia to underdevelopment (Frenkel, 1992; Gallagher, 1993). As the prevailing reality expresses, environment has notable effect on the culture and custom of the dwellers in general, and with slight effect on their dressing and eating cultures. For instance, the dressing and eating culture of cold and hot areas differs. With regard to eating, the people of the cold region eat more food to get calorie to be able to cope with the environment; but the warm area is not so.

The traditional approaches to the study of the relationship between geography and religion involved the theological explorations of the workings of nature, a highly environmentally deterministic approach, which identifies the role of geographical environments in

determining the nature and evolution of different religious traditions (Kong, 1990). Semple and Ratzel argue religions are not free from the influence of environment. For example, Buddha, born in the hot region, suffering from heat and humidity, pictured his heaven as 'Nirvana'- the cessation of all activities and individual life. Thus, it influences both culture at large and religion in particular.

Anatomy and strength

Lastly, scientists have known for years that traits and anatomy, such as eye color and hair color are determined by specific genes encoded in each human cell as well as the environment. With regard to its effect on anatomy and strength, Montesquieu pointed out that the people in colder climate are physically stronger and courageous than those in the warm climate. However, the people inhabiting warm climate are weak in body, indolent and passive in their strength and anatomy. Masudi also said that nomads who live in open air are marked by their strength and physical fitness than nomads in hot climate. He also compares the effect of environment within similar climatic condition also varies than across other climatic region.

Afro-Arab writer, Al-Jahiz used his early theory of evolution to explain the origins of different human skin colors, particularly black skin, which he believed to be the result of the environment (Lawrence, 1982). Ibn Khaldun, also an adherent of environmental determinism, in his *Muqaddimah* (1377), explained that black skin was due to the hot climate of sub-Saharan Africa and not due to their lineage. He thus dispelled the Hamitic theory, where the sons of Ham were cursed by being black, as a myth (El Hamel, 2002) and a book in the Holy Scripture-Genesis.

The new determinists such as Semple et al. also argue that environment manifests not only human behaviors but also in human anatomy and strength. For example, good development of chest and arms muscle is seen in the coastal area. They emphasized that people dwelling under cold and hot climate are directly under the influence of environment. For instance, the shape and color of the dwellers are determined. Thus, the people in cold areas differ in terms of being physically stronger compared to those in warm areas.

Environmental possibilism view

In contrast, the other wing of geographers and other scientists have had an objection on determinist and try to show their position by forwarding their ideas of environmental possibilism in spite of their profound interest. Likewise, the determinists rely more on physical geography, but the possibilists rely more on human geography. Environmental possibilism is the inverse of determinist. It is the critics of determinist that seem to act against the

determinist. The idea of possibilist has been accepted by geographers in the 20th century, in France, in the school of human geography. It stresses the freedom of man to choose the pattern of human activity on earth. Neeraj (2006) argued that man has reduced the extent to which he is able to use innovation, adaptation or sheer hard work to escape from these bonds.

It is not by compulsion but a choice based on the balancing of probabilities. *Possibilism* is the view that the physical environment provides the opportunity for a range of possible human responses and that people have considerable discretion to choose between them (Dictionary of Human Geography 3rd edition, 1994). *Possibilism* removes the absolutist causal approach found in determinism and maintains human agency. Infrastructures as both part of the physical and social environment provide a range of human responses. *Infrastructure possibilism* at the moment seems to hold a bit more promising than *determinism* (Roy, 1982).

The concept of cultural determinism contrasts with the idea of environmental determinism and supports possibilism. The latter is the idea that the physical world with all its constraints and potentially life altering elements is responsible for the make-up of each existing culture. This is contrasted with the idea that we (humans) create our own situations through the power of thought, socialization, and all forms of information circulation. However, between 1920 and 1940, environmental determinism came under repeated attacks as its claims were found to be severely faulted at best, and often dangerously wrong. Geographers reacted to this by first developing the softer notion of "environmental possibilism".

The experience of environmental determinism has left a scar on geography, with many geographers reacting negatively to any suggestion of environmental influences on human society. Some believe this rejection has gone too far and that incorporating environmental factors into explanations of social outcomes is not only useful but necessary (Ballinger, 2011). However, humans are not controlled by their environment, technologies and infrastructures; they are agents of free will. If humans are always agents of free does that mean it is not possible to predict any types of behavior or societal outcomes of a given infrastructure? If we cannot predict any kind of behavior, how do we explain patterns of doing things, and how do marketers make money? What of education, history, culture, geography, etc? Are they not narrowly determined by environment (Lewis, 1986)?

In addition to this, man has brought changes to the environment by increasing its capacity to meet his largely increased needs and demands. The most visible and common examples in this regard are industrial revolution, agricultural advancement, technological revolution, and others. *The other idea of possibilism from infrastructure* is very general and suggests that the societies are not mutually exclusive entities, but that they influence each other; in the former, physical form and in the other, behavior,

use etc. It does not however enable prediction; while *infrastructure probabilism* accepts that infrastructure will to some extent determine human actions but not completely, not in all cases and with a marginal degree of certainty, would be contingent on a number of other factors.

The behavior is the *intention* of an individual rather than the *effect* of some other force like climate; it is due to free will and decision. Moreover, some writers also claim to focus on it. The prominent figure is forwarded from Hartshorne (1939) and Rond and Thiétart (2004). Their ideas differ within environmental determinist and can also be seen in different wings. One is a hard point of view and the other from the soft. The hard determinism: behavior is caused by either unconscious desires or fears (Freud) or by environment and heredity (Skinner). Freedom or free will is an illusion, and people are not responsible for their actions though they can be held responsible for social purposes. Compatibilist (Soft Determinism): freedom is compatible with determinism; if freedom is understood as the ability to do what we want, actions caused by our choices or character are free; actions caused by external forces (genetics, culture, upbringing, threats) are not free. In this thesis, they create a loop to support the idea of possibilist.

In the prevailing paradox between the perceptions of geographers, the possibilists strongly try to falsify the theory of determinist. They argue that man is not a total slave of his environment. As the determinist says it is fully a puppet to his environment. For example, the Eskimos differ from Tundra Tribes of Siberia, and likewise the Pygmies in equatorial forest of central Africa, Negros. The other rationale to falsify the idea of determinist is the agricultural crop dominating most of the land used in Europe, Asia and North America, which is productive due to human effort. The people of Amazon also do not develop Negros feature in spite of similarity in the environment. Again, space relationship is also manipulated by man; for example in east and western America, their attention differs before and after the opening of both Suez and Panama canals (Singh, 2007; Dikshit, 2007).

It is important to recognize that their arguments are as follows. Some scholars strongly support this idea. They focus more on human geography such as Blache, Brunches in France and Bowman and Sauer in USA. In Brunches, the human activities modified both the organic and inorganic features of the earth. Fabre also argues that things happening to man such as hunger, civilization etc are due to the contribution of man rather than the traditional influence of environment. And Carl Sauer and Barrow believed that man is not a complete slave and nature is never more than an advisor. This hypothesis argues that man could free himself from all environmental influences. For example, you cannot grow banana on the pole, nor pineapples in Green land. This does not mean that man can never be entirely free from the environmental influence. It is not the earth that goes back to

man, but the man finds himself entangled in the effect of his own system like habit and way of thinking.

The term is believed to have been coined by Veblen (1857–1929), an American. The popular historians such as Charles (1927), Merritt Roe Smith, Bruce Bimber, Rosalind Williams, and Michael L. Smith provided this apt determinist image, "Technology marches in seven-league boots from one ruthless, revolutionary conquest to another, tearing down old factories and industries, flinging up new processes with terrifying rapidity". Kunz (2006) proves that technological determinism seeks to show technical developments, media, or technology as a whole, as the key mover in history and social change. Technology in turn has "effects" on societies that are inherent, rather than socially conditioned or produced because society organizes itself to support and further develop a technology once it has been introduced. Thus, technology is the basis for all human activity rather than environment factors.

However, the other justification that can be seen in the present world is that through man's effort ice can be seen in Polar areas. Recently, humans are shown to overcome the influence of environment. For instance in Dubai, a sustainable Iceberg Lodge is made even if the surface temperature is above 40 degree Celsius. They can play in the arctic, cozying up on the fur-covered ice furniture underneath. Temporary ice hotels materialize each winter in frigid northern towns from Russia to Canada (<http://inhabitat.com/blue-crystal-a-sustainable-iceberg-lodge-in-dubai/>).

Theodore J. Kaczynski (the Unabomber) is essentially a hard determinist. According to his thesis material factors in the human environment are the determining factors in the evolution of social systems. Whereas geography, climate and other "natural" factors largely determine the parameters of social and cultural conditions for most of human history. Technology has recently become the dominant objective factor (largely due to forces unleashed by the industrial revolution) and it has been the principal objective and determining factor.

In general, both hypotheses have shown a controversy rather than an interface.

SUMMARY AND CONCLUSION

This article provides an in-depth review of the prevailing paradox among environmental determinist and possibilist. Often, the determinism view is totally supported by physical geographers and the possibilism is seen by human geographers. This article sees this gap and intends to bridge it. The determinist has strongly argued that environment influences more human livelihood, health, culture, civilization, politics, intelligence, religion etc. Therefore, human action is determined by physical environment. Whereas, the possibilist also clearly mentioned that things are changed by human decision and attitude. Moreover,

the writer claims that both factors are equally important in the activity of human being. However, possibilist believed that man cannot be entirely free from the influence of environment, but there is also a room for man to control his activities in the form of technology, attitude, habits, and values.

However, it is better to negotiate that both hypotheses state *like early determinist, 'man influences environment, just as the earth influences man.'* This implies both are interdependent on each other. Thus, all geographers have not denied the vis-a-vis the effects of both man and environment. To generalize, the debates among determinist and possibilist continued among geographers for a long time and today majority of the scholars try to subscribe into the possibilistic thesis. Therefore, 'control' has been replaced by 'influence' and 'influence' is also replaced by 'response' or 'adjustment'.

To conclude, the effect of environment on man is obvious and no one can deny it; but it is not the only factor that determines humans' actions. To physical geographer or determinist, nature influences man. The amount and rate of environment influence on man is not seen yet. The early thesis argues that man is the complete slave of the nature. This notion is disapproved by dynamism and science and technologies. To the writer, the point of discussion among determinist would explicitly and implicitly show how much environment can influence human.

Whereas, the human geographers do not have other stand to support possibilist; they would not negate the fact that man can be entirely free from the environmental influence. They disprove that man is a master of his environment and not a complete slave of nature; rather they can adapt to it. They also believed that 'nature is never more than an advisor.' Therefore, both viewers should lessen their stand rather to elasticize it into different wings but come to common ground and do more on how much environment can influence man and man the environment as well.

Conflict of Interests

The author has not declared any conflict of interests

REFERENCES

- Andrew S (2003). "Neo-Environmental Determinism, Intellectual Damage Control, and Nature/Society Science", 35(5):813–817. http://www.academia.edu/173638/Neo-Environmental_Determinism_Intellectual_Damage_Control_and_Nature_Society_Science_2003_
- Ballinger C (2011). Why Geographic Factors are Necessary in Development Studies MPRA Paper No. 29750
- Bob D (2011). Free Will: The Scandal in Philosophy. I-Phi Press. pp. 145–146 ISBN 0983580200
- Charles AB (1927). "Time, Technology, and the Creative Spirit in Political Science," Am. Pol. Sci. Rev. 21(1):1-11. <http://www.jstor.org/discover/10.2307/1945535?uid=2&uid=4&sid=21104171911691>
- Dictionary of Human Geography 3rd edition, 1994. <http://faculty.washington.edu/krumme/450/johnston.html>
- Dikshit RD (2007). Geographical thought A contextual history of ideas prentice Hall of India Private limited seventh printing August 2007 ISBN 97820311824
- El Hamel C (2002). "Race', slavery and Islam in Maghribi Mediterranean thought: the question of the Haratin in Morocco", The J. North Afr. Stud. 7(3):29–52 [39–42], doi:10.1080/13629380208718472
- Frenkel S (1992). Geography, Empire, and Environmental Determinism Geographical Review 82(2):143-153.
- Fullilove M (2004). Root Shock: How Tearing Up City Neighborhoods Hurts America, and What We Can Do About It. New York: One World/Ballantine.
- Gallagher W (1993). The Power of Place: How Our Surroundings Shape Our Thoughts, Emotions, and Actions. New York: Poseidon Press.
- Hartshorne R (1939). The Nature of Geography. Lancaster, Penn.: Association of American Geographers. Reprinted with permission.
- Henney Osmaston, environmental determinism and economic possibilism in Ladakh, Bristo.
- Huntington E (1915). Civilization and climate. New Haven: Yale University Press.
- Huntington papers. Manuscripts Collection, Yale University Library, New Haven, Conn.
- Kong L (1990). "Geography and religion: trends and prospects". Progress in Human Geography 14 (3): 355–371. doi:10.1177/030913259001400302.
- Kunz WM (2006). Culture Conglomerates: Consolidation in the Motion Picture and Television Industries. Publisher: Rowman & Littlefield Publishers, Inc. p. 2. ISBN 0742540669.
- Laura AG (2003). Historical contingencies in the coevolution of environment and livelihood: contributions to the debate on Amazonian Black Earth Department of Anthropology, University of Georgia, Athens, GA 30602, USA Geoderma 111:307-331. <http://www.sciencedirect.com/science/article/pii/S0016706102002707>
- Lawrence IC (1982). "Taun and Waba: Conceptions of Plague and Pestilence in Early Islam", J. Econ. Soc. Hist. of the Orient 25(3):268-307 [278]. DOI: 10.2307/3632188
- Lewis (1986). Classical Possibilism and Lewisian Possibilism. <http://plato.stanford.edu/entries/actualism/possibilism.html>
- Neeraj V (2006). Culture, Climate and the Environment: Local Knowledge and Perception of Climate Change among Apple Growers in Northwestern India Journal of Ecological Anthropology Vol.10. <http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1045&context=jea>
- Online Dictionary of the Social Sciences (<http://www.library.ucsb.edu/research/db/1185>)
- Relph E (1987). The Modern Urban Landscape. Baltimore: Johns Hopkins University Press.
- Rond MD, Thiétart RA (2004). Chance, Choice And Determinism In Strategy Research Papers In Management Studies Wp 05/2004 The Judge Institute Of Management University Of Cambridge Press. http://www.jbs.cam.ac.uk/fileadmin/user_upload/research/workingpapers/wp0405.pdf
- Roy E (1982). Possibilism And Limiting Factors. Environment, Subsistence and System The Ecology of Small-Scale Social Formations Cambridge University Press Print Publication Year: 1982 Online Publication Date: June 2012. pp.21-51. <http://ebooks.cambridge.org/chapter.jsf?bid=CBO9780511607738&cid=CBO9780511607738A016>
- Simple EC (1911). Influences of the geographic environment. New York:
- Singh S (2007). Geography for the UPSC civil services preliminary examination second edition Tata McGraw-Hill's Series New Delhi.
- Stephen F (1992). Geography, Empire, and Environmental Determinism Geographical Review, 82(2):143-153. <http://www.chs.d211.org/socialstudies/serranosm/aphuge/introunit/SocietyGeography%20Empire%20and%20Environmental%20Determinism.pdf>

The Environment Shapes Human Behavior Posted on September 15, 2012
in Featured, Science (<http://www.mutualresponsibility.org/science/3-ways-the-environment-shapes-human-behavior>)

Williams R (1974). Television: Technology and Cultural Form. London
and New York: Routledge.
p. 133. http://classes.dma.ucla.edu/Winter13/8/Williams_Television_Flow.pdf

Web sites

<http://inhabitat.com/blue-crystal-a-sustainable-iceberg-lodge-in-dubai/>.
<http://serendipityoucity.blogspot.com/2006/08/16/infrastructure-possibilism-probabilism/>
<http://plato.stanford.edu/entries/actualism/possibilism.html>