

A Study on Finding the Key Motive of Happiness Using Fuzzy Cognitive Maps (FCMs)

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Abstract -Happiness is subjective. It is difficult to compare one person's happiness with another. It can be especially difficult to compare happiness across cultures. The function of man is to live a certain kind of life and this activity implies a rational principle. The function of a good man is the good and noble performance. If any action is well performed it is performed in accord with the appropriate excellence. If this is the case, then happiness turns out to be an activity of the soul in accordance with virtue. That is happiness as the exercise of virtue. Every human being thinks happiness in his own perspective. Everyone wants to be happy and searching happiness in all their activities. Happiness is typically measured using subjective measures. Happiness cannot be defined in terms of rigid boundaries and it is a vague term and it is appropriate to use Fuzzy Logic. In particular, we use Fuzzy Cognitive Mapping to find the key motive of happiness. This paper consists of four sections. The first section is of inductive nature about happiness. The section two introduces the concept of Fuzzy Cognitive Mapping (FCMs). In section three Fuzzy Cognitive Mapping applied on the concept of Happiness. Section four gives the conclusions and suggestions.

Keywords - Fuzzy Cognitive Map, Happiness, Making the dear one happy and being with them, Enjoyments, leisure, Education, achievements, Spiritual thoughts, Wealth and Health

I. INTRODUCTION

The function of man is to live a certain kind of life and this activity implies a rational principle and the function of a good man is the good and noble performance of these, and if any action is well performed it is performed in accord with the appropriate excellence. If this is the case, then happiness turns out to be an activity of the soul in accordance with virtue. That is happiness as the exercise of virtue. The ultimate aim of life is to be happy. Everyone wants to be happy. Searching for happiness is the ultimate aim of their life and start to find happiness in all their activities. Happiness varies person to person. One find happiness in his family life, another finds in religious life, some finds in wealth and some in health and so on. So it is a vague term. It cannot be defined in terms definite actions. Let us see how some eminent people define happiness. According to the Greek philosopher Aristotle, happiness consists in achieving through the course of the whole lifetime all the goods, health, wealth, knowledge, friends, etc., that leads to the perfection of human nature and to the enrichments of human life. Victor-Marie Hugo (26 February 1802 – 22 May 1885) was a French poet, statesman, human rights activist says "The greatest happiness of life is the conviction that we are loved - loved for ourselves, or rather, loved in spite of ourselves". Alice Meynell (1847-1922) was

an English writer says "Happiness is not a matter of events; it depends upon the tides of the mind". Allan K Chalmers (1951) was a writer mention "The grand essentials of happiness are: something to do, something to love, and something to hope for love". Margaret Lee beck (1905-1956) was a psychologist says "Happiness is not a station you arrive at but a matter of travelling". John B. Sheerin (1992) was a Roman Catholic editor says "Happiness is not in our circumstance but in our selves. It is not something we see, like a rainbow, or feel, like the heat of a fire. Happiness is something we are". Scottish Proverb says "Be happy while you're living, for you're a long time dead".

A. Recent Research Papers and Motivation for Study

John Helliwell (October 27, 2010) emeritus professor of economics at UBC observed that the amount of data and experience regarding happiness research is in its infancy but suspects that the three major points about happiness that will ultimately merge are: 1) The positive trumps the negative. 2) Community trumps materialism. 3) Generosity trumps selfishness. George mackerron (2 Dec 2011) is a LSE researcher says six main cause of happiness are 1. Intimacy/ making 2. love. Sports/ running/ exercise 3. Theatre/ dance/ 4. concert/ Singing/ performing 5. Exhibition/ museum/ 6. library. Hobbies / arts/ crafts. 18th January 2012 - A new study published on in the journal of marriage and family reveals the benefits of marriage such as shared health care plans cohabiting couples experienced greater gains in happiness and self-esteem. 19th April 2012 – Princeton University study showed that money really can buy happiness. 12th April 2012 – "sex in the event of happiness", presented by Lauren Berlant professor of English at the University of Chicago.

B. Gross National Happiness

Gross National Happiness was coined in 1972 by Bhutan's then King Jigme Singye Wangchuck. The Fourth Dragon king of Bhutan says "The primary idea of GNH is that every human being aspires for happiness and the country's development should also be measured in its citizen's happiness".

C. What makes people feel happy?

Every human being is different, their thinking and their activities are also different. It is not so easy to find what people think as their happy. The collected data of different people from different area gives us various ideas about happiness. Interview and recorded data from 100 people belongs from a combination of society of people gives us their point of view about happiness. From the collected data, there are 36 different causes are able to find out, these 36 causes are

minimized as 17 and again reduced us 6 main causes with the help of experts opinion. According to expert (people) opinion we have collected some of the major fact about happiness and are combined and reduce as 6 major cause which is shown in the fig.1.1.

a) The six main key motive of happiness

According to the experts opinion we have arrived at six main key motive of happiness they are

1. Making the dear one happy and being with them (family and friends)
2. Health (meditation and yoga)
3. Wealth (properties and economic status)
4. Spiritual thoughts
5. Achievements (success in education and extracurricular activities)
6. Pleasure activities

b) The percentage response

The percentage response from 100 people of different community was taken and the collected data is given in fig.1.2. The fig 1.2 shows that the majority of the people think that being with their dear ones and making them happy is their happiness. The dear one includes family, friends, and their well wishes and pet animals. The second major cause is achievements. Achievements are the main goal of majority of people. The third motive of happiness is pleasure activities; it plays an important role in short length happiness. Wealth is in fourth position among the key motive of happiness. But some think that health is wealth. The fifth majority is health and spiritual thoughts. Spiritual thoughts make people not to do sin, and no sin will comes back to them. Health is also one of the important factors because if you are healthy then you can enjoy your life in better manner.

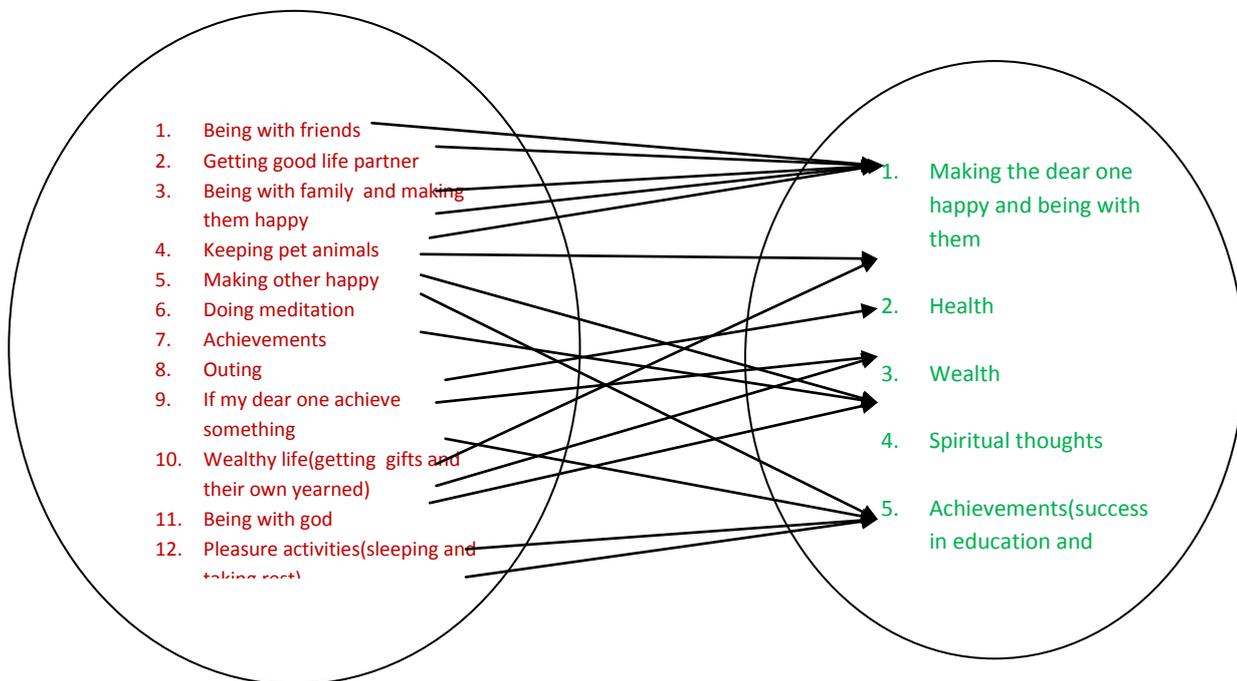


Figure 1

D. Effects of happiness

Happiness is a tool to enjoy the life. Everyone is searching for happiness in all their activities. Satisfaction of life is seems to be more important than anything else in the world. The percentage response of the effect of happiness from the public is given in fig .1.3. Happiness gives us a motivation to work hard towards the goal and it helps to reduce the strain and stress. We get confidence and can able to achieve everything. Happiness gives us the satisfaction of life and peace of mind. And experts say that if you are happy then you look young. The public responses from the collected data is given below

- E1 - motivation to work hard towards the goal
- E2 - It will help us to forget the stress and gives confidence
- E3 – we can achieve everything and will get satisfaction
- E4 – peace of mind
- E5 – will be healthy and look young
- E6 – supportive and gives self confidence

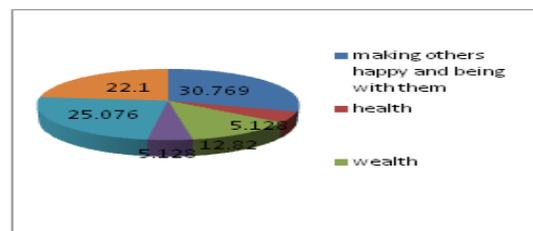


Fig. 2 (% response – causes of happiness)

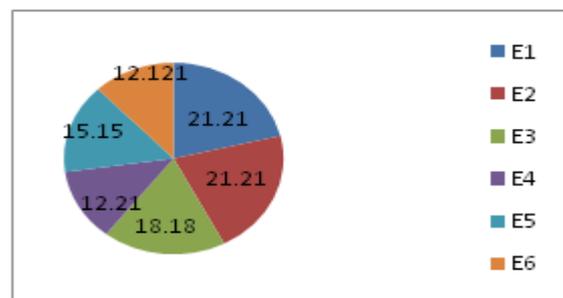


Fig. 3 (% response - effect of happiness)

II. INTRODUCTION

In this section we recall the notion of Fuzzy Cognitive Maps (FCMs), which was introduced by Bart Kosko in the year 1986. We also give several of its interrelated definitions. FCMs have a major role to play mainly when the data concerned is an unsupervised one. Further this method is most simple and an effective one as it can analyze the data by directed graphs and connection matrices.

A. Definition

An FCM is a directed graph with concepts like policies, events, etc. as nodes. And causalities as edges. It represents causal relationship between concepts. Let C_1, C_2, \dots, C_n be the nodes of an FCM. $A = (a_1, a_2, \dots, a_n)$ where $a_i \in \{0, 1\}$. A is called instantaneous state vector and it denotes the on-off position of the node at an instant.

B. Definition

Let C_1, C_2, \dots, C_n be the nodes of an FCM. Let $C_1C_2, C_2C_3, C_3C_4, \dots, C_iC_j$ be the edges of the FCM ($i \neq j$). Then the edges form a directed cycle. An FCM is said to be cyclic if it possesses a directed cycle. An FCM is said to be acyclic if it does not possess any directed cycle.

C. Definition

An FCM with cycles is said to have a feedback.

D. Definition

Let $C_1C_2, C_2C_3, C_3C_4, \dots, C_iC_j$ be a cycle. When C_i is switched on and if the causality flows through the edges of a cycle and if it again causes C_i , we say that the dynamical system goes round and round. This is true for any node C_i , for $i = 1, 2, \dots, n$. The equilibrium state for this dynamical system is called the hidden pattern.

E. Definition

If the equilibrium state of a dynamical system is a unique state vector, then it is called a fixed point. Example: Consider a FCM with C_1, C_2, \dots, C_n as nodes. For example let us start the dynamical system by switching on C_1 . Let us assume that the FCM settles down with C_1 and C_n on i.e. the state vector remains as $(1, 0, 0, \dots, 0, 1)$ this state vector $(1, 0, 0, \dots, 0, 1)$ is called the fixed point.

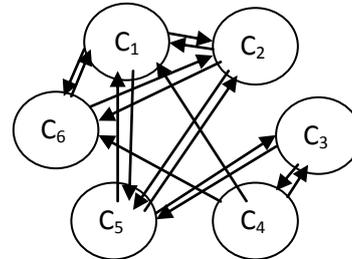
FCMs are used to model several types of real world problem. FCMs have a major role to play mainly when the data concerned is an unsupervised one. In this section we analyze the key motive of happiness using FCM.

III. FINDING OUT THE HIDDEN PATTERN

An expert spells out the six major concepts relating to the cause of happiness

- C_2 – Pleasure activities
- C_3 – Education and achievements
- C_4 - Spiritual thoughts
- C_5 – Wealth
- C_6 – Health

The directed graph is drawn with the expert opinion where C_1, C_2, \dots, C_6 are taken as nodes and causalities as edges is given in fig.2.1



According to the experts opinion, Making the dear one happy and being with them is related to the enjoyment and pleasure activity. Enjoyment and pleasure activities is related to the health because if you healthy only then you can be active. Making the dear one happy and being with them is also related to health and spiritual thoughts since every religion say about love. Wealth is related to enjoyment and pleasure activities and vice versa. Spiritual thought is related to education, health and Making the dear one happy and being with them. Education and achievements will give you wealth. Consider the 6×6 causal connection matrix E that represents the causality of every nodes using FCM is given below

	C_1	C_2	C_3	C_4	C_5	C_6
C_1	0	1	0	0	1	1
C_2	1	0	0	0	1	1
C_3	0	0	0	1	1	0
C_4	1	0	1	0	0	1
C_5	1	1	1	0	0	0
C_6	1	1	0	0	0	0

We discuss the case when the first node that is making the dear ones happy and being with them is in on state. Since the percentage response shows that majority of people says making others happy and being with them is their happiness. Therefore in this case we allow C_1 to pass on E .

Input the vector $A = (1\ 0\ 0\ 0\ 0\ 0)$

$$A E = (1\ 0\ 0\ 0\ 0\ 0) \begin{pmatrix} 0 & 1 & 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 & 0 \end{pmatrix}$$

$$\rightarrow (0\ 1\ 0\ 0\ 1\ 1) = A_1$$

$$A_1 E \rightarrow (1\ 1\ 1\ 0\ 1\ 1) = A_2$$

$$A_2 E \rightarrow (1\ 1\ 1\ 1\ 1\ 1) = A_3$$

$$A_3 E \rightarrow (1\ 1\ 1\ 1\ 1\ 1)$$

C_1 - Making the dear one happy and being with them

Thus the hidden pattern is found out using FCM. When we allow the first node is in on state and allow it to pass on E, we get all the nodes in on state. This gives us a conclusion that when we make the others happy automatically all other enjoyment and pleasure, education and achievements, spiritual thoughts, wealth and health is becoming on state. Thus using FCM we have found out the key motive of happiness with the help of experts opinion.

IV. CONCLUSION

Happiness buys success. Happiness is a solution for lot of social problems like violence, breaking of rules, terrorism and so on. People without happiness will be selfish and disturb others happiness also. The key motive of development is happiness. We can see from the data, the key motive of happiness is living with their loved one and making them happy, the word dear one includes friends, family and life partner. Secondly the achievements plays a vital role in happiness, every person wants to make their name to be written in the history. They consider the sustainability of their names and the fame as happiness. Most people don't understand the scientific facts about how they derive happiness, so they don't know how to use their money to acquire it. Experiences more than items. Leisure pursuits increase happiness, people who watch a lot of television are lacking in better sources of happiness, such as relationships and other leisure pursuits; that is, people watch television if they don't have anything better to do. The effect of happiness helps you to forget stress and give you confidence to walk towards your achievement. And finally you will reach the ultimate aim of peace of mind and satisfaction in life. "Happiness comes from giving, not getting. If we try hard to bring happiness to others, we cannot stop it from coming to us also. Happiness is a key motive of development of a country. Every nation wants to make their country as developed. But less nations care about the happiness of their people. Instead of giving much important to the economic growth of the nation if you give important to find the key motive of happiness of people in the country, the country can achieve its goal very quick and easily. Therefore the future study can be done in finding the key motive of happiness in every country and combining those using CFCMs (Combined Fuzzy Cognitive Maps) to get the universal key motive of happiness. And this area can be studied using BAM (Bidirectional Associative Memory) to get the Bidirectional Happiness among nations.

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