

SELF-ACTUALIZATION AND ENVIRONMENTAL-BEHAVIOUR MODIFICATIONS TOWARD CLIMATE CHANGE

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Abstract: Global warming and climate change are twin concerns in the present world and both cause the greenhouse gas emission and environmental pollution. Few countries, however, playing a great role in this regard, because of its energy need as one of the major participants like USA, China, Brazil and India. The scientists, environmentalists and activists have little time to raise the voice against the worldwide-devastating disaster. Politics, racism, regionalism and economic hostility should not be the concern in this regard. The main action potentials concerning the climate change can be the modification of self actualization and environmental behaviorism. Both the psychological phenomena are so far based on the environmental perception, ethics and so on, for seeking harmonic-life style of the greater animal kingdom. Self actualization however, as a cognitive function should be correlated effectively with the environmental behaviour. The psychological inputting as ethics, perception, self actualization and the behaviour output towards climate change can play an effective role. Not only the researchers and activists but also the Government and the mass people of China should be motivated by this process. A country wide multifunctional psychological approach should be applied by the bilateral supervision between the UN and concern country.

Keywords: Self-actualization, Behaviour modification, Environmental behaviour, Climate change, Multifunctional psychological approach.

Introduction

Global warming and climate change as two major international issues which are presently, making the global inhabitation together under single umbrella. Because of its almost common significance among the countries. Global warming and climate change as a pair-environmental phenomena caused by the mass-global emission of greenhouse gasses. Global warming is defined as the increase of

the average temperature on Earth. As the Earth is getting hotter, disasters like hurricanes, droughts and floods are occurring more frequently. Over the last 100 years, the average temperature of the air near the Earth's surface has risen a little, less than 1°. Celsius ($0.74 \pm 0.18^\circ\text{C}$, or $1.3 \pm 0.32^\circ\text{F}$). These data show that an increase of one degree Celsius makes the Earth alarmingly warmer than it by the gone days. Out of the 20 warmest years on record, 19 have occurred since 1980. The three hottest years ever observed have all occurred in the last eight years. But it is not only about how much the Earth is warming, it is also about how fast it is. Implying the magnitude, duration and frequency of the global warming. There have always been natural climate change-Ice Ages and the warm intermediate times between them-but those evolved over periods of 50,000 years. Temperature rise as fast as the one we had seen over the last 20 years had never happened before. The Earth should now be in a cool-down-period. According to natural effects like solar cycles and volcano activity, not in a heating-up phase. Such the mid-term consequences of these global-environmental phenomena would bring a devastating changes over the globe if global warming phase is so much dominating over the natural cooling-down phase. The scientists, environmentalists, politicians, intellectuals and concern personals are all deeply concerned about this. They are now raising their voice against these mass devastating turn of the nature. For this reason, most of the countries around the world are more or less aware. The G7 and G20, however, have been discussing to find out some solutions of these gigantic problems.

Available Approaches

The devastating consequences of the climate changes is however, recognized by all of the authorities, organizations, institutions and the governments over the world. They have recognized the problem at a vast level on principle, also they are doing something to solve this problem as available approaches as technological, political, social, legal etc.

But the voice of the authority on psychological approach has not been found above. Because, of they are not so concern about the psychological phenomena related to this are always found neglected. A multi-functional psychological approach is herewith proposed by which the environmental behaviour can be changed and modified to reduce the environmental pollution levels and so on. In this regard "self-actualization and environmental-behavior modifications towards climate change" is proposed as remedial approach to enhance environmental behavior. Even the main issue, the control of the greenhouse gas emission is also operated by the human behavior. Sometimes there are some allegations which can be found on the basis of politics, racism, regionalism and economical power which are obvious unfortunate. So that international hostilities among the nations are psychological misconceptions which hampering the climate change mitigation approaches.

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Psychological Approach

Psychological approaches are very much important to make effective initiative against the global climate change. Usually the observed activities against the global warming and climate change are based on mostly material policy. But that can not make the whole approach successful. It needs psychological involvements, because psychological process is the key beyond any behavioral activities of the human. Psychological aspect, therefore, is to be addressed effectively. It should take in account that psychology is mainly concerned about the behavior and the mental processes. Behavior is the biological as well as physical response or movement to the stimulus as component of the environment. And the mental process is the background cause of behavior, meaning that the mental process is the source of behavior which functions in the environment. Mental process therefore is the cognitive function operating through environmental behavior. Thus the human and the animal produce their response to the component of the environmental behavior. Thus the human and the animal produce their response to the component of the environment. So that for the special cases of environmental degradation human response to that of the degrading component should be studied. That makes special perception called environmental perception. The way in which an individual perceives the environment, the process of evaluating and storing information received about the environment. It is the perception to the environment which mostly concerns human geographers (brain mapping) because decision-makers make their judgments on the environment as they perceive it, not as it is (Mental Map, 2009). A mapping of the environment within the brain (cognitive mapping) of an individual which, reflects the knowledge and prejudices of that individual. Such a map reflects the individual's perceptions of, and preferences for, different places and is the result of the way in which an individual acquires, classifies, stores, retrieves, and decodes information about locations. The nature of such perception includes warm feelings for an environment, an ordering of information, and an understanding, however subjective, of the environment. The environmental degradation (e.g., global climate change) is specially discussed for the case of global climate change which makes the perception as named environmental perception. Different human perceptions which are based on the environmental mapping of cognition towards climate change are very much important, making and implementing development strategy to overcome the future challenges for overall development. When the concerned authority try to develop such strategy it should be understood properly. That's why psychology concerning environment specially, climate change should be in account.

Psycho-input Process

The process that absorbs information from the environment and transforms it into signals that the system uses to react and adapt to its surroundings. The sensory side of the routine processes the information sends it to the control center that makes the system's decisions. Detailed information from lower levels of a system is generalized to better suit the requirements of higher levels. After the control center interprets the information from the sensory routine, it executes the motor process that sends "commanding" information to the system's components notifying them that they need to take action for the system to interact with its environment. As information works its way down the system hierarchy via the motor routine, it becomes more specific so that lower holons receive explicit commands that are within the domain of their capabilities (Koestler, 1967). Such sensory processes receive information from outer world to the cerebral cortex through different distal and proximal processes of inputting. It is important to realize that the environmental perception is dependent on the information processing come from the outside environment. Mainly five channels (Figure 1) well known as senses or receptor organs are the gateways of receiving the environmental information (Saifuddin, K. et al., 2007). Thus the cognitive processes of environmental perception make their decision or judgment on the basis of environmental learning to act with the environmental effectively.

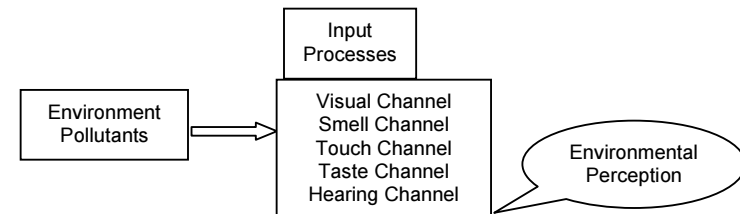


Figure 1. Environmental-input process through five-channels (sense organ)

Self-actualization

The self-actualization is a term that has been used in various psychological theories, often in slightly different ways (e.g., Goldstein, 1934 and Maslow, 1943). The term was originally introduced by the organismic theorist Glodstein Kurt (1934) for the motive to realise all of potentialities. In his view, it is the master motive-indeed, the only real motive a person has, all others being merely manifestations of it. However, the concept was brought to prominence in Maslow Abraham's (1943, 54) hierarchy (Figure 2) of needs theory as the final level of psychological development that can be achieved when all basic and mental needs are fulfilled and the "actualisation" of the full personal potential takes place (Khalil K., et al., 2007)



Figure 2. Maslow took this idea and created his new famous hierarchy of needs.

Beyond the details of air, water, food, and sex, he laid out five broader layers.

Maslow Abraham (1954) believed that the man has a natural drive to healthiness, or self actualization. He also believed that man has basic, needs (biological and psychological) that have to be fulfilled in order to be free enough to feel the desire for the higher levels of realization. He also believed that the organism has the natural, unconscious and innate capacity to seek its needs (Maslow 1954). He described some basic principles on the basis of his renowned theory on "hierarchy of needs" which are cited in brief, as below:

1. Nature of Personality: The normal personality is characterized by unity, intergration, consistency, and coherence. Organization is the natural state, and disorganization is pathological.
2. Whole of Personality : The organism can be analyzed by differentiating its parts, but no part can be studied in isolation. The whole functions according to laws that cannot be found in the parts.
3. Inherent Potential : The organism has one sovereign drive, that of self-actualization. People strive continuously to realize their inherent potential by whatever avenues are open to them.
4. Appropriate Environment : The influence of the external environment on normal development is minimal. The organism's potential, if allowed to unfold by an appropriate environment, will produce a healthy, integrated personality.
5. Individual Personality : The comprehensive study of one person is more useful than the extensive investigation, in many people, of an isolated psychological function.
6. Human Salvation : The salvation of the human being is not to be found in either behaviorism or in psychoanalysis. We must deal with the

questions of value, individuality, consciousness, purpose, ethics and the higher reaches of human nature.

7. Goodness of Human: Man is basically something good but not evil. This is the basis to think human is a social beings.
8. Psychopathology : Psychopathology generally results from the denial, frustration or twisting of our essential nature.
9. Therepy of Insight : Therapy of any sort is a means of restoring a person to the path of self-actualization and development along the lines dictated by their inner nature.
10. Needs Fulfillment : When the four basic needs have been satisfied, the growth need or self-actualization need arises: A new discontent and restlessness will develop unless the individual is doing what he individually is fitted for.

According to the psychological theory of self-actualization given by Maslow Abraham there are some characteristics which can describe well the human needs with the environment. Such characteristics of self actualizing people can be described as below :

1. Realistic : Realistically oriented, self actualization (SA) persons have a more efficient perception of reality. This is extended to all areas of life specially, environment. SA persons have a superior ability to reason, to see the truth. They are logical and efficient.
2. Acceptance : Accept themselves, others and the natural environment the way they are. Sees human nature as is, have a lack of crippling guilt or shame, enjoy themselves without regret or apology, they have no unnecessary inhibitions.
3. Spontaneity, Simplicity, and Naturalness : Spontaneous in their inner life, thoughts and impulses, they are unhampered by convention. Their ethics is autonomous, they are individuals, and are motivated to continual growth.
4. Problem Centering : Focus on problems outside themselves, other centered. They have a mission in life requiring much energy; their mission is their reason for existence in the environment. They are serene, characterized by a lack of worry, and are devoted to duty.
5. Detachment: The need for privacy; that is alone but not lonely, unflappable, retain dignity amid confusion and personal misfortunes, objective. They are self starters, responsible for themselves; own their behavior with environmental concerns.
6. Autonomy : Independent of culture and environment; where SA's rely on inner self for satisfaction. Stable in the face of hard knocks, they are self contained, independent from love, respect and other sovereign ethics about environment.
7. Continued Freshness of Appreciation : Have a fresh rather than stereotyped appreciation of people and things. Appreciation of the basic good in life; moment to moment living is thrilling, transcending and spiritual, and harmony of nature.

The self-actualization as the top motive will be achieved through many other acquiring motive as from the bottom to the top of the Maslow's pyramid (Figure 2). Then such self-actualization will come

out the action potential to the particular target. However, it will go through many of the psychological functions (Figure 2) to action potentials. Such of action potential of motor expression both of which are as a result of environmental education means here the environmental behavior.

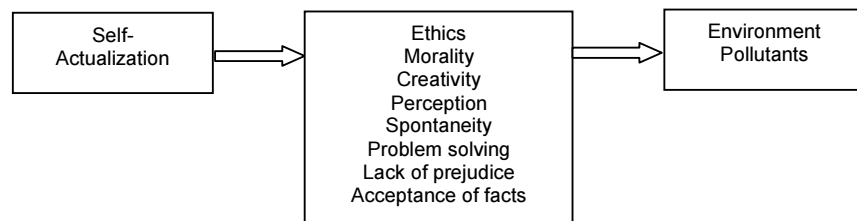


Figure 3 : Cognitive mechanisms of self-actualization producing action potentials as environmental behavior.

When the individual is self-actualized about the need of environmental perception and the environmental response the function above (Figure 3) influenced the action potential which is obvious the response to the environmental phenomena.

Environmental Behavior

There are many theoretical as well as empirical approaches to investigate attitude towards environment in the respected literatures. Most of the studies related to this issue have been conducted since 1970 onwards when conceptualization of environmental attitudes as a scientific research concept gained closer attention by researchers (Dunlop, 1998). Later, many studies explored the multidimensionality of environmental attitudes. Albrecht *et al.* (1992) used factor analysis and found three dimensions of environmental attitudes as follows; "balance of nature", "limits to growth" and "man over nature". Cluck *et al.* (1997) took United States nation-wide data and conceptualized environmental concern" and "environmental commitment". Environmental worldview represents basic and general form of environmentalism of the respondents. This form of environmentalism indicates respondents, general perceptions about the environmental relationships between the environment, economic growth and industrialization, and effects of sciences and technology on the environment. Environmental concern represents values of respondents about the relationship between the environment and society, and relationship between individual and the environment, and perceptions of respondents about specific environmental problems. The environmental commitment issues might have willingness to pay higher taxes or costs for better environmental commitment issues might have willingness to pay higher taxes or costs for better environmental protection and be willing to reduce living standards to achieve a higher environmental quality (Kahlil K. *et al.*, 2007). However, the environmental factors discussed above

are mainly influenced by seven main elements. Those elements are functioning as bridging between the action potential of the individual and the real behavior (Figure 4). So that when the expected environmental behavior is to be made the two-sets of bridging functions should be considered. The two sets are found respectively, in the Figure 2 and 4.

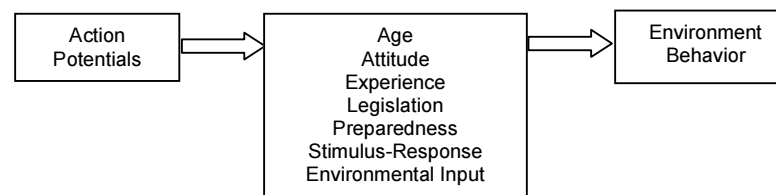


Figure 4. Behavioral mechanisms of producing environmental behavior just from the action potentials.

Behavior Modification

Behavior modification is the use of empirically demonstrated behavior change techniques to improve behavior, such as altering an individual's behaviors and reactions to stimuli through positive and negative reinforcement of adaptive behavior and/or the reduction of maladaptive behavior through punishment and/or therapy. The first use of the term behavior modification appears to have been by Thorndike Edward in 1911. Through early research in the 1940s and the 1950s the term was used by Joseph Wolpe's research (1958) group. The experimental tradition in clinical psychology used it to refer to psychotherapeutic techniques derived from empirical research. It has since come to refer mainly to techniques for increasing adaptive behavior through reinforcement and decreasing maladaptive behavior through punishment. Since techniques derived from behavioral psychology tend to be the most effective in altering behavior, most practitioners consider behavior modification along with behavior therapy and applied behavior analysis to be founded in behaviorism. It is emerged from the present study that education and improving problem-based knowledge of Tehran (Iran's Capital) residents can change environmental attitude and increase feeling of stress of people towards environment. These changes in turn improve preparedness to act friendly with the environmental, particularly with the help of environmental legislation (Khalil, *et al.*, 2007). All those in the process (Figure 5) can change behavior towards and to preserve environmental friendly and coexisting with it.

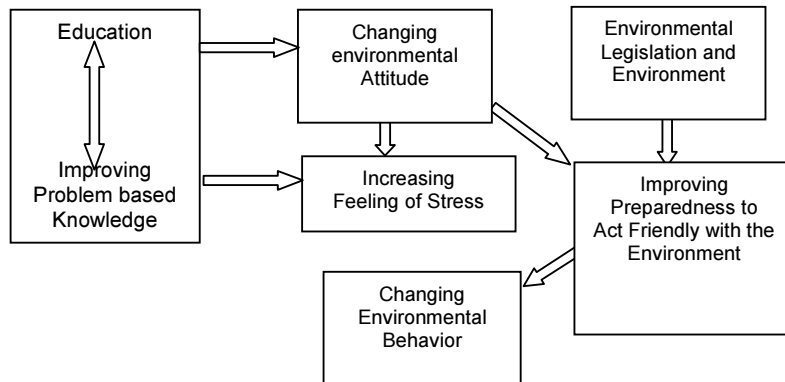


Figure 5. Environmental-behavioral mechanisms based on special-education.

Reinforcement

In recent years, the concept of punishment has had many critics, though these critiques tend not to apply to negative punishment (time-outs) and usually apply to the addition of some aversive event (Thorndike, E.L., 1911). The use of positive punishment by board-certified behavior analysis is restricted to extreme circumstances when all other forms of treatment have failed and when the behavior to be modified is a danger to the person or to others. In clinical setting positive punishment is usually restricted using a spray bottle filled with water as an aversive event. When mis-used, extreme punishment can lead to affective (emotional) disorders, as well as to the target of the punishment eventually focusing only on avoiding punishment rather than improving behavior. It can be indicated that there are seven main characteristics to behavior modification, those are :

1. Definition : There is a strong emphasis on defining the reinforcement in terms of environmental behavior that can be measured in some way.
2. Tehcnique : The treatment techniques are ways of altering an individual's current reinforcing environment to help that individual function more effectively.
3. Method: The methods of applying reinforcement in accordance with the factors of changing environment.
4. Application : The techniques can often be applied in everyday life formally and informally for environmental behavior.
5. Principle : The techniques are based largely on principles of learning- specifically operant conditioning and respondent conditioning.
6. Demonstration : There is a strong emphasis on scientific demonstration that a particular technique was responsible for a particular behavior change.
7. Program : There is a strong emphasis on accountability for everyone involved in a behavior modification program.

Another idea is very much important to make me purposeful learning process effective that is the schedule of the reinforcement. Such reinforcement schedules are dependent on the main three factors :

1. Intensity and amount of reinforcement.
2. Type of reinforcement,
3. Timing of reinforcement
4. Duration of reinforcement,
5. Frequency of reinforcement,
6. Direction of reinforcement.

The above factors of the schedule of reinforcement are the key to use learning method in this regard. The positive reinforcement can be more effective for the normal individual, and negative are for the pathogenic personality. Their 'intensity' and the 'frequence' of use also play important role to make the learning processes effective. To change however, the environmental behavior of the individual should use of schedule in which factors are using their strength and spectrum through a complex function. The effective schedules are :

1. Continuous schedule : The reinforcement is using continuously when the individual is engaged in the learning work.
2. Intermittent schedule : The reinforcements maintains temporal gaps. usually three types of schedules are using to develop learning skill, those are as below.
 - a. Interval schedule : The response can be reinforced maintaining temporal gap after the action.
 - b. Ratio schedule : In this method, the temporal gaps are scheduled maintaining ratio scale among the responses.
 - c. Fixed schedule : It means the above two will be fixed before regardless of the response outcome.

Modification Technique

Behavior modifiers like to employ a variety of evidenced-based techniques. These techniques intervene at all levels of context. For example, given specific setting events for a behavior, a behavior modifier may develop a neutralizing routine to eliminate that setting. If a behavior pattern has a specific antecedent of trigger, then an antecedent control strategy can be developed to train new behavior in the presence of the trigger. If a problem behavior readily occur in the context of the trigger. If a behavior is particularly complex it may be task-analyzed and broken into its component parts to be taught through chainging. While all these methods are effective, when the behavior problem gets difficult or when all else fails many turn to contingency management systems. Complex and comprehensive contingency management systems have been developed and represent effective ways to eliminate many problem behaviors.

Most of the psychological functions can more or less be acquired by practice that is no doubt learning or education. In the education system, basic principles of learning are used by using applied

methods. Usually some principles are using to make effective education can be shown below (Figure 6).

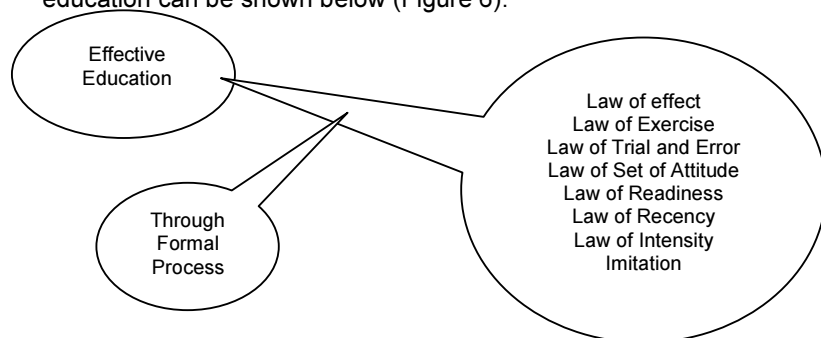


Figure 6. Basic theories of learning which can be used in the effective education system through formal-institutional process

1. Law of trial and error : Individual will accept the correct response and will reject the wrong one among many responses which were done by blind practice. The correct and wrong will be determined by the nature of given reinforcement.
2. Law of readiness : Response will be dependent on the pre-preparation of the individual on the particular response.
3. Law of exercise : The permanency will be dependent on the number of trials (frequency). High frequency means better modification and low means not better once but not always as because of the limit of number of frequency.
4. Law of effect : If the result is satisfactory for the individual, the possibility will rise to have same response. The satisfaction will be ensured by given reinforcement.
5. Law of set or attitude : Psychological set or attitude towards some stimuli will influence the change of behavior. The set mean Psychophysical preparation to response come from cognitive function
6. Law of recency : Recency means the distance between the two stimuli or between the stimulus and response in which, natural or conditional functions are present.
7. Law of intensity : Response dependent on the intensity or the stimulus. The connections between stimulus-stimulus and stimulus-response are established more strongly depending on the level of intensity.
8. Imitation : Responses can be established by using imitation. The individual imitates the behavior of the model of his/her life.

Environmental Education

Environmental education is a special learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (Tbilisi Declaration, UNESCO, 1978). The components able to make the education effective are below.

1. Awareness and sensitivity to the environment and challenges.
2. Knowledge and understanding of the environment and environmental challenges.
3. Attitude and motivation to overcome environmental challenges.
4. Skills to identify and help resolve environmental challenges.
5. Participation in activities that lead to the resolution of environmental challenges.

According to the International Union for the Conservation of Nature (IUCN), environmental education (EE) is : "The process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelated ness among men, his culture and his biophysical surroundings". EE also entail practice in decision-making and self actualization of a code of behavior about issues concerning environmental quality (Blignaut, J.B., 1991). The Tbilisi Conference (1977) which followed soon after the launch of the United Nations Environmental Program (UNEP), is known to have spearheaded clarification on the nature of environmental education. This conference resulted in a declaration which listed seven directive principles for environmental education (EE) programs. These are summarized as follows :

1. EE is a lifelong educational process that occurs at all levels of education.
2. EE is about the interactions which occur in the natural, the built and social environment.
3. EE is a developing attitude and value system which lead to socio-economic improvement through positive social interactions and maintenance.
4. EE aims to develop an individual's understanding, skills and the feelings of empowerment that are necessary for both positive behavior towards the biophysical and social environmental.
5. EE requires a holistic and preferably interdisciplinary approach of teaching with opportunities for diverse learning experiences.

Environmental education (EE) is therefore not only the concern of natural scientists, but draws from the tools and resources of a wide range of disciplines in order to demonstrate the root of current problems and suggest ways in which learners could either prevent or remedy these.

The "North American Association for Environmental Education" (NAAEE) has established the following "Guidelines for Excellence" for environmental education :

1. Fairness and accuracy : EE materials should be fair and accurate in describing environmental problems, issues, and conditions, and in reflecting the diversity of perspectives on them.
2. Depth: EE materials should foster an awareness of the natural and built environment, an understanding of environmental concepts, conditions, and issues, and an awareness.
3. Skills building: EE materials should build lifelong skills that enable learners to address environmental issues.
4. Action orientation: EE materials should promote civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental issues.
5. Instructional soundness: EE materials should rely on instructional techniques that create an effective learning environment.
6. Usability: EE materials should be well designed and easy to use.

Environmental education increases public awareness and knowledge about environmental issues or problems. A primary desired outcome of environmental education programs is environmental literacy. Environmental education provides the capability and skills over time to analyze environmental issues, engage in problem solving, and take action to sustain and improve the environment. As a result, individuals are more capable of weighing various sides of an environmental issue to make informed and responsible decisions. Rather, environmental education teaches individuals how to weigh various sides of an issue through critical thinking and it enhances their own problem-solving and decision-making skills.

Conclusion

The paper has described the psychological as well as environmental phenomena which are related each other in concern with the global climate change. It is well known that the global warming and climate change are the results of the human activities. Now doubt such human activities have created and developed the seen civilization,

means industrial and material superstructures. All of the man-made structures have been created on the basis of destruction of the natural harmony of environment. The dilemma is here that we are modern human creating many of the needful material structures for the sake of the living human. But on the other hand, meaning the attempt of destruction so far, of such development and creation. Therefore, some suggestions can be selected to apply for the sake of the reduction of global climate change. Such approaches are as below-

1. Through formal education: Usually, it is School education in different stages of schooling such as primary, secondary, and higher education. It is such level of education imposed by the government according to the national education policy.
2. Through informal education: Informal education means such informal activities of education exclusion of the formal educational activities. Even any education which does not operate any formal institution or organization.
3. Through social education: Social education is such of education which are related with the social activities. Usually such educational activities are operated by the clubs of different professionals.
4. Through professional education: Professional education means particular professional training which is necessary for the purposeful development of the professional life of the individual. In some cases, environmental education ensuring for particular group of people.
5. Through life-long education: Life long education is an educational process which functioning throughout the life of the person. That is dependent on the social changes and available technological developments.
6. Through exchange education: Exchange educational activities are much more important regarding the objectives of this paper. The exchanges should be functioning among the different race, culture and the society.

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