A Study of Impact of Westernization on Indian Culture Using Fuzzy Relational Maps (FRMs)

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Abstract—Over the years the civilizations of the world have adopted many of the Wests styles and ways of life. This Westernization has started a downward spiral in destroying the cultural diversity of the world. Westernization has caused many people to reject their traditional style of clothing and alter their daily life to conform with the styles of the Western part of the world. In this paper an attempt is made to study the impact of westernization on Culturally Rich Indian by using Fuzzy Relational Maps (FRMs).

Keywords: Cultural diversity, Globalization, Rampant Westernization, Fuzzy Relational Maps (FRMs).

I. INTRODUCTION

Over the last several decades, anthropologists, sociologists, political scientists, and even economists have done lot of studies on cultural diversity and Gross-cultural issues. The term “culture” has meant different things to different scholars. Paul James Bohannan[1,2]American anthropologist noted for his 1995 book “How Culture Works”, where he outlines the difficulties involved in the application of thermodynamics to the study of cultural transformation, such as how transformations are studied in physics, discussing concepts such as “cultural temperature”, etc. In 1997, Chick, G [3] has done a Cross-Cultural Research on Cultural complexity in his paper “Cultural complexity: The concept and its measurement. Cross-Cultural Research”. In 1982, Mohl R, A[4] has done a study on effect of culture practices on education of adoptive citizen, in the paper “Cultural pluralism in immigrant Education” in Journal of American Ethnic History.

Caulkins, D[5](1999) in his paper “Using consensus analysis to measure cultural diversity in organizations and social movements” has used Consensus analysis, a technique developed in cognitive anthropology for analyzing structured interview data. Chieh-Lu Li[6](2008), in his paper “Approaches to Measuring Cultural Diversity in Recreation” also uses consensus analysis in leisure settings to investigate the degree to which a population or sample share similar understandings of the world, he also uses analysis of covariance to compare similarities and differences among census-based ethnic groups in the United States in terms of their perceptions of service quality while controlling for the generations in the United States as a coarse measure of acculturation and assimilation. Several other works have been done of which few are listed below: Maitra,B[7](2005), Culture and Child Protection, Current Pediatrics, Lynch, E.W. and Hanson M.[8](2004), Developing Cross-Cultural Competence: A Guide for Working with Children and their Families, R.J.Ely and D.A. Thomas[9] (2001), Cultural diversity at work: The effects of diversity perspectives on work group processes and outcomes, J.D.Fearon[10] - Journal of Economic Growth and Cultural and Cultural Diversity by Country, et al. From this view we found out that still Fuzzy concepts are not applied in studying cultural diversity. In this paper we analyze cultural diversity using Fuzzy Relational Mapping (FRM) [11].

Fuzzy Relational Maps (FRMs)

The new notion called Fuzzy Relational Maps (FRMs) was introduced by Dr. W.B. Vasantha and Yasmin Sultana in the year 2000. In FRMs we divide the very casual associations into two disjoint units, like for example the relation between a teacher and a student or relation; between an employee and an employer or a relation; between the parent and the child in the case of school dropouts and so on. In these situations we see that we can bring out the casual relations existing between an employee and employer or parent and child and so on. Thus for us to define a FRM we need a domain space and a range space which are disjoint in the sense of concepts. We further assume no intermediate relations exist within the domain and the range space. The number of elements in the range space need not in general be equal to the number of elements in the domain space. In our discussion the elements of the domain space are taken from the real vector space of dimension \(n\) and that of the range space are real vectors from the vector space of dimension \(m\) (\(m\) in general need not be equal to \(n\)). We denote by \(R\) the set of nodes \(R_i, \ldots, R_n\) of the range space, where \(R_i = \{x_1, x_2, \ldots, x_m\} / x_i = 0 \text{ or } 1\) for \(i = 1, \ldots, n\). If \(x_i = 1\) it means that the node \(R_i\) is in the ON state and if \(x_i = 0\) it means that the node \(R_i\) is in the OFF state. Similarly \(D\) denotes the nodes \(D_1, \ldots, D_n\) of the domain space where \(D_i = \{x_1, \ldots, x_n\} / x_i = 0 \text{ or } 1\) for \(i = 1, \ldots, n\). If \(x_i = 1\), it means that the node \(D_i\) is in the on state and if \(x_i = 0\) it means that the node \(D_i\) is in the off state.

A FRM is a directed graph or a map from \(D\) to \(R\) with concepts like policies or events etc. as
nodes and causalities as edges. It represents casual relations between spaces D and R. Let D_i and R_j denote the two nodes of an FRM. The directed edge from D to R denotes the casualty of D on R, called relations. Every edge in the FRM is weighted with a number in the set \{0, 1\}. A FRM is a directed graph or a map from D to R with concepts like policies or events etc. as nodes and causalities as edges. It represents casual relations between spaces D and R. Let D_i and R_j denote the two nodes of an FRM. The directed edge from D to R denotes the casualty of D on R, called relations. Every edge in the FRM is weighted with a number in the set \{0, 1\}.

Let e_{ij} be the weight of the edge D_iR_j, e_{ij} \in \{0, 1\}. The weight of the edge D_iR_j is positive if increase in D_i implies increase in R_j or decrease in D_i implies decrease in R_j, i.e. casualty of D_i on R_j is 1. If e_{ij} = 0 then D_i does not have any effect on R_j. We do not discuss the cases when increase in D_i implies decrease in R_j or decrease in D_i implies increase in R_j. When the nodes of the FRM are fuzzy sets, then they are called fuzzy nodes, FRMs with edge weights \{0, 1\} are called simple FRMs. Let D_1, …, D_n and R_1, …, R_m be the nodes of the domain space D of an FRM and R_1, …, R_m be the nodes of the range space R of an FRM. Let the matrix E be defined as E = (e_{ij}) where e_{ij} \in \{0, 1\}; is the weight of the directed edge D_iR_j (or R_jD_i). E is called the relational matrix of the FRM. It is pertinent to mention here that unlike the FCMs, the FRMs can be a rectangular matrix; with rows corresponding to the domain space and columns corresponding to the range space. This is one of the marked difference between FRMs and FCMs.

Let D_1, …, D_n and R_1, …, R_m be the nodes of an FRM. Let D_iR_j (or R_jD_i) be the edges of an FRM, j = 1, …, m, i = 1, …, n. The edges form a directed cycle if it possesses a directed cycle. An FRM is said to be acyclic if it does not possess any directed cycle. An FRM with cycles is said to have a feed back when there is a feed back in the FRM, i.e. when the casual relations flow through a cycle in a revolutionary manner the FRM is called a dynamical system. Let D_iR_j (or R_jD_i), 1 \leq j \leq m, 1 \leq i \leq n. When R_j (or D_i) is switched on and if casualty flows through edges of the cycle and if it again causes R_j(D_i), we say that the dynamical system goes round and round. This is true for any node R_j (or D_i) for 1 \leq i \leq m, (or 1 \leq j \leq n). The equilibrium state of this dynamical system is called the hidden pattern. If the equilibrium state of the dynamical system is a unique state vector, then it is called a fixed point. Consider an FRM with R_1, …, R_m and D_1, …, D_n as nodes. For example let us start the dynamical system by switching on R_1 or D_n. Let us assume that the FRM settles down with R_i and R_m (or D_1 and D_n) on i.e. the state vector remains as (10…01) in R [or (10…01) in D], this state vector is called the fixed point. If the FRM settles down with a state vector repeating in the form A_1 \rightarrow A_2 \rightarrow … \rightarrow A_i \rightarrow A_j \rightarrow \ldots \rightarrow B_1 \rightarrow B_1) then this equilibrium is called a limit cycle.

**Methods of determination of hidden pattern.**
Let R_1, …, R_m and D_1, …, D_n be the nodes of a FRM with feedback. Let E be the n × m relational matrix. Let us find a hidden pattern when D_1 is switched on i.e. when an input is given as vector A_1 = (1000…0) in D the data should pass through the relational matrix E. This is done by multiplying A_1 with the relational matrix E. Let A_1E = (r_1, …, r_m) after thresholding and updating the resultant vector (say B) belongs to R. Now we pass on B into E^T and obtain BE^T. After thresholding and updating BE^T we see the resultant vector say A_2 belongs to D. This procedure is repeated till we get a limit cycle or a fixed point.

1. **Cultural Diversity**

1.1 **Culture**

Culture is the total way of life that characterizes a group of people. Different groups of people may have different cultures. A culture is passed on to the next generation by learning, whereas genetics are passed on by heredity. Culture is seen in people’s writing, religion, music, clothes, cooking, and in what they do. Historically, the word derives from the Latin word ‘cultura’, which means “cultivation”. It was first used in Classical antiquity by the Roman orator, Cicero: “cultura animi”. Culture serves as a road map for both perceiving and interacting with the world. There are literally thousands of cultures on Earth today and each contributes to global diversity. One reason for the existence of so many cultures is that there are so many ways that Earth’s 6.3 billion people can be culturally different. Specifically, a culture consists of numerous cultural components like Religion, Language, Architecture, Cuisine, Technology, Music, Dance, Sports, Medicine, Dress, Gender roles, Law, Education, Government, Agriculture, Economy, Sport, Grooming Values, Work ethic, Etiquette, Courtship, Recreation, Gestures etc., that vary from one culture group to the next.

1.1.1 **Definitions of Culture**

E.B. Taylor [12,13] defined culture as “that complex whole which includes knowledge, belief, art, morale, laws, custom and any other capabilities and habits as acquired by man as a member of society.”

B. Malinowski [12,14] defined it as “the handwork of man and the medium through which he achieves his ends.”

R. Redfield [12] defined culture as “an organised body of conventional understandings manifest in art which persisting through tradition, characterises a human group.”
V. de Robert[12] viewed: "Culture is the body of thought and knowledge, both theoretical and practical, which only man can possess."

1.1.2 Characteristics of Culture

(1) Culture is social:
Culture does not exist in isolation. It is a product of society. It develops through social interaction. No man can acquire culture without association with others. Man becomes a man only among men.

(2) Culture is shared:
Culture is not something that an individual alone can possess. Culture in sociological sense is shared. For example, customs, traditions, beliefs, ideas, values, morale etc. are all shared by people of a group or society.

(3) Culture is learnt:
Culture is not inborn. It is learnt. Culture is often called "learned ways of behavior". Unlearned behavior is not culture. But shaking hands, saying thanks' or 'namaskar', dressing etc. are cultural behavior.

(4) Culture is transmissive:
Culture is transmissive as it is transmitted from one generation to another. Language is the main vehicle of culture. Language in different form makes it possible for the present generation to understand the achievement of earlier generations. Transmission of culture may take place by imitation as well as by instruction.

(5) Culture is continuous and cumulative:
Culture exists as a continuous process. In its historical growth it tends to become cumulative. Sociologist Linton called culture 'the social heritage' of man. It becomes difficult for us to imagine what society would be like without culture.

(6) Culture varies from society to society:
Every society has a culture of its own. It differs from society to society. Culture of every society is unique to itself. Cultures are not uniform. Cultural elements like customs, traditions, morale, values, beliefs are not uniform everywhere. Culture varies from time to time also.

(7) Culture is dynamic:
No culture ever remains constant or changeless. It is subject to slow but constant change. Culture is responsive to the changing conditions of the physical world. Hence culture is dynamic.

(8) Culture is gratifying:
Culture provides proper opportunities for the satisfaction of our needs and desires. Our needs both biological and social are fulfilled in the cultural ways. Culture determines and guides various activities of man. Thus, culture is defined as the process through which human beings satisfy their wants.

1.2 What is diversity?
Diversity can be defined in many different ways. The term “diversity” is used broadly to refer to many demographic variables, including, but not limited to, race, religion, color, gender, national origin, disability, sexual orientation, age, education, geographic origin, and skill characteristics. America's diversity has given this country its unique strength, resilience and richness. Lévi-Strauss (as noted in Equal Employment Opportunity, 2008) states “We can see the diversity of human cultures behind us, around us, and before us. The only demand that we can justly make ... is that all the forms this diversity may take ... contributes to the fullness of all the others (EEO, 2008, p.1).” Diversity includes cultural diversity which confirms the existence of broad cultural groups within one country’s culture.

1.3 Cultural diversity
Cultural diversity, or multiculturalism, is based on the idea that cultural identities should not be discarded or ignored, but rather maintained and valued. It is the quality of diverse or different cultures, as opposed to monoculture, as in the global monoculture, or a homogenization of cultures. The phrase cultural diversity can also refer to having different cultures respect each other's differences. The phrase cultural diversity is also sometimes used to mean the variety of human societies or cultures in a specific region, or in the world as a whole. Robert Alan an American writer, artist and social activist; states, “Cultural differences should not separate us from each other, but rather cultural diversity brings a collective strength that can benefit all of humanity.” Also: “Intercultural dialogue is the best guarantee of a more peaceful, just and sustainable world”.

1.4 Importance of Cultural diversity
Cultural diversity is important because it allows for people to be able to work together with different kinds of people. It allows for a better understanding of other cultures and ideas. Father of Our Nation Mahatma Gandhi states, “No culture can live if it attempts to be exclusive”. The importance of cultural diversity has been lost in our society where anybody who advocates a unique sense of cultural identity is often labeled as a racist. To say "we don't want to be part of the dominant culture, we want our own culture" is seen to be stirring. The fashion today is to say that we are all one people and we should all get together and live in love, peace and harmony as one people.

II. ADAPTATION OF THE PROBLEM
Indian culture is rich and diverse and as a result unique in its very own way. The culture of India refers to the way of life of the people of India. India's languages, religions, dance, music, architecture, food, and customs differ from place to place within the country. The Indian culture often labeled as an amalgamation of several cultures, spans across the Indian subcontinent and includes traditions that are several millennia old. Many elements of India's diverse cultures, such as Indian religions, yoga, and Indian cuisine, have had a profound impact across the world. Globalization has opened India to the world and has brought in the much needed exposure. Globalization has had impacts in the economic, social, cultural and political ways of India. It has made India more Westernized. Westernization has a large impact on Indian Culture and Traditions. Indian Culture is now days posing a serious threat as westernization amongst Indians is leading to the gradual decline and eventual ruins of Indian culture and tradition. Western goods, dresses, foods, festivals, style, language and moreover the western thought is suspected to be spreading across the populace. We have analyzed the various causes for the rapid westernization and its effects on our culture. Now using FRM we study this problem of effects of westernization on Indian culture and tradition. We first take the opinion of experts and study the problem using FRM. We take the following attributes as the nodes of the domain space of FRM which gives the causes for rampant westernization. 

\[ D = \{ D_1, D_2, D_3, D_4, D_5, D_6, D_7, D_8 \} \]

where \( D_1, D_2, \ldots, D_8 \) are described.

- \( D_1 \) – Tasty foods such as fast food, pizza, etc.
- \( D_2 \) – Easy to wear and feel comfortable.
- \( D_3 \) – Need of money.
- \( D_4 \) – Attracting the opposite sex.
- \( D_5 \) – Mobile phone, email, social networking, etc.
- \( D_6 \) – Chatting and Dating.
- \( D_7 \) – Increase love marriage.
- \( D_8 \) – Working overseas.

The nodes of the range space (effects) \( R = \{ R_1, R_2, R_3, R_4, R_5, R_6, R_7 \} \) are taken as

- \( R_1 \) – Not good for health.
- \( R_2 \) – Sexual Harassment against women.
- \( R_3 \) – Wastage of time.
- \( R_4 \) – Lack in Academics
- \( R_5 \) – Depression, anxiety, etc.
- \( R_6 \) – Losing healthy family relationship.
- \( R_7 \) – Affecting Indian growth in terms of economics.

Keeping these as nodes of the range space and the domain space based on expert’s opinion the following related connection directed graph is given.

Let \( M \) denote the connection matrix of FRM. We study the effect of each state vector on the dynamical system. Let \( X = (1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 1) \) i.e, the only node which is in the ON state is \( D_1 \) and all other nodes are in the OFF state. Now we obtain the effect of \( X \) on the dynamical system.

\[
X_M = (1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 1) = Y
\]
III. CONCLUSION

Through the results we can say that all the nodes given are so vital and the presence of anyone of them makes all other nodes to come to the ON state. Thus we see that Western goods, dresses, foods, festivals, style, language and moreover the western thought leads to the gradual decline of Indian Culture and Traditions. However, there’s no harm in taking good things from western but this does not mean that we should completely adopt it and pretend to be western and misrepresent our identity. It is understandable that India is growing in every field and there is necessity of knowing all the cultures and their traditions. One thing should be always kept in mind that western world is looking India for its honesty and its rich Cultural heritage. We should feel proud that we are Indian s and we have such a rich cultural heritage which is very rare and should carry this forward and inherit the same to our New blooms who are going to be our future.

Future Directions

In this article we had only analyzed the impact of westernization on Indian culture. As a future study we can analyze how to tackle with grown trend of westernization.

REFERENCES