Bringing closer to the Cultural Roots through Cultural Computing: Detailed Analysis of movie 'Chaar Sahibzaade'

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ABSTRACT: *Indian Cinema has transformed the mode of presenting the cultures and stories since 19th century and the journey still continues. Technology has supported the motive of Indian Cinema to a great extent. With its evolution, technology has offered intelligent access to cultural information for experiencing these cultures in an interactive and unadultered manner. The recent advancements declare it as Cultural Computing. One of the key objectives of cultural computing is the development of efficient tools to facilitate understanding of non computer people for their respective cultures. The proposed paper presents the cultural computing components used in the Indian Cinema to serve the quoted purpose. The idea has been detailed with the case study of 3 – D animated movie 'Chaar Sahibzaade', which is the portrayal for promotion of cultural objects among Punjabi Sikh Diaspora.*

Keywords – augmented reality, cultural computing, Indian cinema, technology, virtual reality

I. INTRODUCTION

Cultural Computing is a inspiring and forthcoming field of Human Computer Interaction, which covers the cultural impact of computing and requirements for the support of cultural innovation achieved with a perfect blend of technology and cultural objects [1]. It investigates the differences across a variety of cultures and provides the knowledge and skills necessary to overcome cultural issues and expand human creativity. Mass media topologies such as radio, television, internet and printed text have been active as the radical element contributing towards the intensification of cultural matters and concerns, and promotion of cultural objects among society. Since 19th century, Cinema has been presenting the histories and lives of Indian Diaspora in foreign lands. It reflects the geographical mobility of a group of people, such as those sharing national identities, away from an ancestral homeland and the problems faced by them at host lands. With the recent advancements in technology Indian Cinema has adopted the tools and technical knowhow of 3 D animation that further exploits the concept of Virtual Reality and Augmented Reality (AR).

To present this idea in an efficient way animated movies for example 'Chaar Sahibzaade' has set an admirable impact on the society, especially youth. Audience's reviews convey the evidence to the success story of this remarkable movie. One of the key objectives of cultural computing is the development of efficient tools to facilitate understanding of non computer people for their respective cultures. It has been observed that these days' Diaspora youth lack connectedness with their cultures, due to various changes in their every day routines [2].

II. LITERATURE SURVEY

As evidence for making Punjabi Sikh Diaspora aware about their respective cultures a number of means including digitization and preservation of digital cultural objects, providing intelligent access to cultural information for experiencing these cultures in an interactive way, are being examined very thoroughly these days. These cultural objects include as religious histories, customs, language, music and countless other. Specifically for Sikh religion these cultural objects include life histories of Sikh Gurus, history related to formation of Sikhism, Punjabi language, Shabad Kirtan and many more. Cultural Computing is an emerging field and it aims at the development of tools to help people understand different cultures and promotion of culture, through proficient use of several computing trends. Human Computer Interaction (HCI) is currently in Social Computing phase and now is overlapping with Cultural Computing [3]. Cultural computing utilizes the field of computer animation. It encompasses the generation of animated images by using Computer Graphics (CG). Computer animation refers to moving images. Present computer animation generally uses 3D computer graphics. This paper focuses on Indian Cinema as the target of the animation.

III. EXPERIMENTAL SET UP

A survey has been conducted in the month of January of 104 youths about the ways they want to learn their cultures. The target audience of the survey was made to participate in this survey process.

3.1 Survey Route

In the first phase of survey, the target sample was provided with the written content about the history of 'Chaar Sahibzaade'. Further in the second phase, colour images with miniature text presenting the history, were made available to them. In the final phase of this survey, the respondents were shown the movie 'Chaar Sahibzaade'. At the end of the last session, respondents were enquired regarding the variation they experienced at the closing session of the survey.

It was identified that the respondents found it very difficult to gain understanding of another culture from some books or lectures only, because of the depth of historical background that gives information about each culture. The movie 'Chaar Sahibzaade' made it achievable to develop interactive cultural computational models that made cultural differences easier to grasp for people.

The movie has made the most of the computer ability for non computer people. It has also supplied a bunch of benefits including generation of interest, convenience, ease of learning, and initiated a sense of satisfaction to the Diaspora communities specifically and society in general.

3.2 Demographic Analysis

Table 1 describes the characteristics of sample youth taken under consideration for this survey, on the dimensions of male and female, taking educational background, location and religion as different levels for its illustration. The details are further shown graphically in Fig 1.

Table.1. Statistical Analysis of characteristics of sample youth (Male and Female)

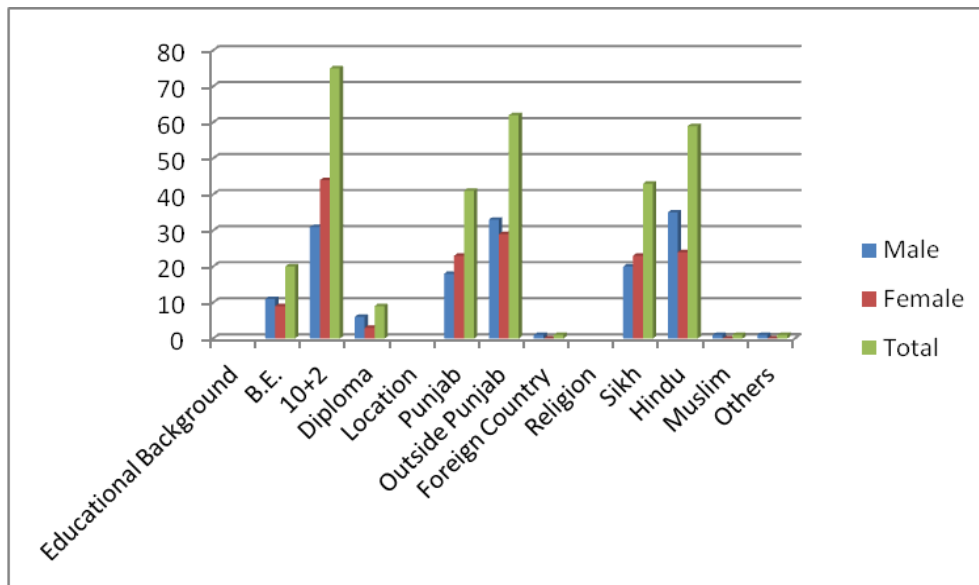|	Male	Female	Total
Educational Background			
B.E.	11	9	20
10+2	31	44	75
Diploma	6	3	9
Location			
Punjab	18	23	41
Outside Punjab	33	29	62
Foreign Country	1	0	1
Religion			
Sikh	20	23	43
Hindu	35	24	59
Muslim	1	0	1
Others	1	0	1
Mean	15.7	15.5	31.2
Standard Deviation	13.719	15.2698	28.3423

Fig.1.
Educational Background, Location and Religion of Sample Youth

3.3 Results and Findings

Youth is predominantly inclined towards watching movies, instead of reading written text about the same concept; as reading text seems tiresome and unexciting task to them. For them extra effort is required to be invested, to bring them closer to their culture. This paper proposes an approach entitled as 'Cultural Computing', in order to achieve the desired outcomes. The comparison is presented in Fig 2.
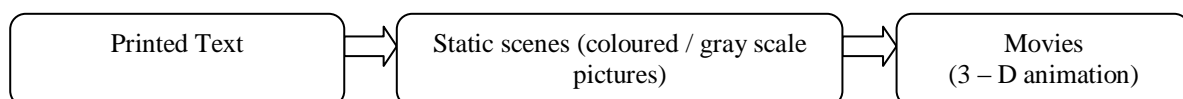

Fig.2. Comparison (Approaches for Communicating Ideas and Beliefs)

Alternative Hypothesis (H_1)
There is a wide variation in the magnitude of understanding of youth about the untold stories of Sikh history through printed text, static pictures and 3 – D animated movies.
Movies make it easier to gain knowledge concerning culture. Emotions connected with history are depicted convincingly, that remain somewhat hidden in the written text. Cinema seems exciting to youth as well as children as it acquires their attention. Cultural computing makes use of this human psychology and tendency which is best to capture and store images in mind, rather than written text [4]. Things viewed practically leaves strong impression upon person's mind; whereas written text is difficult to remember. Another fact is; it takes long hours to read history that leads to disinterest. Youth these days is least patient; so their first choice is watching a movie for the histories, in short span of time. To gain better understanding of cultural objects (such as religion, customs, language, music and many more) it is very vital to feel the emotions associated with these moments of history. The said discussion concludes the comparison and era shift from religious lectures/talks and written text (books) to still pictures (coloured images over gray scale images) and further to animated movies.

IV.   CULTURAL COMPUTING GEARS: CASE STUDY

The movie 'Chaar Sahibzaade' is based on unprecedented and unparalleled martyrdom of four sons of tenth Sikh Guru, Guru Gobind Singh Ji. The movie is narrative of cultural objects among Punjabi Sikh Diaspora that began from times of Guru Gobind Singh Ji [5]; the struggle and hassle they faced after leaving their native place; but despite of experiencing all the hard times, they didn't left their religion and set a grand example

before the world. Cultural Computing is composed of the concepts of virtual or augmented reality (AR). This 3 – D animated movie has incorporated the same in its implementation and shaped its position as one of the creations of Cultural Computing in Indian cinema to support Punjabi Sikh Diaspora.

Virtual Reality (VR) find its applications in fields of engineering, medicine, design, education and training, entertainment, communication and many more. Virtual Reality is a three-dimensional representation of a not real environment, principally using computer-generated simulation. VR allows the humans to see patterns, relationships, trends more easily, which is otherwise very difficult to comprehend [6]. AR has become a reality with the miniaturization of portable and wearable computing technology devices. The practice of purchasing easy on the pocket smart phones and tablets provide a platform capable of supporting AR based applications. With applications such as Google Goggles, developers can use the power of an image search database. Example, a tourist can take picture of a restaurant sign and gain access to the menu in any language. It facilitates people to learn about events that happened in the past. Filters could also be added to obtain the required information by setting a criterion [7].
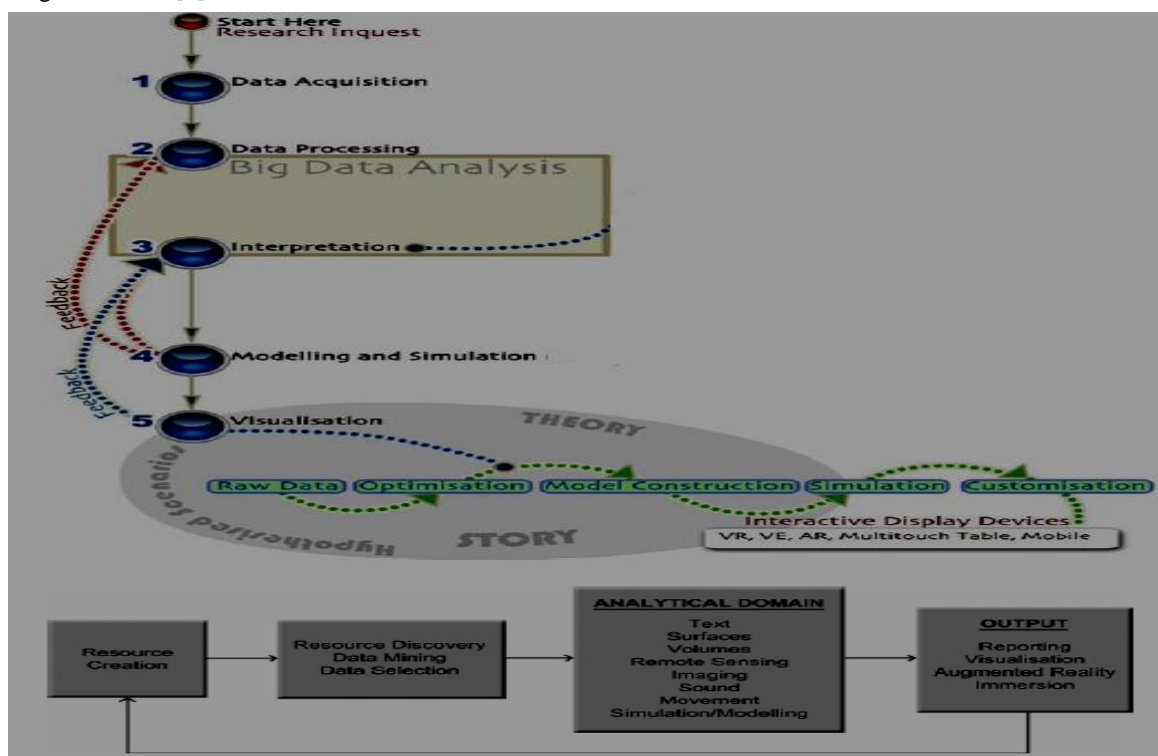

Fig.3. The Research Process Road Map [7]

Elaborating VR and AR in the movie 'Chaar Sahibzaade'; the scenes shown in the movie give the 'look – and – feel' of the real time scenario. The videos utilize the concepts of VR and AR, using Computer based Simulation. The video capture of the simulation and visualization shows multiple views of characters in the film, made known in the landscape in all scenes, based on the histories obtained from the resource texts. In this research process, first of all the data is acquired followed by data processing. Data processing utilizes data mining and data selection techniques. Implementing the concepts of big data analytics the data is interpreted in the form required as outcome. Further, modelling and simulation of this data is carried out and presented via visualizations concept of augmented reality. These visualizations use raw data, stories and hypothetical scenarios. Key points that ground the conclusion of the survey under consideration:

- Timing Constraint

The movie 'Chaar Sahibzaade' depicts the whole historical Diasporic journey of Guru Gobind Singh Ji and his family in very short span of time (duration: 129 minutes).

- Augmented Reality (AR) and Virtual Reality (VR)

3 - D animation offering a realistic view of the happenings of Sikh religion's great history, is phenomenal. It gives a feel that as if, it is actually happening in front of person watching it. The movie is occupied with sentiments and generated a sense of concentration and interest.

- Multiple Language Support

Film has been released in three different languages: English, Hindi and Punjabi; thus presenting multi – lingual support for people belonging to diverse regions of the world.

- Prohibition over personification of Sikh Guru Sahib in any form

It has been duly put under consideration during production of the movie.

- Facial Mapping Technology

The movie has used facial mapping technology (facial comparison) that is the comparison of two or more images of individuals to determine, if they are of same person. The 3 – D motion picture utilized the 'Superimposition' methodology of facial mapping, which involves superimposing one image upon another [8], in structuring out the characters of the 3 – D animated movie put under consideration. It is the first 'photo – realistic' 3 – D animation film on Sikh history.

V. MOVIE REVIEWS

The movie received unprecedented response from the Sikh masses all over the world. Sikh Siyasat talked to Sikh Historian and intellectual S. Ajmer Singh about these developments. S. Ajmer Singh analyzed the response given to the movie Chaar Sahibzaade by the Sikh masses [9]. According to S. Ajmer Singh, the movie was so emotional that it took many days for people (who watched this movie) to come to their normal state of mind. It re – established people's connection and rejuvenate their bond with Guru Gobind Singh Ji. This movie on the whole reflects the greatness of Sikh Gurus. The movie has hoisted the sense of respect and love amongst all for Guru Sahib [10]. The movie also inspires the youth and raises their belief in Sikh religion to a novel level.

The movie is the highest rated animated film of 2014 on Imdb.com. This is the first film which was running in over 82 screens in Punjab, 150 screens in India and 125 screens overseas in its 5th Week. It is running in over 30 countries, including Kenya, Uganda, Tanzania, Singapore, Malaysia, Hong Kong, Thailand, France, Sweden, Denmark, Norway, Poland, Germany, Italy, Spain and many more. It has broken the record of top grosser Tin-Tin in India and turned out to be the highest grossing animation film in India (including all Hollywood Films). In cinemas, shows were being doubled and quadrupled with increase in demand by the hour. The movie led to house full shows even in the 5th week of its release, all over the world. Demand in South India arose in second week for English subtitle version. Audiences applied for Tax Free in states like, Madhya Pradesh, Maharashtra and Delhi. The effect of the move is that it grown to be highest grossing Punjabi language film of all time. Director of the film, Harry Baweja said, "I am overwhelmed at the response my film Chaar Sahibzaade has received. I am thankful to Waheguru for giving me the guidance, courage and strength for standing up against all odds while making this film!" [11].

VI. CONCLUSION

Cultural Computing is a motivating and upcoming field of Human Computer Interaction, which explores the differences across a variety of cultures and provides the knowledge and skills necessary to overcome cultural issues and expand the human creativity. While performing the comparative analysis of various approaches followed for erudition and thoughtful understanding of different cultures; it originated the fact that cinema/ movies are best media to convey the cultural knowledge amongst individuals especially youth. The explanation to support this piece of evidence is that – written text gives the boring impression to youth, whereas still images with slight text are not much convincing.

The recent advancements in the technology have offered non – computer people come across an improved version of the Indian Diasporic Cinema. Exploiting the features such as facial mapping technology, 3-D animation, virtual reality and augmented reality has led to generation of interest amongst people and presented the religious histories in a manner that has actually assisted effective understanding and learning about their cultures.

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