

Autistics Exploration in Scientific Research And Technology
Dr. Bitasta Das
Department of UG Humanities
Indian Institute of Science, Bengaluru

Lecture – 22
Recapitulation

Hello friends in the last class we have seen some examples from the Indian Institute of Science what the undergraduate students have done in as part of the humanities curriculum. We have seen how art is brought together with science and technology and what new things are created bringing this two together.

The point was to show you that it is indeed possible to have a dialogue between the arts and science and technology this was to show you that a meaningful dialogue, a meaningful exchange can happen when you bring two these two disciplines together. So, in the last two classes that we are going to have I wanted to point out the important points of this course. So, in the next two classes we will see what are the important take-home points from this course.

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The two domains

The two domains of knowledge—science and humanities are seemingly different. While certainty and accuracy are the attributes of science, humanities advocates creativity and critical thinking. Science is the study of the natural world whereas, humanities is the study of human civilization and culture.




Photo credit: (https://undsci.berkeley.edu/article/whatiscience_01)

Photo credit: (<https://www.sciencemag.org/careers/2015/03/oh-humanities>)

So, let us begin Recapitulation. So, we begin with the idea that the science and humanities are too discrete disciplines and a very little interchange is happening in the present times. We do not see any interchange between them, we do not see a dialogue between them, we do not say anything coming out from this two disciplines together.

The point of this course is to bring together discrete disciplines that are thought very separate, very different, and see what are the responses that are created when you bring these domains of knowledge together. The two domains of knowledge, science and humanities, are seemingly different while eternity and accuracy are the attributes of science, and humanities advocate creativity and critical thinking. Science is study of the natural world, whereas, humanities is the study of human civilization and culture.

So, we will begin with that saying that in the present tense these two domains of knowledge are kept separate from each other, we do not bring them together, we do not try to understand them in the same way, but, so, what happens if we try and bring them together and try and make a dialogue between them. So, this was the point that is started with and that was the focus of the course that we are trying to have a coordination between the two discrete domains of knowledge.

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Origin of disciplines

The 1800's started to see the development of the modern disciplinary systems. The disciplines that we know today started as scholars specializing in a field of interest. As knowledge along with communities grew, the need for professions grew as well, and these communities and professions carved out the academic disciplines.

Mathematics and music were some of the first disciplines that were taught in the Greek era. In the evolution of education, when Plato opened his academy, he taught social issues such as politics and education alongside the already established discipline of mathematics. Continuing with established disciplines, the Romans decided to focus more on the discipline of law.

The earliest universities in Europe in the 1000-1100s taught such disciplines that were occupationally based, especially in a religious sense. Through the evolution of the disciplines, a mere 200 years after the first universities in Europe were established, it was determined that higher education should involve either theology, law, or medicine, as well as the arts. With the growth of education, the universities started to see the development of professional schools which specialized in law or medicine. Academic societies and journals emerged.

The development of the disciplines we know today has been an ongoing process since the beginning of human communication. The basis of knowledge formed into a specialization which eventually turned into the disciplines from various consultations of like-minded scholars. The basic disciplines that we know now such as fine arts, humanities, social sciences, sciences, and mathematics are still ever changing.

(<https://press.rebus.community/idsconnect/chapter/the-history-of-the-academy-and-the-disciplines/>)

Then we begin with discussing about the origin of disciplines, we have seen that in the very early time there was hardly any difference between them, they are hardly anything who came under the bracket of education, everything was taught under the bracket of education.

So, that an individual is a well rounded individual, but as time progresses there were changes that happened and disciplines originated, but there are plus points about having disciplines that become expert in certain fields, but there are minus points as well.

aware of what is happening in the other disciplines because you are not aware of the full picture.

So, we then discussed what how the disciplines originated, how does the two domains of knowledge the science and humanities became separate from each other. The 1800 started to see the development of the modern disciplinary system. The disciplines that we know today is started as scholars specializing in a field of interest. As knowledge along with communities grew, thus need for professionals grew as well and these communities and professions curved out the academic discipline. So, this is how it started gradually.

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The earliest university in Europe in the 1000 to 1100 taught such disciplines that were occupationally based especially in a religious sense. Through the evolution of the discipline, a mere 200 years after the first university in Europe were established, it was determined that higher education should involve either theology law or medicine as well as the arts. With the growth of education, the university started to see the development of professional schools which specialized in law or medicine. Academic societies and journals emerged.

So, this is the development that happened at different part of the world and in different times and how disciplines came to emerge in and they have quite different trajectories in different parts of the world. The development of the discipline we know today have been an ongoing process since the beginning of human communication. The basic of knowledge formed into specialization which eventually turned into the disciplines from various consultations of likeminded scholars. The basic discipline that we know now such as fine arts, humanities, social science and science sciences and mathematics are still ever changing.

So, gradually things became more specified people started to take interest in specified field of knowledge and this is how disciplines originated, but the policies and all also

have been made in the as time progressed to keep all these disciplines separate from each other.

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Crisis?

The worldview that Natural and Human Sciences are mutually exclusive has led to more crisis than one. This has restricted flights of imagination and limited creativity. This character of our imagination has restrained and restricted individuals right from primary education and continues till the higher education level.

So, is there a crisis do you do you think there is a crisis when we do not make the discipline talk to each other when we do not provide a platforms. So, that the disciplines can come together and have a meaningful dialogue, is there a crisis do we do we see a crisis there. The worldview that natural and human sciences and mutually exclusive has led to many crisis than one. This is a very well accepted idea that because we have made the discipline so discrete, so separate from each other.

So, distance from each other and remove from each other that there it has led to many crisis especially in the globalized worldview we were living in, it is necessary that we have we are cognizant we are aware about the developments that are happening in different disciplines, so to have a holistic picture of the world. This has restricted flights of imagination and limited creativity. This character of our imagination has restrained and restricted individuals right from primary education and continues till the higher education level.

So, this is a this is quite often lamented that because we have kept the discipline so removed from each other, it has restricted flights of imagination it has not been able to provide education has not been able to provide us with a complete holistic picture of the world.

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AIM OF THE COURSE

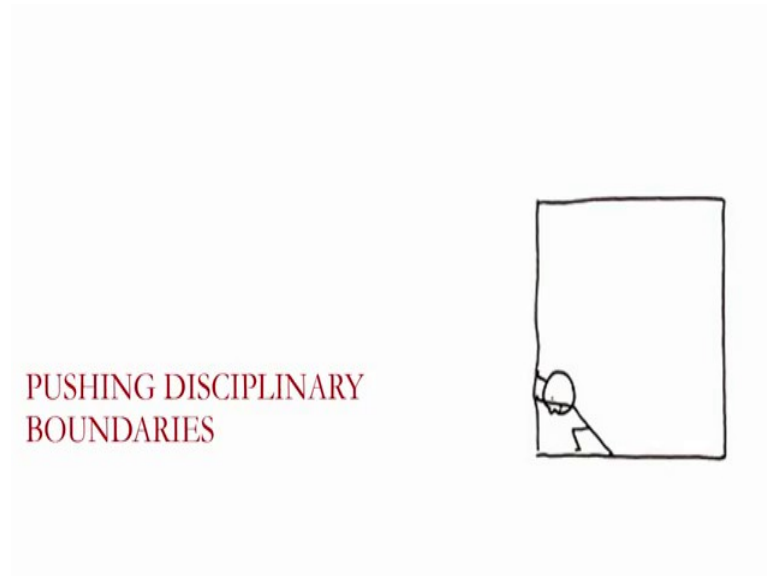
The aim of the course is **not** to use the folk arts as mere medium of communicating science and technological innovations but it is to demonstrate that both art and science are at par with each other and can interact with one other to produce novel creations. This is in accordance with interdisciplinary approach where two domains of knowledge come together, share and borrow, to create something new.

So, what is the aim of this course, why are we in having an interdisciplinary course? The aim of the course is not to use the folk art as mere medium of communicating science and technological innovations, but it is to demonstrate that both art and science are at par with each other and can interact with one another to produce novel creations.

So, I have been telling this again and again that in this course we are not trying to just merely show that science and technology can be represented effectively by art, but we are trying to do something more than that. We are trying to see that, the art and the sciences and technology are at par with each other and the both have a scope to represent each other effectively or have they can share and borrow from each other effectively. This is in accordance with interdisciplinary approach where two domains of knowledge come together share and borrow to create something new.

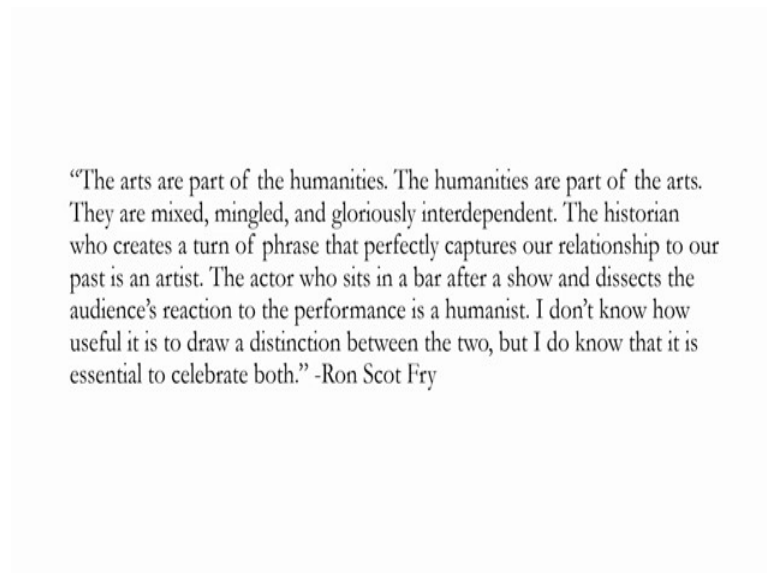
So, we actually trying to do a inter disciplinary kind of investigation or discussion or exploration where we see that when two domains of knowledge come together the product that is created is does not belong to one discipline itself, but it is something new you cannot call that it belongs to only one discipline, but is something new and it is very radical and different from the two disciplines that have created it.

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So, what are we trying to do here with this course? We are actually trying to push disciplinary boundaries. So, then we started a discussion regarding humanities and art because this course was about art and science and technology. So, we try and we discussed what how art emerged and what relationship it has with humanities.

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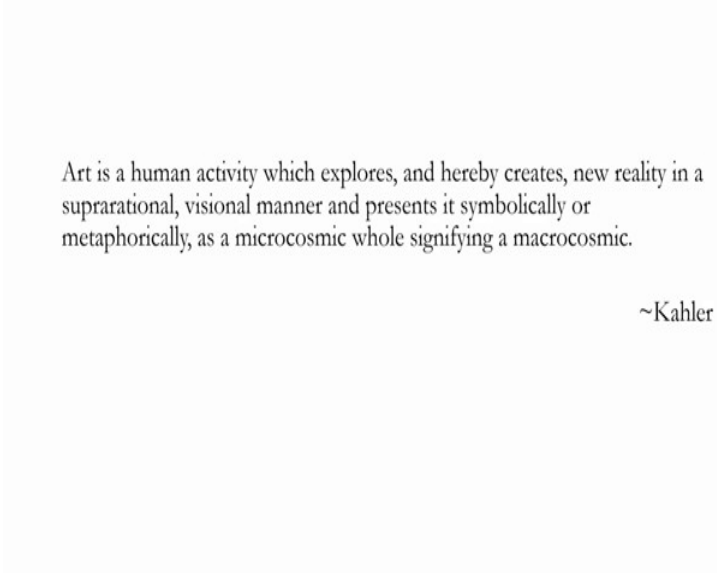


We have seen some of the scholars from the field talking about what their perception about humanities and art. The arts are part of the humanities. The humanities are part of the arts, they are mixed mingled and gloriously interdependent. The historians who

create a turn of phrase that perfectly captures our relationship to our past is an artist. The actor who sits in a bar after the show and dissects the audience's reaction to the performance is a humanist. I do not know how useful it is to draw a distinction between the two, but I do know that it is essential to celebrate both.

So, this is very famous saying by Ron Scot Fry that they are not different from one another and they might be different or they might not be different, but what is important is that we see the significance of both and we celebrate both. Then we discussed what art is what art entails.

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Art is a human activity which explores, and hereby creates, new reality in a suprarational, visional manner and presents it symbolically or metaphorically, as a microcosmic whole signifying a macrocosmic.

~Kahler

Art is a human activity which explores and thereby creates new reality in a suprarational, visional manner and presents it symbolically or metaphorically as a macroscopic whole signifying a macroscopic. So, this is what art means it is a human activity which represents to world in a very in a precise symbolic manner.

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What makes and object art?

- CREATIVITY
- SKILL
- ENGAGEMENT
- MEANING

What makes and object art, what are the what are the features that would call what to do that object would be call an art, what are the features the object has to have to be called an work of art? So, we discussed that; we discussed that. It has to have these four quality that is creativity, skill, engagement and meaning. Creativity entails aesthetic representation the how the imagination of the artist or the person who is creating the art is a statistically represented, so that is creativity.

Skill is the tools or by the talent by which artist is able to execute his thoughts or his imagination. Engagement is that the work of art has to have a dialogue with the person who is observing this work of art it has to engage or captivate the person . It has to tell something to the person who is observing it.

Meaning the work, the piece of object to be called an art as to have some meaning it is it is not a random thing it has to convey some meaning and it has to be of a product source of community communicating some ideas. So, these are the four things that would entail an object to be called as a art.

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Then after that we discussed the seven elements of art line, shape, space, value, form, then colour. Line as we see is when a dot move from one point to another the path it creates is called a line. Shape is when a line crosses a line crosses another line or the end of one line meets its the beginning of one line meets its own end and then its shape is created.

When a shape attains, the third dimension it is it it becomes form. Then space is where the that object it occupies that is called the space. Value is the the tone the the tone of a hue is the value it might be dark or it might be light depending upon the amount of whiteness or that a blackness in it that is the value um. Texture is the how the object feels what is the surface feels like that is the texture. Colour as we know are the different use the different variation of use that is the colour.

So, these are the seven elements of art which artist have experimented with the seven elements to create their own individual signature styles and we have seen artists doing experiments with line, experiment with shapes, experiment with space, values and they have created their own individual piece of work piece of art. Then we came to folk art as this course is about Indian folk art we then discussed what is the relationship of art and folk art what is the difference and what is the correlation that art and folk art have.

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- ❖ May be decorative or utilitarian
- ❖ May be used every day or reserved for high ceremonies
- ❖ Is handmade; it may include handmade elements, as well as new, synthetic, or recycled components
- ❖ May be made for use within a community of practice or it may be produced for sale as a form of income and empowerment
- ❖ May be learned formally or informally; folk art may also be self-taught
- ❖ May include intangible forms of expressive culture like dance, song, poetry, and foodways
- ❖ Is traditional; it reflects shared cultural aesthetics and social issues. It is recognized that, as traditions are dynamic, traditional folk art may change over time and may include innovations in tradition.
- ❖ Is of, by, and for the people; all people, inclusive of class, status, culture, community, ethnicity, gender, and religion

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So, folk art it is not a general art it has certain features, it has certain qualities. So, we discussed the qualities that we discussed essential qualities of folk art. So, we had initially said that a folk art is a creation of a community, it entails it in its essence is it has the cultural values of a community, it belongs to a folk community.

So, it may be decorative or utilitarian may be used every day or reserved for high ceremonies is handmade, it may include handmade elements, as well as new, synthetic or recycled components. May be made for use within a community of practice or it may be produced for sale or as form of income and empowerment. May be learned formally or informally folk art may also be self-taught.

May include intangible forms of expressive culture like dance, song, poetry and foodways. Is traditional, it reflects shared culture aesthetics and social issues. It is recognized that as traditions are dynamic, traditional form art folk art make change over time and may include innovations in tradition. Is of, by, and for the people all people inclusive of class, status, culture, community, ethnicity, gender and religion.

So, folk art is essentially a product of a community or product of a group and it carries all the essential elements to be recognized as a product from that group. So, it is actually a traditional product of the particular group.

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Classification

CLASSICAL	FOLK	CONTEMPORARY
Written and codified (Authoritative text)	Loosely structured	Incorporates a range of different styles to create its own unique look
Formally learnt	Orally passed on	Self-taught
Author is known	Author unknown	Individualistic
Represents a nation	Represents a region	Transnational
Survives time	Survives time	Short lived
Spiritual/Philosophical themes	Natural cycle/Mundane themes	Topical themes
Selected participants	Everyone participates	Selected participants

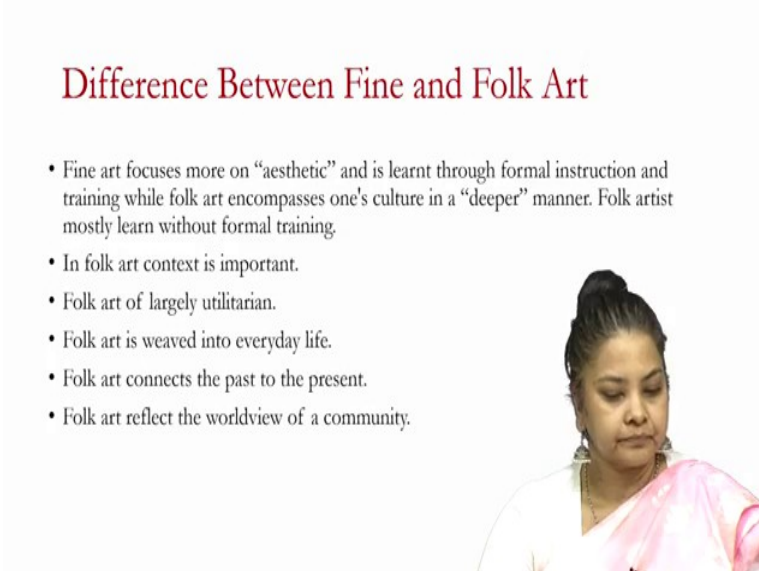
So, we also discussed the classification between classical folk and contemporary this was done to distinguish and to better understand what is what is folk and what it is not. So, we made a distinction between classical folk and contemporary to see to understand better, what a folk art is. So, classical is anything that is written and, I mean a classical art has to be written and codified, it has a strict code of strict strictly codified.

Folk is loosely structured and contemporary incorporates a range of different styles to create its own unique look. Classical is formally learned, folk is passed orally, contemporary is self taught, in classical author is always known. Folk this is very important distinction that the author may be unknown and contemporary its very individualistic. Classical represent a nation, folk represents a region and contemporary is transnational that is it it crosses the national boundary and it is it talks about humanity or it talks about issues. Classical survive time folk also survives time, where as we have seen in contemporary it is relatively short lived. Classical is may have spiritual philosophical themes, folk may be mostly its natural cycle mundane themes, contemporary is topical themes.

Classical selected participants because this codified, it is highly standardized only a few people understand the code; only a few people trained in that culture understand the code. So, the participation is very selected, where as folk everyone participates we have seen and the entire community participating in a artwork a in a dance or in a song. So,

you do not need a formal training for folk art, contemporary selected participants. Again it is because it is individualistic one has to understand the code the language of that art to effectively understand that form. So, it is a selected participants again.

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Difference Between Fine and Folk Art

- Fine art focuses more on “aesthetic” and is learnt through formal instruction and training while folk art encompasses one’s culture in a “deeper” manner. Folk artist mostly learn without formal training.
- In folk art context is important.
- Folk art of largely utilitarian.
- Folk art is weaved into everyday life.
- Folk art connects the past to the present.
- Folk art reflect the worldview of a community.

The slide also features a photograph of a woman with her hair in a bun, wearing a pink and white sari, looking down.

So, we again do a distinction between fine arts and folk art, what are the difference and what are the points of difference between fine art and folk art? Fine art focuses more on aesthetic and is learnt through formal instruction and training, while folk art encompasses one culture in a deeper manner folk art is mostly learned without formal training.

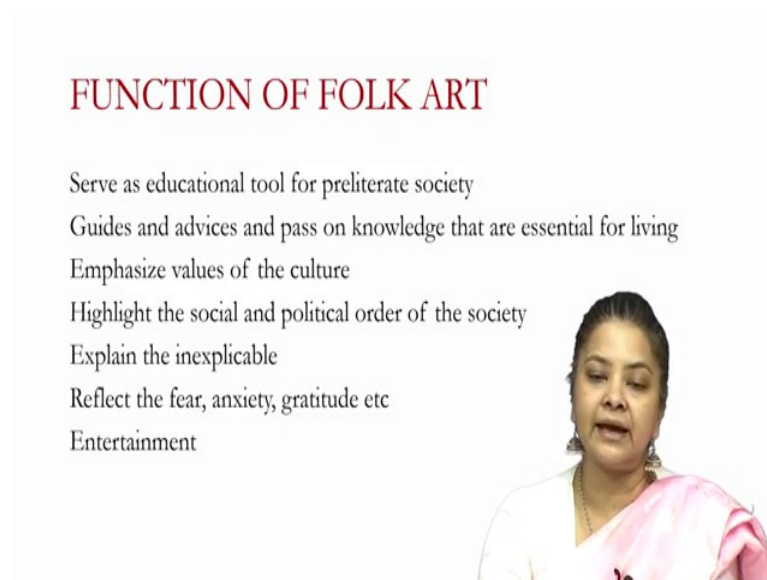
So, this is the most important distinction that folk artist do not go to school to learn the form of art, they learn in by observing the elders or in other members in the family. In folk art context is importance, so the where the art is coming from, the region, the location, the cultural background it is very important and it that art talks about all this the region it is coming from, the location is coming from.

Folk art are largely utilitarian. So, folk art are mostly made for use its not make for aesthetic pleasure mostly they are you made for use utility driven purpose like baskets and all they made for using, but because they look good they also considered as art. It is said that if the utility in purpose is more it is called a craft, if the aesthetic expression is more it is called an art. Folk art is weaved into everyday life, so it is its not a its not

removed from everyday life, it is part of everyday life of the people. Folk art connects the past to the present

So, it talks about the past it traditionally handed over it is a heritage that is traditionally handed over from generation to generation, so it connects the past to the present. Folk art reflect the world view of the community this is very important that when you look at folk art you understand what the community whole importance. So, you understand the values of the community. So, it is said that folk art gives you a window to the community life; it helps you to understand the community from inside out rather than outside in. So, this is how folk art is important that it is a window to the life of the community.

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FUNCTION OF FOLK ART

- Serve as educational tool for preliterate society
- Guides and advices and pass on knowledge that are essential for living
- Emphasize values of the culture
- Highlight the social and political order of the society
- Explain the inexplicable
- Reflect the fear, anxiety, gratitude etc
- Entertainment

The slide also features a video inset of a woman with dark hair, wearing a white and pink sari, speaking.

Functions of folk art serve as education tools for pre literature society, it was the belief the this the values that the folk art contains and are passed from generation to generation they contain certain educational messages certain values that the probability the elders want to give to the younger one. So, they have education they are used as educational tool where formal education is not present. But even if formal education is present there are lot of folkloric material which are passed on from generation to generation to instill values from the older generation to the younger generation. Guides and advices and pass on knowledge that are essential for living.

So, they are like guides, they are like your life tools like life lessons that are passed on from elder people to the younger people that would be necessary for them to in the in a

in their lifetime. Emphasis values of the culture, so they are symbolically telling about what the community whole important, what does when you are saying that do not lie, do not rob others, do not cheat others be kind they are actually and telling that telling the younger ones that this community holds this values important. Highlight the social and political order of the society.

So, whatever the society is going through socially and politically the folk art gives you a glimpse of it. Explain the inexplicable. So, there are many things like the like you are not able to explain like in olden a olden times people were not able to explain the lightning or they were not able to explain natural calamity.

So, there are stories around them which would enable them to understand or to decipher or to explain to the younger ones why this phenomenon happened. So, they tried to explain the inexplicable the mythological stories folktales that would tell you why this kind of things exist. Reflect the fear anxiety and gratitude etcetera. So, they mostly talks about human emotions they reflect the anxiety the fear the gratitude emotions of the people.

And they are also entertainment they are spoken or they are created to entertain to amusement for to give you a relief from the mundane life. So, entertainment is also a very important element of folk art.

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So, then we discussed the Indian schools of painting we said that there are there are many various types of painting, but two prominent schools in of Indian paintings there is the mural style and a miniature style.

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Murals

- Caves of the First or Satavahana Period
- Caves of the Second or Vakataka Period
- Bagh Caves
- Badami
- Pallava
- Pandya
- Chola
- Vijaynagara
- Nayaka

So, mural you will find in the caves of first or Satavahana period caves of the second or Vakataka period, Bagh caves, Badami, Pallava, Pandya, Chola, Vijayanagara, Nayaka. So, here you will see the murals in this places and their different style of the murals in this places.

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Miniature Paintings

- Pala
- Jaina
- Mughal
- Rajasthan
- Orissa
- Pahari
- Deccan

Miniature paintings the Pala, Jaina, Mughal, Rajasthan, Orissa, Pahari, Deccan there are the different styles of miniature painting.

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Then we discussed the various folk art the folk paintings of India when through Madhubani, Warli, Gond, Bhil, Pattachitra, Patua, Pichwai, Chittara, Ganjifa, Phad, Sohrai, Kalamkari, Kalighat, Cheriya painting, Pithora, Saura, Kurumba, Meena, Kolam.

So, these are the names of different this list is not exhaustive, but these are the few names of the Indian folk art; Indian folk paintings. So, then we went on to discuss certain techniques of few of the Indian folk art. So, we discussed Madhubani.

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- They are either floor paintings (*aripana*) or wall murals (*kobbar*) done during festivals and important occasions
- Primarily a women's art and a spiritual practice
- Passed on from generation after generation by observation and learning
- Mythological events, creation and fertility, social activities, festivities, geometric patterns and natural elements are the central themes
- Natural colours (from rice powder, flowers, soil, stone etc) are used to draw with twigs, fingers or matchsticks

So, we said that they are either floor painting or wall mural done during festival and important occasions. Primarily a women's art and of spiritual practice, passed on from generation after generation by observation and learning. Mythological events creation and fertility, social activities, festivities, geometric patterns and natural element are the central themes. Natural colors from rice, powder, flowers, soils, stone etcetera are used to draw with twigs fingers or matchstick. So, this is these are certain features of Madhubani painting; Madhubani art is done in the Mithila region which falls in Bihar of India and certain part of Nepal.

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So, techniques of Madhubani we discussed we saw that there are three styles there is Bharni style, there is Kachani style and there is Geru style.

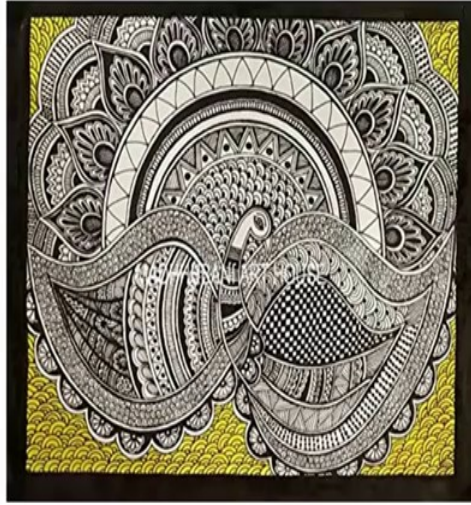
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- Bharni means “filling”. That is, it is a composition with colour fills. In this style of painting the subject is outlined with black and the enclosed areas are filled with vibrant colours like Blue, yellow, pink, green, orange etc. The subjects are represented in flat [two dimensional forms] and the colours applied flat without any shading. The skillful artists strike right balance between the patterns and colour. Though no shading technique is used, the outline is done with double lines and the gaps between the two lines filled with crisscross or straight lines.
- Hindu deities like Krishna, Rama, Siva, Durga, Lakshmi, Saraswati, Dhanavanti are the common themes. Very special importance is given to Radha Krishna and Krishna Ras Leela.
- The figures are angular and boldly outlined with bulging “fish” like eyes and pointed noses. While ultramarine blue is used essentially for the figures of Krishna, Rama, Shiva, tones of yellow are used for Radha, Sita, Parvati. The figures are juxtaposed amidst colorful ornate flowers, leafy branches, twisting vines and birds. The Sun, Moon, The Sacred Tulsi and basil

So, this is the example of Bharni style of Madhubani. So, it Bharni means filling that is it is a competition with colour fills. In this style of painting the subjects outlined with black and the enclosed areas are filled with vibrant colours like blue, yellow, pink, green, orange etcetera. The subjects are represented in flat two dimensional forms and the colours applied flat without any shading. The skillful artist strike right balance between the pattern and colour. Though no shading technique is used out line is done with double lines and the gaps between the two lines filled with crisscross or straight line.

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- Kachni means “Lines”. It is a black and white composition. In this style of painting, only one or two colors e.g. black or vermilion is used. The artists draw fine pattern using hatching and stippling to create paintings with the finest details. Double lines are used to depict the outlines and the gaps between the lines are filled with crisscross or tiny straight lines.
- Themes are of flowers, fishes, snakes in union bamboo groves, birds etc symbolizing fertility and life. This form is appreciated for the complex rendition of detail.

Then this is Kachni style, Madhubani style. Kachni means lines, it is black and white and composition. In this style of painting only one or two colour example black or vermilions is used. The artist draw the fine pattern using hatching and stippling to create paintings with finest details. Double lines are used to depict the outlines and the gaps between the lines are filled with crisscross or tiny straight lines. Themes are of flowers, fishes, snacks in union bamboo groves; bird’s etcetera symbolizing fertility and life. This form is appreciated for the complex rendition of details.

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- The Geru, Gobar and Godhana styles were originally banned from representing religious motifs and themes. Flora and fauna used to be commonly drawn in this style. But with time, Hindu gods and goddesses are also painted in this style .
- This style commonly paints trees, creepers, flowers, and molded low relief clay figures of deities and animals on external walls of their homes. The most popular and important one among these is the tattoo style paintings or Godana on limbs and chest of people. They include an auspicious and protective image on the human body mostly having rows and concentric circles of flowers, fields' animals and deities done initially by bamboo pen and lampblack ink.

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having rows and concentric circles of flowers, fields, animals and deities done initially by bamboo pen and lampblack ink.

So, friends today we have gone through some important points that we have gone through in the course. We will continue this in the next class and see what are the other important points that have done in this course.

So, see you in the next class. Bye, bye.