



Guidelines inspired by rasa theory for designing VR experience

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Abstract:

The purpose of this study is to find out and understand how can we use the guidelines provided in Natya Shastra to create better experience for users in virtual reality.

We use Virtual Reality solutions to bring an immersive experience for users by connecting with them at an emotional level. Design for an emotions has been in discussion ever since design as an activity started. Authors like Don Norman have emphasized the need for visceral Design as entry point of the product acceptance by users (Norman 2005) Systematic studies have also revealed the importance of emotions in product acceptance decisions (Damasio 1994).

Bharat Muni has done tremendous work in Natyashastra which elaborates emotional responses generated in users mind (rasas) which can provide guidelines while creating virtual experience.

Concept of Natya Shashtra:

Bharatmuni talks about “bhavas” (imitations of emotions) that actor performs on stage and the rasas (emotional responses) they inspire in audience. While watching the play the audience’s mind imagines the emotions and resultant impact is the experience of the “rasas” which according to Bharatmuni is the primary objective of dramatic performance.

Each rasa experienced by the audience is associated with a specific bhava portrayed on stage. The hand movements, shapes and mudras show emotions as well as objects like fish, deer etc. tells a story. While creating VR experience we can use this knowledge to understand which bhavas can be used so that the expected rasas (sentiments /emotions) can be experienced by the audience.

According to Bharata there are eight sentiments (rasa). These are mentioned as follows.

1. The Comic sentiment: Hasya (Comic or farcical, not involving Cynicism)
2. The Pathetic sentiment: Karuna (Shoka : Sadness)
3. The Furious sentiment: Raudra (Krodh: Anger)
4. The Erotic sentiments: Shringar (Rati: Desire, Affection erotic longing)
5. The Terrible sentiment: Bhayanaka (Fear or terror)
6. The Heroic sentiment: Vira (Or Utsaha: Display of energetic enterprise, Bravery)
7. The Odious sentiment: Bibhatsa (Aversion or Loathing)
8. The Marvelous sentiment: Adbhuta (Wonder)

Rasa is an Experience.

The Main purpose of dramatic performance is to generate rasas. For Bharata without rasa, drama has no appeal to its audience. *“Na Rasadrite Kashchid arthah pravarte”*. Bharata famous sutra is *“Vibharambha -Vyabhichari sayogad Raasanishpattih”* it means rasa is produced by combination of vibhav (Any cause of particular emotions as felt by spectators), Anubhav (Sign, Indication of feelings by look and gestures) and Vyasbhichari or sanchari bhava (thirty three transitory states of bhavas).

Vibhav-determinants – Vibhav stands for the emotive situation which is presented on the stage and which in actual life would be responsible, for the emotion, which is shown by the hero. In drama Vibhav is represented to have two aspects (i) Alamban (ii) Uddipan: the object which is primarily responsible for the arousal of emotion is known as Aarambanbhav. Is a character due to whom and towards whom Sthayibhav is felt.

Uddipan : The environment, the entire surroundings, which enhances the arousal of Sthayibhav is known as Uddipan.

2. Anubhav-consequents- The physical change and movement which communicate Sthayibhav basic emotion aroused in the hero are known as his Anubhav. Anubhavs are of two kinds, (i) Voluntary physical changes known simply as Anubhav e.g. movement of eyes, eyebrows, etc. (ii) Involuntary physical changes known as Sattvik Bhava e.g. change of colour, horrification, blush, etc

3. Vyabhicharibhav-transient emotion: - Vyabhicharibhav- are like waves which rise from the ocean of the basic emotion and subside into the ocean of the same. They can have no independent being nor can they rise in isolation from and unaffected by Styayibhava e.g. Discouragement, Weakness etc.

4. Sthayibhav-basic emotion/Mental state:- The emotion state of mind is called Sthayi (basic persisting) because (i) It persists through all the stages of action in drama (ii) It is inborn in man’s heart (iii) It permanently exists in the mind of every man. There are eight fundamental emotions: Delight, Laughter, Sorrow, Anger, Heroism, Fear, Disgust, Wonder and the respective rasas arise from the mind. Erotic, Comic, Pathetic, Furious, Heroic, Terrible, Odious and Marvelous.

The context, communication, gestures play an important role in VR experience design.

Bharata talks about four kinds of abhinaya (acting or histrionics) They are the following.

- 1.By Body part motions (Angika)
- 2.By Speech (Vachika)
- 3.By Costumes and makeup (Aharya)
- 4.By means of internal emotions, expressed through minute movements of the lips, eyebrows, ear etc. (Sattvika)

The Marvelous sentiment / Adbhuta Rasa:

Rasa	Expression
Adbhuta rasa	

Adbhuta rasa		Circular hand Movement
		Expansion and contraction of eyes Legs spread outward

The marvelous (Adbhuta) sentiment has as its basis the psychological state of astonishment. It can be represented on the stage by consequents, such as wide opening of eyes, looking with fixed gaze, horripilation, tears, [of joy], perspiration, joy uttering words of approbation, making gifts, crying incessantly ha, ha, ha, waving the end of dhoti or sati, and movement of fingers,

joyful shaking of limbs, and the like. complementary psychological states in it are weeping, paralysis, perspiration, choking voice horripilation, agitation, hurry, inactivity, death and the like.

The Erotic sentiment: Sringar Rasa

Sringar a rasa



Sringara rasa



- Message to partner
- oval and smooth steps
- Slowly coming together
- Forming a union
- Two elements sharing a bond

The Erotic (sringara) sentiment proceeds from the durable psychological state of love (rati), and it has as its basis (lit. soul) as a bright attire; white, pure, bright and beautiful and is appreciated in love. For example, one who is elegantly dressed is called a lovely person (sringarin). Hence the Erotic sentiment has been so named on account of its usually being associated with a bright and elegant attire. It owes its origin to men and women and relates to the fullness of youth. It has two bases: union and separation. Of these two, the Erotic sentiment in union arises from determinants like the pleasures of the season, the enjoyment of garlands, unguents, ornaments, [the company of] beloved persons, objects [of senses], splendid mansions, going to a garden, and enjoying [oneself] there, seeing [the beloved one], hearing [his or her words], playing and dallying [with him or her]. It should be represented on the stage by consequences such as clever movement of eyes, eyebrows, glances, soft and delicate movement of limbs, and sweet words and similar other things.

The Furious sentiment / Raundra Rasa:

Raudra rasa		
Raudra rasa ¹³		<ul style="list-style-type: none"> Explosive energy Jumping, elevated posture Expanded eyes with hands Fast paced, random and full of energy Faster beats

The Furious sentiment has as its basis the psychological state of anger. The Furious sentiment is full of conflict of arms, and in words, movement and deeds are terrible and fearful. Its actions are beating, breaking, crushing, fighting, drawing of blood, and similar other deeds. This is to be represented on the stage by means of consequents, such as red eyes, knitting of eyebrows, defiance, biting of the lips movement of the cheeks, pressing one hand with the other, the release of many missiles, cutting off the head, the trunk and the arms, and the like, complementary psychological states in it are presence of mind, determination, energy, indignation, restlessness, fury, perspiration, trembling, choking voice and the like.

The Terrible sentiment / Bhayanak Rasa:

Bhayanakam rasa



Bhayanakam
rasa



Open palms

Raised eyebrows

Palms show fear and division
14



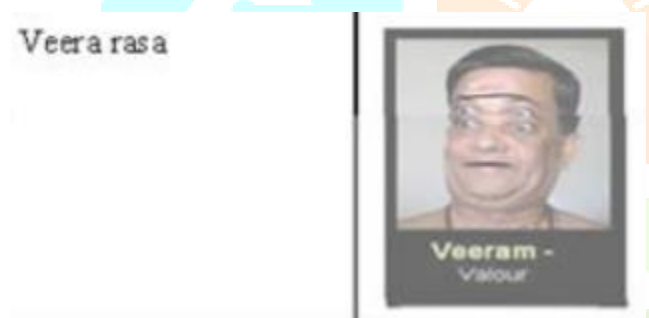
The Terrible (bhayanaka) sentiment has as its basis the psychological state of fear. This is created by determinants like hideous noise, sight of ghosts, panic and anxiety due to [untimely cry of] jackals and owls, staying in an empty house or forest, sight of death or captivity of dear ones, or news of it, or discussion about it, battle, entering an empty house or forest offending one's superiors or the king. It is to be represented on the stage by consequents, such as trembling of the hands and the feet, change of color, looseness of the limbs, the mouth and the eyes, paralysis of the thighs, looking around with uneasiness, dryness of the drooping mouth, palpitation of the heart, horripilation and loss of voice. Its complementary psychological States are paralysis, perspiration, choking voice, trembling, loss of voice, change of color, fear, stupefaction, dejection, agitation, restlessness, inactivity, fear, epilepsy and death and the like. This Terrible sentiment should be always represented by tremor of hands and feet, paralysis, shaking of the body, palpitation of the heart, dryness of the lips, the mouth, the palate and the throat.

The Odious sentiment / Bibhatsa (Aversion or Loathing):



Odious (bibhatsa) sentiment has as its basis the psychological state of disgust. It is created by determinants like hearing of unpleasant, offensive, impure and harmful things or seeing them or discussing them, disgusting sight, tasters, smell, touch and sound which cause uneasiness. It is to be represented on the stage by consequents, such as stopping movement of all the limbs, narrowing down of the mouth, vomiting, spitting, shaking the limbs [in disgust] narrowing down the mouth and the eyes, covering the nose, bending down the head and walking imperceptibly. psychological states in it are epileptic fit, delusion, agitation, fainting, sickness, death and the like.

The Heroic sentiment / Veer Rasa:



The Heroic (vera) sentiment, relates to the superior type of persons and has energy as its basis. This is created by determinants, such as presence of mind, perseverance, diplomacy, discipline, military strength, aggressiveness, reputation of might, optimism, absence of surprise, influence and the like. It is to be represented on the stage by consequents, such as firmness, patience, heroism, charity, diplomacy firmness, patience, pride, energy, aggressiveness, influence and

censuring words and the like. Complementary psychological States in it are contentment, judgment, pride, 13 agitation, energy (vega), determination of purpose, indignation, remembrance, and the like, there are two Aryas [on these points].

The Pathetic sentiment / Karuna Rasa:

Karuna rasa



Karuna rasa



Slow motion
Every movement from face to hands form an arch
Bent knees, bent hands, bent palms, add to the emotion

The Pathetic (karuna) sentiment arises from the psychological state of sorrow. It grows from determinants such as affliction under a curse, separation from dear ones, loss of wealth, death, captivity, flight accidents, from seeing the death of a beloved person, from hearing something very unpleasant or any other misfortune. This is to be represented on the stage by means of consequents such as, shedding tears, lamentation, dryness of the mouth, change of color, drooping limbs, being out of breath, loss of memory, weeping loudly, fainting, lamenting and bewailing, exerting the body or striking it and the like. Psychological states connected with it are indifference, languor, anxiety, yearning, excitement delusion, fainting, sadness, dejection, illness, inactivity, insanity, epilepsy, fear, indolence, death, paralysis, tremor, change of color, weeping, loss of voice and the like.

The Comic sentiment / Hasya Rasa:



The Comic (hasya) has as its basis the psychological State of laughter. This is created by determinants such as, showing unseemly dress or ornament, impudence, greediness, quarrel, defective limb, use of irrelevant words, mentioning of different faults, and similar other things. The Comic sentiment) is to be represented on the stage by consequences like the throbbing of the lips, the nose and the cheek, opening the eyes wide or contracting them, perspiration, color of the face, and taking hold of the sides. Complementary psychological states in it are indolence, dissimulation, drowsiness, sleep, dreaming, insomnia, envy and the like. This (sentiment), is of two kinds: self centered and centered in others. When a person himself laughs, it relates to the self-centered (Comic sentiment), but when he makes others laugh, it (the Comic sentiments therein) is centered in others. As one laughs with an exhibition of oddly placed ornaments, uncouth behavior, words and dress and strange movements of limbs

While designing screens we have a certain logic set to understand which design components can be used to cater user needs and goals so as to provide better experience for user, but while designing VR experience there are not many laws are available to provide an information about which component (here component means language, gesture, colors, music , set and dance) will evoke the expected emotional experience for user.

Here Natyashashtra comes to our rescue. There is a possibility to borrow some of the visual language that ancient Indian treatise, Natya Shastra had introduced at the level of dance and drama which was also a 4th dimensional presentation.

Natya Shashtra Can be said to be an authoritative text of knowledge where the world depicted in drama is no less real or valid than the supposed real world in which we live. For Bharata the world of Drama is as real as this world.

Natyashashtra is referred to as fifth veda. Many commentaries have elaborated and expanded the scope of the Natya Shastra such as Bhatta Lollata, Bhatta Nayaka and Abhinav Gupta.

Abhinav Gupta believed that while watching a performance the individual goes beyond the realm of the personal, that is when the viewer experiences rasa. In Virtual Reality sometimes we change the entire context of reality and take the user to a different state hence we have to

think about context, environment, gestures Expressions of other characters set in virtual reality so that expected emotional response will get triggered in audience mind.

Conclusion:

As Don Norman has stated, Technology may change rapidly but people change slowly. The principles of design came from understanding people. While designing screens in real environment we have certain principle set to understand which component can be used to cater user needs then we also tend to validate it during testing. Similarly, studies done in Natyashahstra about bhavas, colours and gestures can be used as reference for creating virtual reality experience. Principles or aesthetic guidelines set for designing UI Screens will not be enough for creating virtual experience because in Virtual Reality more agencies are available for user to take actions (More ways of taking action). User can perceive information as if it is in real world and take actions using gestures, speaking or clicking, walking etc.

Hence Natyashastra can be used as guideline for creating Virtual Reality experience further as per recommended in design process testing can be done with users to validate and test the experience with users.

Bibliography:

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Natyashashtra part 1 and part 2