

Interlinking Sustainable Practices along with Human Psychology to Achieve Better Future Post Covid

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ABSTRACT: COVID 19, a wakeup call for designers to socially contribute by rethinking the existing notion of uplifting and endeavor to intervene for the betterment of mankind. During the Pandemic period everyone around the world has awfully suffered. The house arrest situations overall resulted in a negative psychological experiences which adversely impacted the wellbeing of human race. Across the globe were the discussions and highlights on depressive symptoms observed in people, people walking miles to their home towns with their families leaving back the livelihood for which once they had migrated for. The dreadful situation caused hustle and bustle in every corner of the country. One should know, there is a strong connection between the environment and its created living beings. Everything correlates here. Our actions affect the environment and so vice-versa. And hence, it is essential to maintain the balance between both. And the space where a person spends maximum time gets emotionally attached to the space. If the space/environment is not comfortable, it might give a negative impact on the emotional wellbeing of a person. This kind of a situation is recently arrived due to covid 19. We can observe maximum people are getting irritated or mentally disturb due to monotonous activities by sitting at their home. As urbanization have built technologies and encouraged the world to engage into it which brought down the human and environmental connection. As a result the natural energy consumption is increasing, Environment is polluting and hence the health of human beings is also suffering. Here, there is an essential need to give a thought over sustainability without harming the environment. Thus the paper will look through the lens of sustainability and psychology under the parameters of how one could increase efficiency, improvements in conventional appearance and enhanced experience of the habitat and the environment. The paper will further try to find the relation between sustainability and psychology, so to take some implemented measures in the form of strategies to help in creating a positive environment and stressful experience for the human kind.

Keywords: Pandemic, Human psychology, Value addition, Sense of belonging, Place attachment

I. INTRODUCTION

The rapid Urbanization has changed people's needs and accordingly the dependencies between our habitat and the outer urban environment is getting transformed. Due to COVID -19, we can observe that a lot of everyday time is spent within an enclosed built-up area, especially at home to avoid community transmissions. People are avoiding stepping out of their homes and trying to access the shops for buying daily needs rather than accessing faraway places like malls and supermarkets, etc. This scenario has adversely impacted on the economic, environmental, physical and psychological parameters of people's life across the globe. So, it is an intrinsic need to create necessary awareness to overcome these impacts through strategic steps. Spending every day in the houses means consumption of energy to its maximum level

that reflects maximum electricity bills. And it is affecting economically to a household where the daily wage is the only source of income. This situation actually benefits the environment as factories or other mass-consuming units demand has reduced. It is all interconnected. So, we started wondering, if we as humans, exploited the environment and now the environment itself is restoring. The Pandemic situation has not come overnight; it was our call on maintaining an environment clean, livable and pollution free. So, as urban designers and thinkers, why don't we think to achieve a sustainable habitat and surrounding environment to maintain the environmental balance?

If we could think on the sustainability issues of sustainability and health, we would have avoided these mutations of viruses. On the other hand, this situation has

affected people psychologically too. Anyone can imagine the situation of a person in the above example of a household, in which the daily wage is the only source of income during this lockdown period. Usually, when entering into a space and experiencing the negative psychological effect, that means there is a need for an appropriate space, volume and style (dayananda, 2014) For instance, there are too many objects in a small room placed in an inappropriate manner, the walls had faded in color over a time period and the room has just a small window enough for ventilation. Here, one could feel depressive and suffocated, even though there is enough air flow. Contrary to this, the large indoor space with less objects would create a lonely psychological effect. And the outdoor space, surrounded by buildings has a huge scale with the absence of volumetric and styling elements like streets, Street lights, play areas, trees, jogging areas or natural trails etc. would never give a calming effect to the emotional moods. And Contrary to this, a smaller outdoor area with too many elements would create confusion and less attachment with the space. This signifies that the spatial characteristics unconsciously influence and govern human psychology and .Thus, everyday space is also important for people for living healthy emotional beings. If we think about the above scenarios through this above example, the imagination goes worse. We all had spent our entire time at home during this period of multiple lockdowns. And we all had experienced this everyday pressure of increasing cases and deaths from this disease. We all as a professional could work from home. But when it comes to the livelihood which one has to serve daily. We have also seen in the daily news, its life threatening.

During and after this pandemic situation, it is important to pay attention to the physical surroundings and rethink our daily habits in the build environment by working on area designing and its implementation. As a part of demonstration, this paper is looking into the case of worli koliwada which is one or the oldest settlements and also known as the origin of Mumbai. Recently it was also the COVID 19 hotspot and now recovered. Before COVID 19, it was a tourist location as it is seen from sea link and a heritage walk to visit the heritage buildings, fort within the area, and the tourism will continue after this pandemic. It is a historically developed settlement belongs to the fishing communities and known for beautiful environment and where each corridors or lanes leading towards the sea horizon .The paper will try to study and apply sustainable and psychological aspect to few lanes of koliwada. To create sustainably and psychologically strong impact on the environment and the people living there through design strategy approach.

II. HUMAN PSYCHOLOGY

Defined by American Psychological Association, Human psychology deals with behavior patterns and state of mind of an individual.(J.legg, 2018) We as a human everyday interact with a society we are a part of since birth. Thus there are many biological influences, social pressures, environmental factors and many are parameters that affect our state of mind, the way we think and act every day. Psychology is a very broad term which can be understood at many different levels. Understanding the relation between the environment and human psychology becomes very much important as it has a great influence on one another whether it be natural or manmade. Also this may help us in designing better environments or spaces that have ability to affect human's behavior and vice versa. Here we are going to focus more on the relation of Psychology and Architecture of designing these spaces. As at many points they tend to intersect with each other. Psychology can be further studied with respect to efficiency, appearance and experience parameters.(Kendra cherry, n.d.)

Human behavior responds to space, volume and style, this creates an environment together. It refers to the physical and emotional capacity of human individuals to engage themselves with surroundings. (Isabel Urdapilleta, 2006)We generally tend to be inside the walls of our house maximum time of the day. Thus we have special attachment to the place we live in. This attachment or sense of belonging to the place is because of the connection with every object inside the house, the people, and all other tangible and intangible factors. This space has had a great impact on our minds and behavior and also our mental health. It tends to change our mood depending on the environment around the house. Thus we can see that the same space can have different impacts on every individual. So, we create more effective and sustainable spaces by understanding human psychology, their expectations and how they interact with that space.

Spatial characteristics such as color of the rooms as specified above if is dull or darker shade it creates sense of depression as light which falls on the wall with dull color Does Not get reflected back which creates darkness in the spaces. Similarly if the roof of the space or room is very high its makes the volume of the room look very big on other side of the roof of the space is very low it creates a feeling of trap in room making a person uncomfortable in such spaces. Also it restricts the feeling of freedom in such spaces.

Whereas COVID 19, the traumatic experience taught us that longer home stays could be so traumatic that such experiences create depressing situations. And we should be mentally prepared for such upcoming new normal. Our everyday is associated with our own home, and we did not think through this before. It is not just the COVID 19 pandemic, but it is an alarming call to keep ourselves healthy and should make us think through sustainability parameters. We all know, choosing sustainability means opting for the healthier option which reduces negative impact on the environment. So, why not make our home and the surrounding environment sustainable in nature?

III. INTERLINKING ENVIRONMENT SUSTAINABILITY WITH HUMAN PSYCHOLOGIC UNDER THE LENS OF EFFICIENCY, APPEARANCE AND EXPERIENCE:

1. Efficiency- Well ventilated space and a positive environment within the house.

During the pandemic, the home stay is the strict action was made by the various countries' governments. As one is only allowed to stay at home, those homes having not enough light and ventilation or size of the opening is less, might have suffered from depression as no inside and outside connection is maintained. Meanwhile, those houses having enough opening or balconies would enjoy nature, have conversation and relax that mind. So it's important to have enough windows or openings through which a person can see the outside environment and have a positive stress free mind.

The Planning should be done in such a way that it should not create any dead space .There should be a balanced length, width and height of the room depending on the function of the room The height of the hall can be kept bigger but not of the bedroom. Avoid Long passages in the residence and design the space along with furniture depending on the use of space. The kitchen work triangle for smooth working in the kitchen. In fact, while designing the building the Ergonomics should be considered for a cozy and relaxed environment. And in terms of efficiency, sustainability can be achieved through appropriate materials. And the materials should have the features such as:

1. Reduce maintenance and replacement cost over the whole life of the building
2. Conserve energy

3. Give flexibility in design
4. Give good and positive appearance
5. Have a long life and can sustain in the regional climate.

There can be natural as well as manmade material which can be sustainable or which can convert into sustainable using effective techniques. Some of the recycled material also come into this category.

Sustainable and economic building blocks:

Sustainable wall: A large variety of sustainable materials are available in India which can be replaced from conventional building material at various stages of construction. Some of the sustainable materials used for walls are: Bricks / Blocks Stabilized compressed earth blocks, Fly ash, Lime Gypsum bricks, Clay Fly ash burnt bricks, Marble slurry bricks. Hav Kongngy, a social entrepreneur from Cambodia, has developed a concept of 'My dream home' as affordable green housing. It utilizes an interlocking brick system to achieve sturdy construction with no construction skills required. This concept reduced the cost of two storied buildings up to 20-40%.(hav, 2016)



Figure 1 Ferro cement wall panels
Source: [slideshare/shivangi5796](https://www.slideshare.net/shivangi5796)



Figure 2 Fly-ash Sand Lime Gypsum Bricks
Source: [slideshare/shivangi5796](https://www.slideshare.net/shivangi5796)



Figure 3 Clay fly-ash Burnt Bricks
Source: [slideshare/shivangi5796](https://www.slideshare.net/shivangi5796)

Sustainable roof:

"You look at the roof, it has all these holes and you ask them: what's going on? And they say we have no other option," says

Mr Ganatra, the owner of Modroof- an Ahmedabad based NGO which had come up with the cost effective roof for urban slums.(TMD STUDIO, 2017) What we see maximum as a roof material in slums are metal and cement corrugated sheets but these options are uncomfortable and dangerous to health. This roof is custom manufactured from agricultural and packaging waste. (modroof.in)

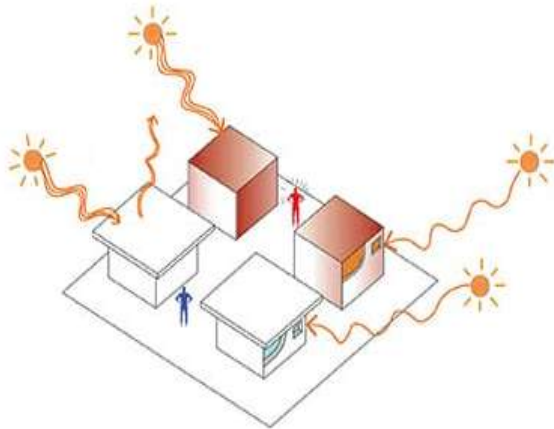


Figure 2 Strength of mod roof
Source:modroof.in

The Sustainable decision support system (SDSS) was used to compare between the sustainability of Eco-friendly structural system and the conventional structural system in order to determine which one is more sustainable



Figure 3 Strength of mod roof
Source:modroof.in



Figure 4 Heat –Resistant construction material
Source: www.sallan.org

Materials	Eco-friendly structural system		Conventional structural system	
	Weight (kg)	%	Weight (kg)	%
Concrete	14,016	49.03%	42,432	56%
Steel *	548	1.92%	1,903	3%
Cement bricks	7,700	26.94%	31,350	41%
Rice straw bale	6,000	20.99%	0	0%
Polyurethane Foam**	260	0.91%	0	0%
Rockwool	60	0.21%	0	0%
TOTAL	28,584	100%	75,685	100%

* Steel reinforcement for RC & M2 system as well as wire mesh for walls
** Polyurethane foam used for M2 system

Table 1 Sustainable decision support system
Source: slideshare/shivangi5796

Appearance-Helping in creating positive impact on human physiology:

Colour- The very less known factor of appropriate colour specification is its role in creating a comfortable environment. Lower light reflection causes the pupil to dilate and the reverse is true for higher reflection. Whereas Colour always plays an important role in changing mood and ambience of the space. Hence use of colour in a space is not only for decoration but also many other purposes. These colours create their own energy. For instance, if a blind folded person is standing in front of a Red colour wall it increases the pulses while blue colour will decrease the same.(TMD STUDIO, 2017) The psychological impact of any colour on a person is majorly dependent on the age group .Younger people prefer primary colour, while older people prefer subdued colour. The same exists with introverts and extroverts. Hence care should be taken while choosing any colour.

Material selection also has a relation with human psychology. Climate friendly material should be chosen which creates a positive impact on the human body. For instance. In hotter regions try to use material like red sandstone, etc. which cools down the internal temperature rather than using heating material. Also the appearance of the material matter, if the appearance is too dark or rough it impacts differently than light smooth color. Hence material should be chosen according to the function and requires appearance of the space. One more example, Earthy colors such as shades brown as well as materials which are extracted from nature such as

compressed soil blocks, earth plaster often creates a cool effect in the internal environment. Environment should have a combination of warm and cool colours and the interior of the house should have a cooler colour pallet. It is because dealing with an Indian climate, we do have hot and humid climates in most of the regions and in some regions we have experienced extreme climatic conditions. In India, as you move up towards the North you will experience the cool climatic conditions where warm colours and materials would give a positive effect with respect to slums. And when you move down towards the South, it's more hot and humid climatic conditions where cool colours would leave a positive impact considering the temperature value.

IV. EXPERIENCE

This is the main criteria which impact on the psychology of human beings. When one person is spending time in space one must feel positive. This positive impact will be achieved by implementing the above two points in a correct manner. For the already existing building the positive experience can be created by a little alteration. For instance, if the space is feeling very dead or inactive then plants or small waterfalls can be added to transform the place into an active place.

More use of light colors in the living room can help to make the area active, while darker color can be helpful for storage places.

V. INFERENCE

After studying and analyzing the psychological and sustainable parameters, we are endeavoring to demonstrate how these two concepts would be implemented and add value to the urban fabric, so we can achieve healthier and happier future.



Inferences at surrounding level
Source: own author and cept report



Inferences at surrounding level

Source: own author and cept report

VI. CONCLUSION

As an Urban thinker and professional, the concept of sustainability and psychology is correlated and need not be costly to execute. Sometimes, strategic tactics enhance the urban experience. Rapid urbanization often creates chaotic situations. For instance, in metropolitan cities like Mumbai, Kolkata, Delhi and Chennai, one can see slum proliferation over the years. Slum is not just a chaotic space but it's an affordable home for urban poor. It is a home which is nearby from the workplace or amongst most of the population, it is itself a workplace. During lockdown, we had come to know this fact that our cities work with all the income groups. We were listening to this daily news that most of the population returned to their villages to feel safe. Our cities are in the making of income machines but not immune to providing healthier and liveable life. If we want to maintain the harmony of the cities, then sustainability and psychology would go hand by hand. And this would be affordable to every section of the society.

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