

# INDIAN INSTITUTION OF TECHNOLOGY GUWAHATI

## NPTEL

### NPTEL ONLINE CERTIFICATION COURSE An Initiative of MHRD

#### Science, Technology and Society

by

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In the last lecture we discussed a gendered socio-technical construction in the case of the smart house, now in the discussion on the social shaping of Technology in contradiction to the technological shaping of society is important and in this lecture will end with the section on the social shaping of technology that, if a technology is workable for technology if a particular technology what is well in a certain context in did not imply that it work it will work well in all other contexts I mean that this one size fits all if one size fits all is the hallmark of a technologically deterministic society.

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#### The decline of the one-size-fits-all paradigm: a history of contraceptive technologies

**Othering** process of scientific discourse in biomedical sciences

- How did the identification of 'women' as 'the other' result in setting the female body apart in separate branch of medicine?
  
- The emergence of gynaecology and sex endocrinology in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries established a discursive practice in which sex and reproduction became considered as 'more fundamental to woman's than man's nature.'

Then interrogating the one-size-fits-all okay becomes the hallmark of the social setting of technology okay, that no this one-size-fits-all is not applicable in the context of the development

and application of a particular technology that is and in this context Nellie Woods room points out the decline of the one-size-fits-all paradigm or how reproductive scientists try to cope with such postmodern phenomenon of Technology, I m not going to discuss more on post modernity as such okay, I mean what does post modernity refer to basically post modernity refers to the rejection of all grand theory.

It maybe Darwinian evolution of species or Marxist principles of dialectic and materialist conception of history or Freudian psychology of mind okay, I mean it rejects pushed modernity propounds for multicultural it torch okay, and soon I mean this is not a course on social sociological theory or political theory where I will have to discuss pushed modernity at length and in detail, what I am going to do here I will discuss the work of maybe also in the context of the decline of this one-size-fits-all paradigm.

Of history of Conti Tech people have you ever heard of a anthology I repeat the question have you ever heard of andrology the very fact that the very fact that that andrology the medical special agent concerned with their productive functions of men is still a Cinderella profession compared to its bigger sister that is the oncology that is one of I mean is one of the striking examples of the institutional and discursive processes of the ring are their ring, if you look at this othering.

In the biomedical sciences let us try ordering process source process of other ring of scientific discourse in biomedical sciences okay, then feminist discourses since the 1970s 80s 90s and so on have provided major challenges to these ordering processes of scientific discourse, okay the purpose of this lecture is to show how major changes in the dominant paradigm of subject-object dichotomies emerged in one specific area of the biomedical sciences that is the reproduction okay.

One must describe how the identification of women as the other result in setting the female body apart in separate branch of medicine in a separate venture the emergence of gynecology and sex endocrinology in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries established a discursive practice in which sex and reproduction, we considered more fundamental to humans rather than man's nature okay this is this is important okay, why do we think that the reproductive capacity is essentially tuned towards or essentially related to only woman's nature.

Not managed that is why I started with the question have you ever heard of ontology if gynecology deals with the reproductive abilities or reproductive sides of women then enroll orgy deals with the reproductive abilities I mean reproductive side of aspects off okay in this okay, it is it is very important that is why I said I mean Auto also suggested that the emergence of the gynecology and sex endocrinology in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries established a discursive practice in which sex and reproduction became considered more fundamental to humans.

Rather than man's nature okay then if we say that notice it is considered it is dumped it has been portrayed, okay in a more patriarchal society portrayed is more fundamental to humans rather than man's nature then how we try to institutionalize woman as the other are the ring process of scientific discourse in biomedical sciences okay, what is this the institutionalization of woman as the other I mean there must miss if in focus from similarities to differences okay the institutional process of othering.

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### The institutionalization of woman as the other: shift in focus from similarities to differences

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The institutional process of othering in medicine has a recent history.

- Medical texts from the ancient Greeks described male and female bodies as fundamentally similar.
  - 'One-sex model': female body understood as male turned inside herself – not a different sex.
  - It was only in 18<sup>th</sup> century, biomedical discourse began to conceptualize the female body as other.
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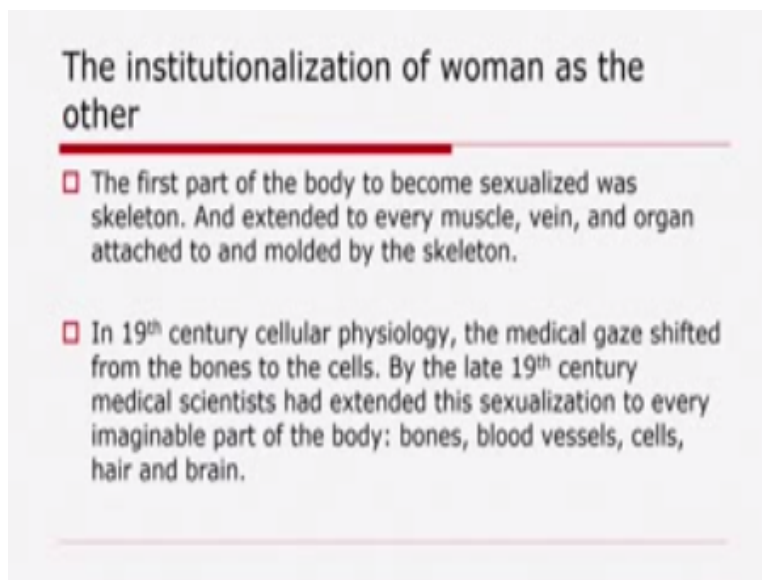
In medicine as a result history for our post modern minds I mean those you reject all grant theories it is hard to imagine that, for two thousand years male and female bodies were not conceptualized in terms of differences medical texts from the unsealed Greeks until the late 18<sup>th</sup> century described male and female bodies are fundamentally similar women had even the same genitals as men with one difference theirs are inside the body and not outside it in this approach characterized by Thomas Leto.

As the one sex model the female body was understood as a male turned inside herself not a different sex but a lesser version of the male body okay it was it was only in the 18<sup>th</sup> century that biomedical discourse began to conceptualize the female body as the other a body because 18<sup>th</sup> century also is very important, in 18<sup>th</sup> century it was also a marker of the changing the mode of production you see in 18<sup>th</sup> century, we saw Industrial Revolution we witnessed critical thinking modernity reasoning capacity okay.

That is why it was it was only in the 18<sup>th</sup> century that we find that biomedical discourse began to conceptualize the female body as the other, that is a body that was to be considered and essentially different as essentially different from the male body okay, the long-established tradition that emphasized bodily similarities or differences began to be heavily researched in the 18<sup>th</sup> century anatomists increasingly focused on bodily differences between the sexes and argued that sex was not restricted to the reproductive organs.

Or as when finished and put it I mean a nun coating out soon that term that the essence of sex is not confined to a single organ, but extends through more or less perceptible nuances into every part the first part of the body to become sexualized was the skeleton, if sex differences could be found in the hardest part of the body it would be likely that sex penetrated every muscle when an organ attached to and molded by the skeleton, okay that is what even skiving there also means okay in 19<sup>th</sup> century cellular physiology okay in 19<sup>th</sup> century

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### The institutionalization of woman as the other

- The first part of the body to become sexualized was skeleton. And extended to every muscle, vein, and organ attached to and molded by the skeleton.
- In 19<sup>th</sup> century cellular physiology, the medical gaze shifted from the bones to the cells. By the late 19<sup>th</sup> century medical scientists had extended this sexualization to every imaginable part of the body: bones, blood vessels, cells, hair and brain.

Cellular physiology the medical gains shifted from the bones to the cells by the late 19<sup>th</sup> century medical scientists had extended this sexual adjacent to every imaginable part of the body, bones blood vessel cells hair and bread only the eye seems to have no sex okay, let that certain identity in 19<sup>th</sup> century cellular physiology but biomedical discourse the soldier clear shift in focus from similarities to differences this shift seems to have caused by epistemological socio-political changes rather than by scientific progress, in the book making sex okay Thomas lekker described this shift in the context of changes in the political climate.

The French Revolution and new liberal claims in the 18<sup>th</sup> century let to new ideas about the social relationships between men and women in which the complementary to between the sexes was emphasized okay.

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- ❑ Otherness...'Science of Women'...Gynaecology
- ❑ The growth of gynaecology was not paralleled by the establishment of a complementary 'science of masculinity'. As the male was standard of the species, he could not be set apart on the basis of his sex.
- ❑ With the introduction of the concept of sex hormones, scientists explicitly linked women's diseases with laboratory practice, and it enabled them to intervene in the menstrual cycle and the menopause.

This theory of complementarity taught that man and woman are not physical and moral equals but complementary opposites. Women, now became viewed as fundamentally different from and thus incomparable to the theory of sexual complementarity was meant for men. I mean that theory of sexual complementarity was meant to keep women out of competition with men designing separate spheres for men and women in this theory which came to be known as the doctrine of the two spheres.

The sexes were expected to complement rather than come with each other. The female and the male body became conceptualized in terms of opposite bodies with incommensurable different organs, functions and feelings. That is what Lacquer Thomas Lacquer said. This change is visible in medical language as well. Which Lacquer in *Making Sex* in 1990 he mentioned that and that this change is visible in medical language. I mean organs that had said a name ovaries and testicles we are now linguistically distinguished organs that had not been distinguished.

By a name of their own the vagina for example we are given one okay following this following this shift the female body became the medical object par excellence. Foucault in 1951 Michel Foucault that that the female body became the medical object par excellence, emphasizing women's unique sexual character. Medical scientists, now started to identify the ultimate cause of humans otherness the medical the medical literature.

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- ❑ Otherness... 'Science of Women' ...Gynaecology
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  - ❑ With the introduction of the concept of sex hormones, scientists explicitly linked women's diseases with laboratory practice, and it enabled them to intervene in the menstrual cycle and the menopause.

The medical literature of this period showed radical naturalization of the female in which scientists reduced women to one specific order, in the 18<sup>th</sup> and 19<sup>th</sup> centuries scientists set out to localize the essence of the female in different places in the body until the middle of the 19<sup>th</sup> century scientists considered the uterus as these that of the female this conceptualization is reflected in the statement of the German poet and naturalist both okay, it I mean just I am just trying to look at different look at such dimension here in the works of in the in the words of Nelly would soon okay.

In the middle of the 19<sup>th</sup> century medical attention began to shift from the uterus to the ovaries which came to be regarded as largely autonomous control centers of reproduction in the female animal while in humans there were they were thought to be the essence of the female itself in the in the late 19<sup>th</sup> century in the late 19<sup>th</sup> century the search for the cause of women's otherness eventually, led to setting women's bodies apart in a medical speciality that is called gynecology.

In her Moscow she once pointed out in that I mean is he pointed out how the belief that the female body is finalized for reproduction defined the study of natural woman as a separate branch of basic medicine with the emergence of gynecology women became identified as a social group as a special group of peasants, the turn of the century I mean the turn of the prettiest century witnessed the founding of societies journals and hospitals specifically devoted to the diagnosis and treatment of the female body.

Women thus became set apart in the discursive and institutional practices of the biomedical sciences the growth of gynecology was not paralleled by the establishment of a complementary science of masculinity okay as the male was the standard of the species he could not be set apart on the basis of his sex okay, this institutional process of othering was continued and reinforced by the rise sex endocrinology our discipline devoted to the study of sex hormones that emerged in the 1920s and 1930s.

Oh truly in the book beyond the natural body described how the very existence of gynecology facilitated a situation in which the new science of sex endocrinology focused almost exclusively on the female body, then the by then established gynecological practices had transformed the female body into an easily accessible supplier of research materials okay, convenient line a feel for tests and an organized audience for the products of sex endocrinology, most laboratory scientists and pharmaceutical forms depended on these institutional practices.

To provide them with the necessary tools and materials to transform the hormonal model of the body into a new set of digits categories diagnostic tools and drugs sex endocrinologists integrated the notion of the female body as a reproductive body into the hormonal model, but not without thoroughly changing it they provided the medical profession with tools to intervene in features that had been considered inaccessible prior to the hormonal era, that the introduction of diagnostic tests and drugs enabled the medical profession to intervene in the menstrual cycle.

And the menopause thus bringing the natural features of reproduction and aging into the domain of medical intervention okay the introduction of the concept of sex hormones, not only changed the medical treatment of the female body, but also redefined the existing social configurations structuring medical practice.

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## Development of the first physiological means of contraception focused exclusively on women

- ❑ Margaret Sanger, a women's rights activist and pioneer for birth control in the United States of America, believed that the most important threat to women's independence came from unwanted and unanticipated pregnancies.
- ❑ Sanger was very explicit about what type of contraceptive had to be developed: it had to be a 'universal contraceptive' that could be used by all women, regardless of colour, class, age, or educational background.
- ❑ These early ideas on contraception set the stage for reproductive paradigm - 'One Size Fits All'

Okay in this I mean I mean the field of sex endocrinology generated a set of social relationships that did not exist prior to its emergence, what changed in this episode according to its born no was the question of who was entitled to claim authoritative knowledge about the female body the hormonal model enabled gynecologists to draw the female body more and more deeply into the gynecological clinic gynecologists, however had to share their increased medical authority with another professional group that is the laboratory scientists with the introduction of the concept of sex hormones scientists explicitly linked women's disease, diseases with laboratory practice the study of women as the other thus became extended from the clinic to the laboratory and thereby firmly rooted in the heart of the life sciences okay.

Now if you at development of the first physiological means of contraception focused exclusively on women okay before coming to one-size-fits-all.

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## One Size Fits All

- ❑ The adage 'One Size Fits All' of 1960s and 1970s became the cornerstone of R&D in contraceptives.
- ❑ The quest for universal contraceptives can be considered as the ultimate consequence of the process of othering.
- ❑ Classifying woman as the other directs the attention to similarities among women. Consequently, the design of medical technology does not have to take into account the diversity of its users.

Let us discuss one interesting argument I mean which what sport has mentioned that the Margaret Sanger woman women's rights activist and pioneer for birth control in the United States of America believe that the most important trait to women's independence came from unwanted and unanticipated pregnancies send the Sanger Margaret Sanger was very explicit about the type of contraceptive which had to be I mean about I mean she was she was very much explicit about what type of contraceptive technologies.

Or what type of contraceptive had to be developed it had to be a universal contraceptive that could be used by all women regardless of caller class age or educational background this only ideas on contraception set the stage for reproductive paradigm, that is one size fits all why we should do with this kind of thing okay that one size fits all the adage that one size fits all of the 1960s and 1970s became the cornerstone of R & D contraceptives okay bearing in mind this sort history of the process of othering in the biomedical sciences, it will be no surprise that the development of the first physiological means of contraception focused exclusively on women the history of the concept contraceptive will indicates.

How the process of uttering required an emphasis on similarities among women that is how we I mean remarkably this time the choice to focus on women rather than men was not made by the medical profession or laboratory scientists, but as we discussed that how and outside the rather I mean not in a literal sense but in any more figurative sense in a more metaphorical sense okay,

the he marveled Sanger was not a laboratory scientist or belong to a pharmaceutical form but the way Sanger was very much explicit about the type of contraceptive.

Which had to be or what kind of contraceptive what type of contraceptive had to be developed it first centered it had to be must be a universal contraceptive that could be used by all women regardless of color class in your educational background okay, this one-size-fits-all okay and this is important and we are trying to do this we are trying to discuss this okay, these are the ideas on contraception set the stage further for the reproductive paradigm of the 1960s and 1970s the quest for universal contraceptives can be considered.

The ultimate consequence of the process of othering classifying woman as the other direct the attention to similarities among women consequently the design of medical technology does not have to take into account the diversity of its users okay, this is important then the history of the film contraceptive pill the history of the pill therefore read such an intriguing story of how scientists try to construct similarities between women this is very obvious in the text that Pincus and his spellings published reporting the clinical trials of the pill.

A perusal of these publications according to according to would showed that it they reveal a very telling picture the women participating in the clinical trials have disappeared from that from the stage, they were replaced quite simply by the number of treated menstrual cycles in the 1958 publication of one of the first large-scale clinical trials because concluded that that in the in the 1279 cycles during which the regimen of treatment was meticulously followed there was not a single pregnancy in the 1959 publication in science which described all four failed trials of the pill it was reported I mean Pinker's I am quoting because here we have recently collected and analyzed the data to November 1958 from these four projects and present here the outstanding.

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## One Size Fits All

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- ❑ The testing of hormones as contraceptives did not take place in the continental USA, where the laboratory research took place, but in the Caribbean Island.
  - ❑ It was 'women of colour' from former colonial settings, who entered this history as guinea pigs of one of the most revolutionary drugs in the history of medicine.
  - ❑ The choice to test hormones on women of colour only be made because scientists did not recognize any fundamental differences between women.
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Findings derived from this data 18 830 subjects took the medication for a total of 8000 100 and 33 menstrual cycles or 635 woman years okay this is I mean the this I mean a popular writer also I mean you know I mean my cell also wrote about this I mean in the in the hormone quest okay in the context of the Western is, I mean Caribbean island and such representative strategy okay clearly emphasizes the similarities between women the huge of such categories as cycle replaces the individual subject by the book.

Suggesting a continuity that did not exist in the trials that suggestion simultaneously affirms continuity while obscuring discontinuity by framing new scientific categories for data measurement a representation in terms of cycles implies an abstraction from the bodies of individual women to the universal category of a physical process here, we see how scientific texts are not simply a reflection of the proceedings of research texts are a far stronger two than that they are a representation which it is a new reality okay the discourse of the discourse of pill researchers constructed women's bodies as Universal with respect to their recreational reproductive functions okay.

The construction of similarities between women is not just a matter of discourse during the testing of the pill similarities were literally created by the introduction of a specific regimen of medication, in one of the first clinical trials which myself carried out in the context of the Caribbean island the West Indies okay she pointed out that women were quite distressed when

they were they noticed that their first that their menstruations ceased during the treatment with all Protestants.

If these women were distressed Pinker's reflected it would be very unlikely that women taking Protestants for contraceptive purposes would experience similar reactions to citizen the a contraceptive that suppresses menstruation did not meet the requirements of a universal contraceptive Pinkers therefore changed the medication the pills should be taken for 20 days starting on the fifth day after menstruation, as was the practice in the hormonal treatment of menstrual irregularities in the 1940s.

This suggestion said the standard for the administration of resistance in all later trials and eventually for the use of the contraceptive pill in the 1990s the choice the of this regimen of medication was set by moral objections to any drugs that would interfere with menstruation Pincus was directly confronted with this norm by sheer love the pharmaceutical firm which put the pill on the market okay, I mean the testing of hormones edge contraceptives did not take place in the continental US.

Where the laboratory research took place but in the Caribbean island this is also important this research laboratory was located in the United States of America, but the research was conducted in the Caribbean it was women of color from former colonial settings who entered this history as line a-pigs of one of the most revolutionary drugs in the history of medicine the choice to test hormones on women of color only be made because scientists did not recognize any fundamental differences between women what Pincus tried to mention here, that actually in view of the ability of this compound to prevent menstrual bleeding as long as it is taken a cycle of any desired length would presumably be produced we had chosen our standard day 5 through day 24 regime in the expectation of that normal cycle length route okay.

If you look at this thing that concepts such as normality and similarity army medical constructs rather than rooted in nature Pincus could have made a menstrual cycle length of any desired length he chose to make a normal menstrual cycle that subsequently became materialized in the pill this diminished the variety of menstrual patterns among women all pee losers have a regular cycle of 4weeks the pill thus literally created similarities in woman's reproductive functions okay, I mean this is such I mean these strategies.

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## One Size Fits All

- ❑ The concept of similarity functions as the cornerstone for the development of universal technologies, technologies that can be used by women all over the world.
- ❑ The theoretical assumption underlying the idea of universal technologies can be made to work everywhere because scientific knowledge is universal by nature.
- ❑ In the 1970s, scientists concluded that the development of - 'a magic bullet' - a perfect contraceptive had **failed**.

Such strategies are also important I mean important to understand I mean the concept of similarity functions as the cornerstone for the development of technologies I mean the technologies that can be used by women all over the world that this is an assumption I mean the theoretical a junction underlying the idea of universal technologies can be made to work everywhere because scientific knowledge is universal in or appears to be universal in nature in the 1970s scientists concluded that the development of magic bullet a perfect contraceptive effect I mean these are important discussions on one size fits all okay.

Now what we are we are trying to do okay whether we should modify technology to fit people or we should or modify medicine to fit people or we should modify any pill to treat people or we should modify people to fit those pills this is interesting, if you look at this the emphasis on similarities in the development of medical technologies such as the pill is not unproblematic, it is very much problem okay the concept of similarity functions that is what we discussed as the concept of similarity functions.

As the as the cornerstone for the development of universal technologies, technologies that can be used by women all over the world okay, that is what we discussed that the theoretical assumption underlying the idea of universal technologies can be made to work everywhere because scientific knowledge appears Universal by Nature, that the case study of the pill exemplifies the failure of this clip despite all the emphasis on similarities, the pill has not developed into a universal

technology the dream of making the ideal contraceptive for any woman regardless of her scientific specific background.

Was not fulfilled the main acceptance of the pill had been among middle and upper-class women in Western industrialized world with one exception at that time it was China most women in countries of the South that which had adopted sterilization and intrauterine devices as means of contraception, scientists may explain this failure by saying that women are to blame my argument I mean what was wrong argues is that, if anything is to blame it is the technology see he suggests that.

We may be able to understand the failures of science and technology by adopting a social constructivist approach that emphasizes the contextual nature of science and technology in this perspective every technology contains a configured user consequently technologies cannot simply be transported elsewhere okay, this is important I mean she was trying to look at the social constructivist approach developed by biker and pinched in the social construction of technological systems which we discussed earlier.

The Scott approach and so on and then let us see this such dramatic shift such drastic shift in the reproductive paradigm coincided with broader cultural 1970s and the collapse of dreams of modernity we can discuss these things claims and in detail, I mean if you look at the discourses of modernity what did this the central political philosophical foundations of management the central philosophical and political formations of modernity at four point okay in this context I am talking about European modernity not Universal money.

See every country every region every local every village has unique constituents of modernity unique qualities of modernity unique factors of model unique features of money okay, when I say the collapse of the dreams of modernity I mean the collapse of the dreams of European model therefore central political philosophical foundations of morality or critical modernist paradigm Association only more totality 1one secondly, reflexivity, thirdly rationality and fourthly social movements.

And the universal and adaption of such four central philosophical and political foundations of modernity where questioned because of the uncritical adaption of the modernization theory which the mostly North America and Europe propagated in the 1950 and 1960s especially after

the Second World War, what is that modernization theory I mean modernization theory postulates the modernization theory postulates, that the less developed country will make progress.

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### Modify technology to fit people, rather than modifying people to fit technology

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- ❑ This drastic shift in the reproductive paradigm coincided with broader cultural changes in the late 1970s: the collapse of the dreams of modernity.
  - ❑ The declining belief in grand theories and ideologies to understand and control the world led to a situation in which locality and individuality became of central concern in Western culture.
  - ❑ The notion of differences became important theme. The crisis in modernity eroded the belief in one technological fix to improve the human condition.
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Through why did they follow the development pattern of the developed country then one size fits all I mean, but the kind of the pattern of development which North America has used if we follow if we if that model if we mimic if we if we copy that model then it will be a big problem for us, and we have been witnessing in the context of India in the context of many other developing countries that is why we will see and the emergence of dependence theory and later on dependency theory also was not without any limitation.

But it was but the but in Latin America they try to develop dependency theory by interrogating and rejecting modernization to the claims of modernization theorists now especially in the United States of America, as well edge you okay that's why the this the claims which the



protagonists of modernization Theory made about industrialization about development about technology and so, on that one way to look at things modernization Theory also can be challenged on different counts okay.

I mean in sociology of development we discuss critical variable approaches dichotomous approaches and so on, to bring about the strong critique to the modernization see that is why the polar, that is why when I say that this drastic shift in the reproductive paradigm coincided with the broader cultural changes in the late 1960 and 70s that that you will make that the current that that a particular country will make progress, only if it follows the pattern of industrialization or the pattern of large projects guided by the principles of industrialization and, so I think it also faced virulent criticisms in the 1960 itself 70s and so on.

Those who wrote I mean even in the Indian context Gandhi opposed this hymn Suraj when he said if India copies England, it is my firm conviction that she will be waived India cannot keep on Epping the West for production of any production or employment or poverty reduction so on, India can sustain itself through villages none dimensionless, if some occurs in small is beautiful he also mentioned this, let us try Gandhi once wrote India lives in our villages that is why I mean he was trying to look at more self-reliant economy.

Were more and more participation of the people when everyday not more and more participation of methods okay, that is why you when you look at these things okay, Gandhi is important in this contexture Schumacher is very important in this context and so, in this sense we are talking about the collapse of the dreams of modernity the claims of modernity or critical modernist paradigms in sociology in this okay.

I am not looking at that how Latin America Africa is here they try to conceptualize model I am trying to look at, how when I say the collapse of the dreams of modernity I refer to you know especially European and North American modernity, it collapsed okay, the declining belief in grand theories and ideologies to understand and control the world to a situation with control the world led to a situation in which locality and individuality became of central concern in Western culture.

When we started with this I mean post modernity try to reject rank theory it cannot have any ideological incline is in where you will not find that you are looking at a nestled needs to totality

rather and mission as being as getting fragmented into various locals, okay this fragmented imagination okay, if you want to make India develop then you must be able to look at the economically, socially, politically, weaker States regions villages to develop educationally backward regions to develop okay.

You must be that is why your lesson it cannot be examined in its entirety because the lesson is a composite product of many things okay, and most pertinent in why did they do the post modernists why did they do this, it is not very no it is not very over simplistic it is very important precisely because post modernists trying to do to look at each local individual in a more situated manner in a more context specific manner, the kind of development the kind of development that the kind of strategies of development which may be required.

For a for a city like Mumbai or Delhi different in the context of northeast India they must be different from the control there must be different in the context of Jammu and Kashmir they must be different in the context of Bihar, Odisha, Jharkhand, Chhattisgarh because they are different cities altogether there are different states altogether different regions altogether even within the within northeast India, let me tell you that we must have different strategies of development for different states in Assam different states in northeastern.

You see they are very unique States northeast India cannot be reduced to only a single state that is why postmodernists did this because, they tried to interrogate the way a society or nation local has been homogenized that is a huge contribution which postmodernists meant that no, let us not homogeneous let us not homogenize patterns of thinking let us not homogenize our practices if you want to eat in spoon on 4<sup>th</sup> I want to eat in hand does not imply that your practice is superior to my practice.

Or my practice is inferior to your practice they are culturally mediated if one fails to understand this and tries to homogenize it is not a part of post modernist okay, that is why that declining belief in grand theories and ideologies to understand and control the world led to a situation in which locality and individuality became of central concern in Western culture this homogenizing tendencies must be integrated okay, the notion of differences the notion of differences became an important thing.

The crisis in modernity eroded the belief in one technological fix to improve the human condition okay this is very important that now, if you look at this it is time to reflect on the

meaning of the shift in reproductive paradigm okay, it is also important to look at the ambiguities involved in the ambiguities involved in the way the history of biomedical sciences has treated both these spheres gynecology and hydrology separately or similarly I mean one must strike a critical balance and the way technology has been shaped in a more patriarchal society in a more wrestled structure we have, we have discussed.

I mean if you get the social shaping of Technology from the very beginning we have discussed political control of the technological systems in the con in the context of the construction of the Newark bridge by Robert Moses as, it reflects reflected the kind of racial prejudice and class bias if you look at the way we have discussed do artifacts of politics technology as knowledge then social shaping of Technology by Donald Mackenzie and you do you walk man what we you generally find that that technologically deterministic society is not going to help us.

If we want to modify technology to fit people okay we are not we should not try to modify people to fit technology then, if we try to modify people to fit technology then we are trying to homogenize cultures cultural practices and so rather we should be able to modify technology to fit people and their incomes and therein lies the significance of different technological systems you may witness it in the context of biotechnology nanotechnology information technology I mean information and communication technologies and so on.

Further for this course we have zeroed in on to discussing only information society by David lang we start with Toffler Alvin Toffler in the next lecture, to have what kind of to discuss what kind of sujin illusions which the information society brings, we will start with first Alvin Toffler I mean in the context of the third wave then we will go to James Martin you can discuss Daniel Bell we can discuss, so we will discuss David line okay and then we will discuss reception of modern science in the context of how science.

So scientific knowledge was democratized or popularized in India by building different scientific institutions in India starting with the ascetic society of Bengal in 18 178 and then we will discuss science policies in India starting from 1958 1983 2003 and 2013 okay thank you.

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