Enhancing Visitor Experience at ISKCON Using Text Analytics

R VINODHINI, S R VIGNESHWARAN AND U DINESH KUMAR

It was 6 am on Sunday, 2 September 2018. It was a typical monsoon day in Bangalore with the chilly breeze and light drizzle. The International Society for Krishna Consciousness (ISKCON) temple, Bangalore was crowded with devotees, visitors, and curious minds. Vignesh a research student at the Indian Institute of Science Bangalore was at the Higher Taste restaurant inside ISKCON premises, waiting for his favorite Vedic coffee. While waiting for the coffee, Vignesh started observing the crowd and began to wonder what motivated these people to visit ISKCON on a drizzly Sunday morning. Until that day, Vignesh believed that ISKCON was a worship place of Sri Radha Krishna. However, looking at the mission statement of ISKCON on the walls of the restaurant, Vignesh realized ISKCON was much more than a place of worship.

Mission statement of ISKCON:

> We are trying to give human society an opportunity for a life of happiness, good health, peace of mind and all good qualities through God consciousness.

While sipping the coffee, Vignesh began to reflect on how a temple could give a life of good health. To understand the philosophy behind ISKCON and how it enabled visitors to lead a happy and healthy life, Vignesh decided to meet Karuna Keshava Das, the youth guide at ISKCON.

After greeting each other, Karuna said:

> We believe that for someone to be happy and peaceful, the foremost necessity for sustenance – food – should be met. A hungry man is an angry man." ISKCON is trying to bring happiness by satiating the hunger of millions of people across the world. He further added that the first charitable initiative of ISKCON was the Unlimited Food for Education" program which has now grown to become the world's largest NGO-run mid-day meal program serving wholesome school lunch to over 1.76 million children in 14,314 schools across India.

Karuna also fondly remembered how Steve Jobs quoted his affiliation with the Hare Krishna Movement during his commencement address at Stanford University in 2005.

> I didn't have a dorm room, so I slept on the floor in friends' rooms. I returned coke bottles for the 5¢ deposits to buy food with. And I would walk the 7 miles across town every Sunday night to get one good meal a week at the Hare Krishna temple. I loved it.

Vignesh, a passionate data researcher, noticed that feedback forms were distributed to the visitors and was keen to understand how ISKCON was using the data that they collected. Karuna Kesava Das said:

You should probably meet Janarthanan Balasubramanian, Division Head, Information Technology and Online Communications at ISKCON. His team collects a lot of data and you can probably help us analyze the data and tell us what you find.

The following day Vignesh met Janarthanan Balasubramanian, and discussed about how ISKCON was collecting data and how Vignesh could help to derive insights from the data. Janarthanan told Vignesh that while they gather data from various sources, they did not find potential use of data that was collected and stored. ISKCON was keen to analyze the feedback/reviews from visitors and devotees.

Janarthanan elaborated that while ISKCON, Bangalore had footfall from various regions across India and abroad, the feedback form (**Exhibit 1**) used by them was not enough to get a proper picture about visitors' experience at the temple. Very few visitors filled the feedback forms placed at various points inside the temple premises. Moreover, with the increasing use of social media, many people, in fact most of them, preferred to share their experiences in social media platforms such as Trip Advisor, Facebook, and Google. ISKCON wanted to use the data from social media to understand the areas of improvement.

Janarthanan said:

> It is essential for us to reach out to people and for people to be in touch with us. To understand what visitors are talking about us on various social media, we have a data team that collects comments/reviews across these platforms manually, every day. Our team also collects the offline reviews from the feedback forms placed in different areas of the temple. We do not have enough manpower to analyze the data and take quick measures to improve devotee's experience at ISKCON. We are trying to explore how analytics can help us improve our services to the visitors.

ABOUT ISKCON

The International Society for Krishna Consciousness (ISKCON), also known as the Hare Krishna movement, was founded by His Divine Grace A. C. Bhaktivedanta Swami Prabhupada in New York City in 1966. In 1965, he traveled to the United States with the ambition to start the worldwide Hare Krishna movement. In the next 11 years, he established more than 100 centers, temples, vegetarian restaurants, and farm communities, Vedic schools, the Bhaktivedanta Book Trust, and initiated various community projects.

Many eminent researchers and historians have extensively studied ISKCON and the books by Srila Prabhupada. Diana Eck, Professor of Comparative Religion and Indian Studies at Harvard University, describes[1] the movement as "a tradition that commands a respected place in the religious life of humankind." In the 1980s, Dr. A. L. Basham, one of the world's authorities on Indian history and culture, wrote about ISKCON:[2]

---

[1] Source: http://www.iskcon.org/what-is-iskcon/

[2] Ibid

It arose out of next to nothing, in less than twenty years and has become known all over the West. This, I feel, is a sign of the times and an important fact in the history of the Western world.

Around 1984, devotees from across the world took initiatives to open ISKCON centers in different parts of India. In 1987, ISKCON started its operations in Bangalore from a rented house. Later in 1997, the temple and cultural complex was inaugurated by the then President of India, Shankar Dayal Sharma. ISKCON, Bangalore has since become one of the largest ISKCON temples in the world.

ACTIVITIES OF ISKCON

ISKCON, Bangalore is not just a religious institution. It has been a charitable society involved in a lot of social work and initiated several self-sustained groups that work towards improving all aspects – physical, mental and emotional, and intellectual well-being of human life.

Akshaya Patra has been an initiative to provide mid-day meals for schools in rural India where most of the children are underprivileged and undernourished. The Cultural Education Services (CES) wing of ISKCON worked with children to enhance values and life skills through cultural activities. Krishnashraya, a home-based spiritual rejuvenation program, was conducted at various locations in the city of Bengaluru to inculcate the principle of devotion and volunteering among people. The Life Sublime sessions took the Bhagavad-Gita to homes and apartment complexes across the city for busy working professionals. Friends of Lord Krishna (FOLK) was a Youth Empowerment Club aimed at crystallizing the formative phase of the younger generation with key values that guide them throughout their lives. The program also catalyzed the youth culture by designing rich avenues in art, theatre, science, philosophy, and many more. Senior devotees of ISKCON organized pilgrimage trips to various holy places in India. The organization was also involved in protecting cows (goshala), nitya annadana (food distribution for temple visitors and pilgrims) and organizing harinama kirtanas and bhajans (musical programs where the devotees sang the holy names of Lord Krishna).

OVERVIEW OF IT AT ISKCON

The primary responsibility of the IT department at ISKCON was to design, deploy, maintain, and support the ISKCON information technology infrastructure in an efficient, productive, and secure environment. The IT function at ISKCON could be broadly classified into four sections namely: Governance, Infrastructure, Application, and Online Presence. The Governance team was responsible for ensuring that the IT infrastructure was planned and deployed to achieve the strategies and objectives of the organization. The infrastructure team was responsible for supporting the end user computing infrastructure and to set up and maintain the data center and network infrastructure. The application team was involved in enterprise implementation and in developing, maintaining, and supporting various business applications used by ISKCON. The online presence team created and maintained websites and social media accounts for creating awareness on various activities of ISKCON.

PROBLEM AT HAND

The online presence team at ISKCON collected the visitor feedback from various social media channels to see how this feedback could help the organization improve its services to the visitors. The primary problem at hand for Janarthanan was to reduce the existing manual effort for his team. In 2018, three resources were involved in collecting the reviews from social platforms such as TripAdvisor, Google Plus, and Facebook and labeling each review into one of the four classes viz, positive, negative, neutral, and mixed. Two other resources converted the reviews from paper feedback forms/feedback registers placed at different points inside the temple, to an Excel file. The team began its day by manually collecting, labeling and collating the reviews in an Excel file (**Exhibit 2**). At the end of the day, these labeled reviews were stored in the database. At the end of the week, the total count of reviews for the four classes viz, positive, negative, neutral, and mixed was calculated to understand the overall sentiment. This was an extremely time-consuming manual process from data collection, that is, manually copy pasting the comments from social mediums to data labeling and collation.

Janarthanan wanted his team to spend time and effort on analyzing the data and working on remedial actions rather than on these mundane daily operations. He wanted to understand the issues/topics that ISKCON should work on, rather than manually classify reviews and get the count of each review type. Janarthanan felt that getting only the split of positive/negative/neutral/mixed classes was not enough to draw inferences.

Janardhan said:

> Having just the number of positive and negative reviews is not helping us much. We want to comprehend if there is any pattern in the number of positive and negative reviews. For e.g. are the negative comments higher on weekends or weekdays? Have the negative comments increased during a particular month? Are there any spikes or dips in negative sentiment? To summarize, we are looking for a timeline analysis that shows if the number of negative reviews have come down over a period of time. This analysis would help us understand if our remedial actions are actually working.

Janarthanan pointed out another issue they encountered because of the manual process of labeling the reviews. He mentioned that each resource used its own logic to label a given review as positive/negative/neutral/mixed. The labels were thus subjective and there was a lot of overlap between the mixed and neutral classes. As a result, the classification count and sentiment label was not accurate. Another confusion with the mixed class (both positive and negative in one review) was to figure out how much positive/negative a given review was and how to handle the mixed class.

Along with the aforementioned problems, Janarthanan was curious to understand if there was any way to drill-down on the sentiment classification and the tone of the reviewer. Vignesh gave another option that they could drill-down sentiments to emotions instead of inferring the tone, that is, if a sentiment is positive, what is the associated emotion (Joy, Peace, Surprise); and if a sentiment is negative, what is the associated emotion (Anger, Disgust, Frustration)?

Janarthanan said that his current team was not equipped with the skills and he was looking for a fully automated solution that would automatically extract the reviews from social media and label them into one of the four classes. The results would then be showcased to the management to discuss the top issues that people expressed about ISKCON and how to act upon the visitors' concern. Janarthanan concluded saying that he was looking for an all-in-one solution that would give the sentiments, trends, emotions, and top 10 issues to be addressed.

At the end of the meeting, Vignesh was rapt and inquired as to why a charitable society like ISKCON gave so much importance to visitor feedback and had a dedicated team to investigate this.

Janarthanan elaborated:

> ISKCON's vision is to bring more visitors to the temple and spread the message of Vedic scriptures so as to increase the awareness of Krishna consciousness among masses. We want to understand the good/bad of ISKCON from a visitor's perspective. What we think good, might be less appealing to visitors.
>
> For e.g. ISKCON and "food" are synonymous in people's mind. Hence, we thought feedback would revolve around the quality of food and meal portions. On the contrary, lately, we are seeing negative reviews popping up in social media for the souvenir stalls we have in the exit pathway of the temple. We would like to reach out to people and make them understand that souvenir stalls are a means to fund our charitable activities, as we cannot rely only on donations all the time. Visitors should understand that buying from our stalls is a form of help to our charitable work. ISKCON is the only temple that provides extremely tasty, rich and hygiene free food for every person who visits the temple. Very few temples provide one free meal a day or sometimes on special occasions. We are looking to continuously improve the experience we provide to our visitors and clarify ourselves on any sort of negative sentiment from people's minds.

Janarthanan gave Vignesh all reviews they had manually collected from January 2015 to September 2017. The sample data is provided in **Exhibit 2** and data dictionary is provided in **Exhibit 3.**

Upon analyzing the data, Vignesh came up with few difficulties that was not elementary.

- Comments had at least two different languages apart from English.
- English reviews had a lot of spelling errors.
- Many reviews were duplicated.

Vignesh called up his friend Vinodhini, who had previously dealt with text data and detailed the problem statement. Vinodhini found another set of new problems with the data. One major problem was that the reviews were not only in English, French, and German, but also had Hinglish (Hindi language written in English). Another problem she encountered was regarding the classification labels – how do we handle the mixed and neutral classes?

The following explanation was given by ISKCON for mixed and neutral classes:

"Mixed type" is when comments are both Positive and Negative.

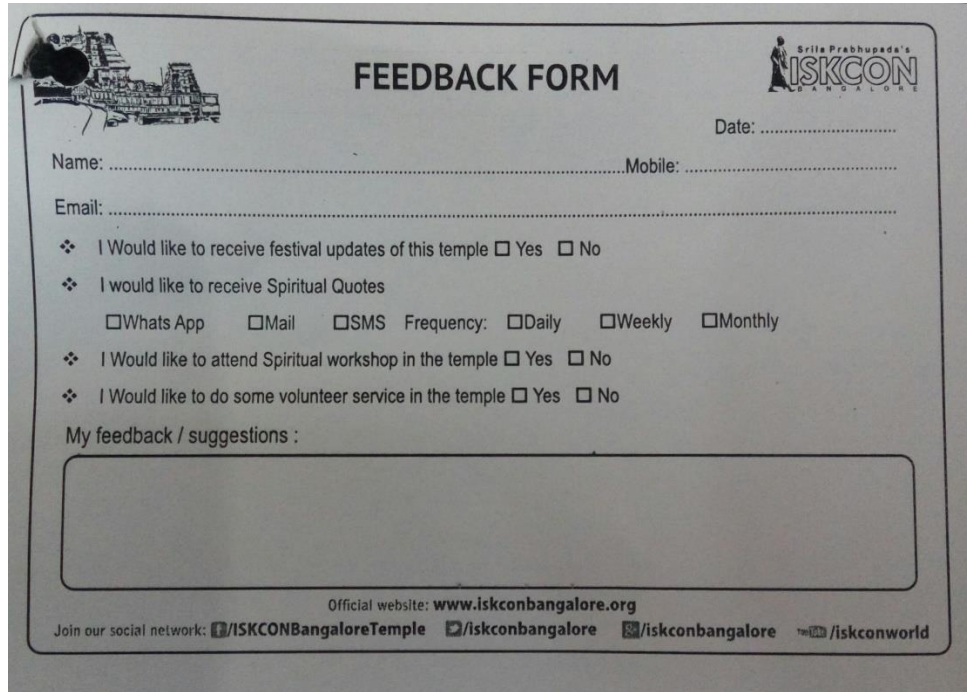*'E.g. Temple is clean and well maintained, but it looks like a mall with way too many shops.'*

"Neutral type" is just giving facts.

'E.g. Temple will be opened till 12.30pm.'

After a few brainstorming sessions, Vignesh and Vinodhini identified the following decision points:

1) How do we reduce the manual effort and automate the current process?

2) How do we create a user interface (UI) that will make the entire data analysis more efficient? What open-source technologies should be used?

3) How do we perform a trend analysis with the given data?

4) How do we handle the multi-label classifications (positive, negative, neutral, mixed)? Is it necessary to have four classes? Can the mixed class be merged with either positive or negative class?

5) What kind of emotions would people have when they visit the temple? How do we analyze these emotions?

6) How do we handle Hinglish and other language comments?

7) What actionable items do we suggest for ISKCON based on text analytics?

Exhibit 1: Feedback Form

Source: ISKCON

Exhibit 2: Sample Data

Review ID	Source	Reviewer	Review date	Review Subject	Text	Review rating	Review Type
1	Facebook	Hari Shanker	10/8/2017		Excellent devotional place	5	POSITIVE
2	Facebook	Dr-Harsha Vardhan Reddy	10/8/2017		Hara rama Hara krishna Huge temple. Inside it having lot of shops.	4	POSITIVE
3	Facebook	Sujit Tiwari	10/8/2017	N/A	It is very good place to get peace of mind n pray to God... Hare ram Hare ram ram ram Hare Hare... Hare krishna Hare krishna krishna krishna Hare Hare..... I like this very much	4	POSITIVE

4	Google	Jason Zachariah	10/8/2017		I loved the architecture. But towards the end, commercialisation of the complex send a bit of bad vibe. Still, i liked the place a lot	4	MIXED
5	Google	Anand G	10/8/2017		Nice temple ... Whenever i visit, I feel very peaceful.	5	POSITIVE
6	Facebook	Anil Grover	11/8/2017		Jai mata di .....hare kreshna ji.....Jes jagha per parmatma ka VAAS hai..Vo jagha SAWARG se the SUNDAR hai.....AGR	4	POSITIVE
7	Trip Advisor	LizWaz	11/8/2017	Lovely temple	Worth a visit, beautiful deities, wonderful chanting and incense and prasad was offered, a delicious curried rice. Very clean and excellent gift shops.	5	POSITIVE
8	Trip Advisor	Vtvram	11/8/2017	A cultural complex	It is not a temple in the strictest term as the atmosphere of an Hindu temple is missing. It is more a picnic spot Visited May 2014	3	NEGATIVE
9	Trip Advisor	Krishna1906	11/8/2017	Pilgrimage	Divine and heavenly. Very neat and serene atmosphere. But one thing I do not agree is the forced sale of various products inside	5	MIXED

					the temple. Visited June 2014		
10	Facebook	Yassigue Roger Fofanan	12/8/2017		Spendid temple. Tres beau a visiter et propre. Reflète une image agreable a bangalore.	4	POSITIVE

Source: ISKCON

Exhibit 3: Data Dictionary for Online Reviews

Variable Name	Description
Review ID	<No description... review identifier>
Source	Social medium on which the review was posted
Review By	Reviewers name
Review date	Date of review in <dd-mm-yyyy> format
Review Subject	Title of the review
Text	Content of the review
Review rating	Rating given by the reviewer
Review Type	Labels given by ISKCON team

Source: ISKCON