

User Experience White Paper for
D604 Environment and Experiential Design
Course Instructor: Prof. Pradeep G. Yammiyavar

Ganga Aarti by Design

A dance of songs, flames and prayers



Arzoo Khare

184205007

Introduction	2
My Experience	3
What is User Experience?	5
Understanding the Experience:	7
Visceral/Sensory:	7
Behavioural:	7
Socio-cultural:	8
Maslow's hierarchy of need:	8
Understanding the System:	9
Role of Mythology	9
User-System-Designer	9
Conceptual Model:	9
User's Model of the System:	10
System's Model of the User:	11
Designer's model of the User's Model:	12
Dissecting the experience slice by slice [12]	13
Understanding the User	14
Users' Mental Model:	14
Characteristics of Mental Model:	
(Perception of a believer)	15
Parts of the brain	16
Attitude:	16
Adaptive Unconscious	17
Types of Experience	17
Flow Theory: Deliverables of Aarti	17
Understanding the Environment	18
Why do we bring the natural environment experience into the built environment?	18
How do we bring the natural environment experience into the built environment?	19
Conclusion	19
Resources	20

Introduction

On the surface, it seems Gods were devised to realize desires or change the destiny of mortal humans. But in truth Gods were a mode to help humans develop faith, belief and the strength to sustain reality. They were instrumental in imparting knowledge and concepts that were difficult to teach to the masses.

Overtime Gods have undergone tremendous transformation, so have the ways to reach them - *yagnas, aartis, pujas*, prayers and so on.

As lifestyle became more settled and less nomadic, the ritual of *yagna* was replaced by *puja* and *aarti* [1]. They became more affordable, less extravagant means of reaching the divine.

As in the case of Yagna, Gods were no longer expected to fulfil man's desires, instead, they were appeased and beseeched upon with offerings of food, flowers, clothes, jewels, incense and lamps - elements which doubled as ingredients of experience design.



My Experience

Pujas and Aartis are an experience designed to encapsulate preservation, tradition, mythology, and economy. Preservation of natural resources, keeping traditions and stories alive, and contributing to the economy and livelihood of people as a by-product.

So in Feb of 2019, I visited Benaras with my mother and we had the privilege of watching the Ganga Aarti. For anyone who hasn't seen the aarti before, I have documented my experience below, followed by a piece by piece dissection of the entire experience through the design lens. Let's dive in:

Witnessing the Ganga Aarti in Varanasi, I was mesmerised. That is amazing in itself because the mesmerisation came after a lot of disgust and disdain I felt towards the dirty surroundings.

The significance of aarti and puja was unknown to me. At home, barring Diwali and a few festivals I didn't see a lot of puja processions happening. I did see my father pray regularly but that consisted of an *agarbatti* and chanting. Puja as a ritual was never imposed on us.

The experience in Varanasi did not change my life, but the fact that despite overlooking ecological hygiene and throwing physical hygiene to the winds, I was mesmerised.

The onset is terrible, it's crowded, you do not have the patience for the crowd, and the older generation is mouthing foul words at you, they aren't forgiving. You feel a little lost. It is dirty everywhere. You enter barefoot, and it's a riverbank. Your first contact with water is not with your hands, it's with your feet. It's not exactly dipping your toes in the water, it is actually your feet stepping on a stone which has a little water, and then hitting the next stone which is dry. So congratulations you have dirty feet. Everybody is moving really fast, you cannot stop.

It takes a while but then there is a point where you get okay with it. The experience starts to creep up on you, Your feet feel cool probably because of the evapotranspiration taking place! You realise you have eased into the heat of the fading afternoon. Petrichor is at its peak. You can

smell the dark, dense smell of mud after rain, mixed with incense, flowers and fire. The constant ringing of bells has your attention at all times.

You pay for a little puja the pandit or priest helps you perform for wellbeing and prosperity just before the aarti and the fee also includes a clean spot close to the place where the aarti takes place.

After the transaction, the priest led us down a short, narrow staircase and there we were on the banks of the magnificent Ganges facing an array of boats waiting in anticipation for the evening Ganga aarti to start. The priest guided us to our spot and left to call the other priest who would conduct the puja. We saw him vanish back into the crowd. Even in its adorned state, I felt bad for the poor river. It looked dishevelled, strewn with plastic plates carrying flowers and other 'devotional paraphernalia'. I cleared the thoughts out of my mind, as the priest returned with a *thali* full of an assortment of flowers, colours and *diya*. Soon the puja began with the priest enunciating *mantras* and chants with great prowess, occasionally stopping and asking us to throw some specific contents of the *thalli* into the river. Throwing more things into an already suffocating river! We denied at first and tried to confer with the priest but to no avail. He was adamant and his only answer was that that's what was done years ago and hence continues to be followed. It was time and not logic that ruled tradition. The priest was young, he seemed sensitive towards our concern, but there was little that he could do. Moreover, he wanted to get done with the ceremony quickly as he had to go and conduct the aarti next. Reluctantly we gave in and dropped the contents into the river, every time giving a more regretful expression than the last.

But I cannot deny that when the puja ended, I had enjoyed it. I could smell the *genda* on the plate, the transition from throwing coarse, hard but displaceable rice, to the soft, smooth, petals of flowers for the *pushpanjali*, and the vivid, deep and crimson *rolli*, had me encapsulated in the process. The evening breeze was blowing on my skin, I could feel the warmth of the fire from the *diya* on my face. The beautiful smell of burning oil in the *diya*, the aroma of the essence in the atmosphere and the last glimpse of the *diya* as we gently left it afloat on the river. I didn't feel religious, but I definitely felt spiritual. We were not the only people doing that, along the bank there were several people doing the same thing, guided by their respective priests. For a brief period, it felt like being a part of something big.

In the end, the priest threw some holy water on us, it dripped down my scalp and suddenly vanished. Stimulating my scalp as it traced its way down my head. Next, we followed the priest back to where the aarti was set to take place. He led us to our spot and the aarti began.

It wasn't grand in terms of scale, its grandeur stemmed from something else, something so big, so magnificent that it's hard to describe in words. There were lots of people, segregated in terms of the money they were willing to pay for the better spot. Some sat on the steps, some on the wooden *takhats*, some on the balcony of the overlooking building (mostly foreigners). Yet somehow the stepped ghat managed to blur the lines of segregation. The bells were being continuously rung, and their long string passed along devotees who were eagerly awaiting their

turn. The sound was so loud that you had to shout on top of your voice to be heard by the person sitting next to you. The aarti was a synchronized act with the loudspeakers bursting out chants and hymns, people singing along, watching the pandits perform the aarti like mirrored performance. The air was filled with the smell of *capoor* and incense. Towards the end, the aarti flame was passed around and people gathered around it to soak themselves in the warmth and goodness of the flame. They rolled their hands over the aarti twice and then rubbed the warmness off their hands onto their faces and heads. Last but not least was the *prasad* distribution. The sweets and fruits offered to the Gods after the aarti were distributed among the devotees. The sweet box we received was from a storeroom nowhere near the aarti *sthal*, nevertheless, we considered it holy and happily went our way.

What is User Experience?

Something which is hard to define! It is hard to define because it is often a feeling or it affects the user in such a way that she/he doesn't realise which part of her/him was affected or how they were affected. All they can accumulate is that something affected them before, during and after the interaction with the system.

.... and What does the User Experience?

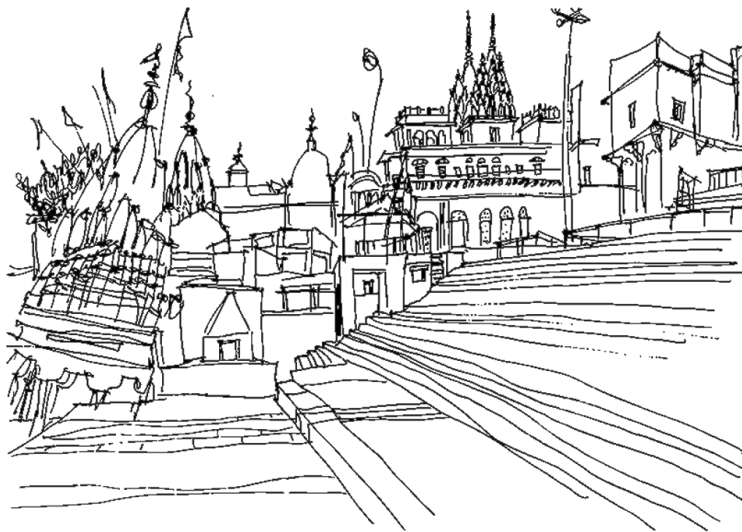


Figure 1: Before the Ganga Aarti (©Shutterstock)

Before the Ganga Aarti: The ambience of the ghat, the visuals, petrichor, the smell of *genda*, the cool stone steps under your feet, the sound of bells, and the surrounding crowd.

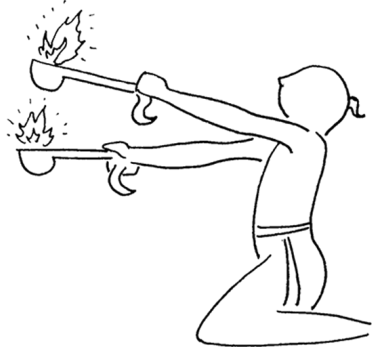


Figure 2: During the Ganga Aarti

During the Ganga Aarti: The performance by *pandits*, the sound of bells and conch shells, the smell of *capoor*, and the state of deep focus the user enters.

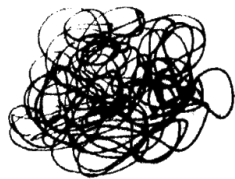
After the Ganga Aarti: The state of peace and calm, the user becomes absorbent to their surroundings, the sweet taste of *prasad*, and the warmth of the flame being passed around.



Figure 3: After the Ganga Aarti

The experience of a user can be defined as moving from one state to another guided by their past experiences, mental models, needs and desires, and supplemented by elements of experience design.

What induces a change in the state during Aarti?



1. Before the Ganga Aarti :
Tangled



2. During the Ganga Aarti
Resonates with the vibrations



3. After the Ganga Aarti:
Calm & Peaceful

Figure 4: Change in State of Mind

The body feels more relaxed {1}. After the heightened spirits, the enchanting music {2} and continuous throbbing of bells and conch shell that resonates with the chest {3}, the mind begins to soar high. The body achieves a release, an outlet for all the negativity and tension {4}. With the ceremony, it comes slowly to a state of calmness. They leave the ghats at a much slower pace {5}.

1. Physiological
2. Sensory/Feeling
3. Physiological
4. Cognitive Structure
5. Behaviour - Observation

Experience is the result of acquiring and stimulating change over time leading to change. [12]

Understanding the Experience:

There are three levels in which we can dissect the above-stated experience:

- **Visceral/Sensory:**

The elements, the visuals that the user captures at first glance. The sounds that ring in their ears and resonate in their chests.

Visceral preferences are based on our sensory perceptions and are heavily dependent on the look and feel of the product or system [13]. (We have evolved visceral responses that attract us to objects and environments that provide a survival advantage and repel us from those that pose a survival risk [14].)

- **Behavioural:**

Ability to meet the needs and wants of the user by altering the way people interact with the elements. For example:

One desires (read: prays) to be more humble.

How can rituals help achieve this goal?

Ans: Throwing elements into the water as an act of offering.

Logic: Reducing our stature to the mighty river, requesting her to accept the elements. An act of subservience. Connecting with our ego and bringing it under control. Nature is

greater than us. We aren't as great or powerful as we sometimes feel in our heads.

- **Socio-cultural:**

Involves giving in to our social needs and behaving like social animals.
Ganga aarti is a communal activity.

Whether it is grand because it is a communal activity or because it's a communal activity it reached a level of grandeur, is hard to tell.

But it's clear it is not a solitary event, it brings people together. It creates a sense of belonging in people. It brings different classes of people and knits them together with the fabric of prayer, devotion and business.

Maslow's hierarchy of need:

People outgrow myth and mythology when myth and mythology fail to respond to their cultural needs.[1]

	AFFLUENT USER	WORKING CLASS USER
Self Actualisation	Connect with oneself, inner peace. Strengthen faith	
Esteem	Respect, fame, glory, in terms of DONATIONS.	Recognition for work.
Love & Belonging.	Part of the Society.	
Safety Needs	Safety net for desires. Appeasing Gods	Source of employment Sustenance.
Physiological needs.	Respect towards natural resources. Clean rivers, clean air, arable lands.	

Figure 5: Maslow's need theory

Understanding the System:

Role of Mythology

Mythology constitutes stories, symbols and rituals that make a myth tangible. Stories, symbols and rituals are essentially languages—languages that are heard, seen and performed. Together they help build a culture [1].

From myth comes beliefs, from mythology customs. Myth conditions thoughts and feelings. Mythology influences behaviours and communications [1].

The challenge was to channel these thoughts, feelings, behaviours and communication towards a productive outcome. Thus to create a symbiotic relationship between people and culture, economics was introduced.

User-System-Designer

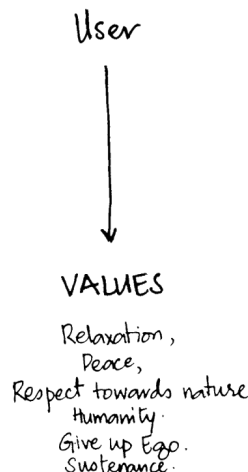


Figure 6: Conceptual Model

Conceptual Model:

\\ What the user actually needs to achieve.

An accurate representation of the target system. The goal is to help the user attain values. These values further help him/her realise their needs or desires.

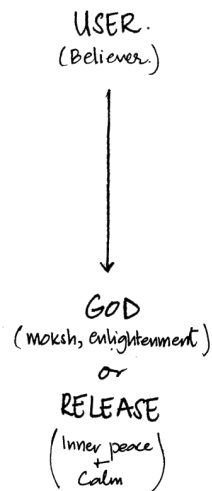


Figure 7: User's Model of the System

User's Model of the System:

\\ What the user thinks he needs to achieve.

How the user thinks the system works based on his interaction with the system. People believed in a higher entity (God), they knew they wanted to fulfil their needs and desires and they believed God could help them achieve their heart's desire.

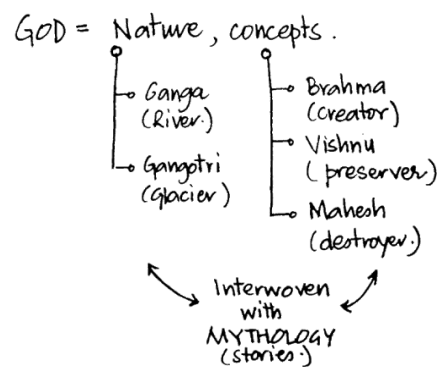


Figure 8: Idea of God

The idea of God was mixed with values users wanted to attain. For example, the idea of Gods and natural resources was interwoven with the help of mythology to communicate good practices to people.

In order to achieve a better yield, people prayed to the river. In this process, they looked after the river and prevented pollution. As a result, a cleaner and healthier river swept their fields, generating a good yield.

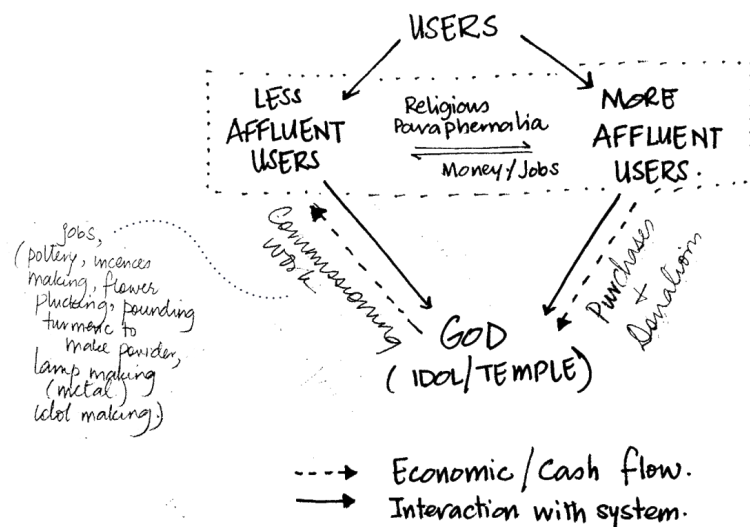


Figure 9: System's Model of the User

System's Model of the User:

\\ How the system places elements to help the user achieve what he thinks he needs to achieve and what he actually needs to achieve.

In affluence, the rich were expected to invest wealth in elaborate ceremonies that grant employment to artisans and priests while the poor were allowed to just focus on the philosophy, and not waste their meagre wealth on ceremony [2].

In order to sustain the good practices and the rituals, the system takes into consideration different kinds of users and other necessary information. Through the system of temples and *aartis*, the system sustains all its users. Thus to create a symbiotic relationship between people and culture, economics was introduced. The rich gave money and generated employment while the poor provided services revolving around culture and tradition like *aartis*.

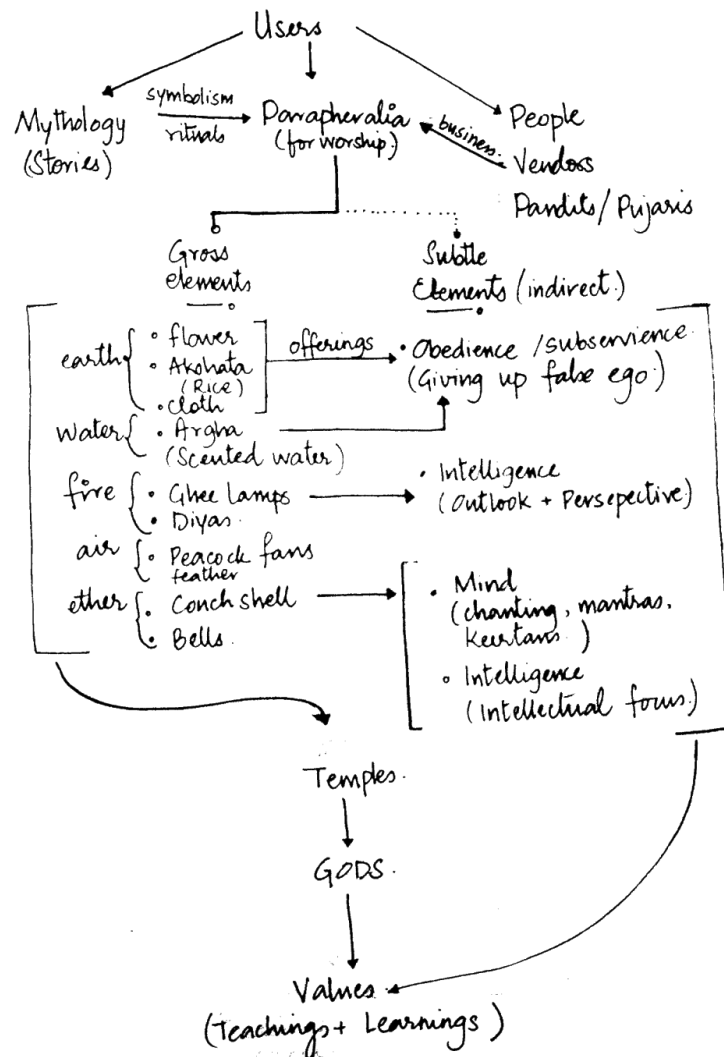


Figure 10: Designer's model of the User's Model

Designer's model of the User's Model:

\\ Successful amalgamation of all the other models.

Through the image of God, they attained values that helped them fulfil their needs and desires. So it seemed that God helped them fulfil their needs and desires.

The user interacts with other users which keep the economy running, they need the paraphernalia as instruments that help them interact with God, lastly, they use mythology or stories (as means of communication) to keep the tradition alive.

The paraphernalia is tangible which has the embedded intention of teaching the intangible. While the tangible elements help reach God, it is the intangible that help reach the values.

Dissecting the experience slice by slice [12]

Designing the Experience (Design)	Symbols, mythology and rituals that help communicate needs and desires [1]
Embedding the Experience (Cognitive Science)	Elements (Representations such as offerings) + System (The entire system of rituals, prayers, aarti) [1]
Constructing the Mediums {Usability Engineering (constructing the Product/Env/Service)}	Incorporating business, economy and people + Stories (Mythology) [1]
Experiencing the 'Experience' {Interaction Design (User is given control) }	Aarti + Puja. Incorporating natural resources. Ritual as a key lever in the local economy. Change in the state - open-eyed meditation.[2]
Monitoring the Experience (Usability Testing)	People in charge (Eg. Priests) + Rituals tied with daily life. Daily Ganga aarti, Ganga <i>sanaan</i> (bath).

Understanding the User

Users' Mental Model:

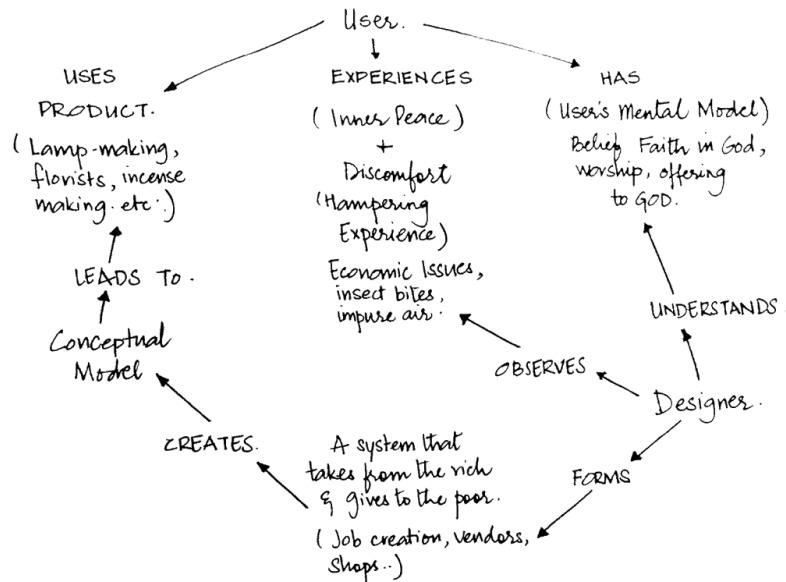


Figure 11: Schematic diagram of how users' mental model is used by designers

The simplest way to define it is the way the user interprets a system. Considering that the earlier majority of the population was illiterate, that challenge was to teach them things that benefit them without causing too much intellectual and logical load. This was achieved by wrapping knowledge in the fabric of rituals, superstitions and abstract entities. Its foundation was a strong belief and people dawned the personality of a devotee.

Characteristics of Mental Model: (Perception of a believer)

- **Incomplete:**

Users' idea of God is constantly evolving and often mouldable. While humans earlier worshipped elements of nature like Indra (God of freshwater rains), Varun (God of seawater), Sun God, Moon God, Yama (God of death and decay) and Kuber (God of treasures and growth) [1]. After introspection and questioning life and the mysteries of earth, Gods of nature took a back seat, and with the advent of puja, a part of a settled and less nomadic lifestyle, Gods became more personal like Ishta-devas, Kula-devatas, Graha-devatas and Grama-devatas [1].

- **Constantly evolving:**

The idea of God is subject to change over time. This constant evolution of the divine spectrum led to more abstract, ideal and immortal forms of Gods. From gods to Gods, from Varun, Indra, Surya, Chandra to Brahma, Vishnu, Mahesh, Saraswati, Laxmi and Shakti.

- **Not accurate representation:**

Despite being ideal, the idea of God is written by humans - often drawing from human characteristics and follies. For example the Mahabharat and Ramayan.

- **Simple representation of Complex Phenomenons:**

For some Gods are idols, for some they are 'desire fulfilling genies', for others they are 'a path to heaven' and so on.

- **Can be represented by if-then-else rules:**

WORSHIP -----> DESIRES FULFILLED

For example: If you worship the peepal tree in wet clothes early in the morning then barren women will be able to conceive.

WORSHIPPING PEEPAL TREE -----> HELPS WOMEN CONCEIVE

Black box: The reality being that Peepal tree gives high amounts of oxygen and oxygen is considered the best cure for hormonal imbalances in the body and helps bring undernourished organs back to normalcy including the uterus thus increasing the chances of conception. Wet clothes facilitate better absorption of oxygen. [5]

Parts of the brain



Figure 12: Pandits performing during the Ganga *aarti*

Language: Chants in Sanskrit, the way they are being sung, complimented by a background of bells and conch shells. Stories, symbols and rituals.

Memory: Recalling God, mythology

Visuals: The *aarti* performance.

Emotion: The sensations evoked by the experience. Different emotions of excitement, happiness, joy, peace sweep over you one after the other at different intervals, like waves of the ocean hitting the sand and receding slowly, making way for the next wave.

Wayfinding: Wayfinding during an *aarti* can be internal and external. For external wayfinding, the user tries to find his or her way around the *aarti*. Whether or not they are in sync with the rest, realising at what point of the *aarti* they are. Internal wayfinding begins and ends with the self, it's the internal journey to finding oneself.

Decision Making: Thinking about decisions to take. [12]

Attitude:

We harbour two kinds of attitudes (visceral and cognitive), one we choose to believe while the other is unconscious, a conditioned response that has been sedimenting over a period of time that we aren't even consciously aware of. The visceral comes to us instinctively without using a

lot of cognitive processing - they lean towards our pre-formed biases. The cognitive on the other hand use logical and analytical prowess.

Adaptive Unconscious

Our brain uses two ways to analyse or make sense of the external world. One is to make a conscious decision - this involves making logical and calculative choices. While the other involves a system in which our brains make decisions without making us aware of it. This is also termed as adaptive unconscious. [8]

Pulling these factors into the rituals to make sense of it in some form. Our embedded fear of fire is translated and used to bow down before it and worship it [13].

Types of Experience

Thus the experience of Ganga aarti can affect the user on multiple levels - conscious, preconscious and subconscious.

1. On a conscious level - the atmosphere, sounds, scents and chants please & calm the user
2. On a preconscious level - the user is made aware of the himself
3. On a subconscious level - everything (frequencies generated via om chanting, the ringing of bells, etc.) is aimed to enhance focus & concentration of the user, to better understand their inner selves.

Your experience resonates with your conscious, preconscious and subconscious self. The idea is to tap into one or a combination of the three to produce the desired result.

Flow Theory: Deliverables of Aarti

In positive psychology, a flow state, also known colloquially as 'being in the zone', is the mental state in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity.

- A sense of loss of self - immersion in the concept of God
- Focus - A ritual designed to harness complete attention
- Intrinsic rewards - Feel good factor (Affect)
- Immersion - through '*Bhakti*', devotion or worship

Understanding the Environment

Why do we bring the natural environment experience into the built environment?

Let's take the example of river Ganga as the natural environment experience. What people back then devised was a well laid out holistic approach towards protecting and preserving natural resources and humanity in the form of *aarti* - as a form of worship. The key benefits were:

1. **Change in outlook towards rivers and other natural resources:**

Often natural resources are elevated to the stature of Gods and Goddesses to protect them from any form of exploitation. Helps people be more grateful towards the rivers.

2. **The Science behind the Stories:**

It's often the stories that get carried forward, while the logic gets left behind. But the rituals and traditions most of the time have a reason behind it. For example, the ritual of smearing ashes in the holy river has a lot to do with the fact that bones are rich in phosphates which simultaneously increase the phosphate level in the water. This water then goes on to irrigate large areas of land along the river. [11][10]

3. **Circular economy: Save the river, land and people:**

One ritual is capable of hitting several birds with the same stone. Firstly after the rituals, people emerge calmer and more focussed. Secondly, phosphate from ashes in the river reaches arable land and improves its quality. Thirdly (this is a correlation I have made, I haven't been able to find proof for it) river Ganga is known to be miraculous because of its high oxygen supply [10] (This is the reason it has sustained untreated wastewater disposals for so many years [9]) and organic matter is known to reduce the oxygen levels in a water body[11]. Considering a time when wastewater pollution wasn't that common, the excessive oxygen levels would have proved fatal for aquatic life. To combat that the ritual of throwing various organic matter in the form of *Patravali* or *Pattal* (bowls made of dried leaves), mud *diya*, *rolli* (dry colour), rice etc. were born and merged as a part of the *aarti* and *puja*.

All this lent towards the experience of attaining peace through *Aartis*.

How do we bring the natural environment experience into the built environment?

Considering we have tackled why to bring natural environment experiences (for example rivers) into the built environment (man-made structures like ghats) let's delve into the 'how' of it.

1. The **design of the ghats** lends towards a communal feel. Aartis were a group activity as opposed to the act of puja which was a more singular or personal activity.
2. **Economy:** Investing in the economy attracts a lot of variables that ensure the smooth functioning of the system. The more affluent people of the society were expected to invest their wealth in elaborate ceremonies that helped generate employment for lamp makers, potters, florists, milkmen, priests and so on. An active push to the economy kept the tradition alive as well as the values it embodied.
3. **Paraphernalia:** The elements used in the ceremony, evoked different and more importantly multiple sensory stimulations. The coarseness of rice, the smoothness of colour, the clanging of bells, the rhythm of chants, the warmth of fire or the sweetness of *agarbattis* in the air, they collectively insured involvement and enhanced the entire experience.

Conclusion

Ganga Aarti can be defined as a controlled environment that helps people plunge into their memories, waddle deeper into their conscious to reach into their subconscious. They are then encouraged to tap into those parts of their inner being that helps them emerge mentally, emotionally, spiritually and physically stronger.

The Ganga Aarti is beautifully designed to benefit humans and nature alike. It teaches coexistence. It describes how humans need to behave to reap maximum benefit from their surroundings and in return it teaches them to respect their surroundings.

But sometimes traditions get so loud or so impervious that they leave no space for change or alterations. Somewhere down the line, we forgot about coexistence. We have burdened our rivers to an extent where they cannot breathe. We have replaced materials, from natural, organic materials to plastic. Also, the change in a language plays a role. As fewer people understand Sanskrit, the chants and mantra have become more ornamental than communicative. With the meaning lost, it becomes even harder to make suitable changes. Experiences are multidimensional, some that we are unable to comprehend. So the problem becomes how to sustain tradition and their effect without hampering the ecology.

Resources

1. Pattanaik, D. (2018). *The Significance of Puja*:(Penguin Petit). Penguin Random House India Private Limited.
2. Pattanaik, D. (2014, April 15) Lamp for the Gods. *Applied Mythology*. Retrieved from <https://devdutt.com/articles/lamp-for-the-gods/>
3. <https://www.nationalgeographic.com/photography/proof/2014/08/07/the-pyres-of-varanasi-breaking-the-cycle-of-death-and-rebirth/>
4. <https://www.nationalgeographic.com/photography/proof/2014/08/04/chasing-the-sacred-down-the-ganges-from-snow-to-sea/>
5. Tiwari, A. K., Chaudhary, I. J., & Pandey, A. K. (2019). Indian traditional trees and their scientific relevance. *Journal of Medicinal Plants*, 7(3), 29-32.
6. Mittal, B. (1988). The role of affective choice mode in the consumer purchase of expressive products. *Journal of Economic Psychology*, 9(4), 499-524.
7. Pimentel, R. W., & Reynolds, K. E. (2004). A model for consumer devotion: Affective commitment with proactive sustaining behaviors. *Academy of Marketing Science Review*, 2004, 1.
8. Gladwell, M. (2012). *Blink: the power of thinking without thinking*. CNIB.
9. Sharma, P., Meher, P. K., Kumar, A., Gautam, Y. P., & Mishra, K. P. (2014). Changes in water quality index of Ganges river at different locations in Allahabad. *Sustainability of Water Quality and Ecology*, 3, 67-76.
10. McBride, P. (2014, November 10) Chasing Rivers, Part 1: The Colorado | Nat Geo Live. Retrieved from <https://www.youtube.com/watch?v=xt5uJrWW1gE>
11. Alley, K. D. (2002). *On the banks of the Gaṅgā: When wastewater meets a sacred river*. University of Michigan Press.
12. Prof. P Yammiyavar Class notes DD604 Environmental and Experiential Design
13. Kiewe, H. (2006). *uxe White Paper: user experience engineering essentials*. Cell, 514, 963-6376.
14. Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1997). Motivated Attention: Affect, Activation, and Action. In P. J. Lang, R. F. Simons & M. T. Balaban (Eds.), *Attention and Orienting: Sensory and Motivational Processes* (pp. 97– 135). Hillsdale, NJ: Erlbaum.