

# A Bricoleur Approach to Understanding Gender: Gender and Gender Testing in Sports

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**Abstract-** This article illustrates the use of a bricoleur approach to understand gender. The bricoleur approach has been discussed theoretically as it was first used by Claude Levi-Strauss (Levi-Strauss, 1966) and then we discuss it as elaborated by Denzin and Lincoln (Denzin & Lincoln, 2005), Kincheloe (Kincheloe, 2004) and Berry (Berry, 2004). Following Berry (2004) the POET used is gender testing in sports. The cases of some athletes in the international arena and Indian context are discussed. This raises questions about the epistemology and ontology in terms of the science that has been used for testing gender and for ‘failing’ some athletes on the basis of their gender. In the construction of the bricolage we then move onto discussing the theoretical understanding of gender as it has developed.

**Keywords:** Bricolage, gender testing, gender binary, women athletes

## INTRODUCTION

In this article using a bricoleur approach we discuss the ways in which the understanding of gender has developed over a period of time. The first section of the article is a discussion on the theoretical understanding of bricolage as a research method. The second section of the article constructs a bricolage as put forth by Berry (2004) for the understanding of gender. The Point of Entry of the Text (POET) is through gender testing in sports and the ways in which it has been used to ban women athletes from competitions. Using ‘science’ the International Association of Athletics Federation (IAAF) and the International Olympic Committee (IOC) recommend procedures for correcting the ‘defects’ and for making them ‘normal’. This raises questions about the binary approach to gender by the IAAF and IOC. It also

problematizes the fact that all athletes irrespective of their gender have to participate as either men or women. We seek to answer these questions through a theoretical understanding of gender in section three. We argue that the changing conceptions of gender are an outcome of the changing epistemology and ontology of the time. The final section concludes the article.

Section 1: A Theoretical Understanding of Bricolage  
Research broadly progressed from the “the traditional (1900–1950), the modernist or golden age (1950–1970), blurred genres (1970–1980), the paradigm wars (1980–1985), the crisis of representation (1986–1990), the postmodern (1990–1995), post experimental inquiry (1995–2000), the methodologically contested present (2000–2004), paradigm proliferation (2005–2010), and the fractured, posthumanist present that battles managerialism in the audit-driven academy (2010–2015), an uncertain, utopian future, where critical inquiry finds its voice in the public arena (2016–). These moments overlap and coexist in the present<sup>1</sup>”(Denzin & Lincoln, 2018, 42). New perspectives like hermeneutics, structuralism, cultural studies, phenomenology and feminism. Social sciences also became important for the emergence of critical theory. There is also a move towards a science that is multidisciplinary and multi methodological. Research has now become bricoleur in nature.

Bricolage as a research approach is a critical multi-methodological approach as conceptualised by Denzin and Lincoln (2005) and by Kincheloe (2001; 2004; 2005) and Berry (2004). The term bricoleur was first used by Levi Strauss in *The Savage Mind* (1966). The term is etymologically a French word that has to do with the ways in which crafts people creatively use

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<sup>1</sup> The traditional is associated with positivism, foundational paradigms. The modernist and blurred genres emerged with postpositivism.

materials leftover from other projects. They use tools and materials that are readily available. Metaphoric usage of the term in qualitative research alludes to the eclectic use of methodological and theoretical frameworks and perspectives. The term has extensively been used by Denzin and Lincoln and later also by Kincheloe and Berry as a critical research praxis. The bricolage reflects criticality in research. Claude Levi- Strauss' (1966) use of the term was in the context of structuralism<sup>2</sup>. For him the bricolage was a metaphor useful in understanding the underlying structures of human thought and meaning making. It was a useful tool to challenge the dominant modes of thought on the dialectic of scientific rationality and mythical rationality that prevailed in anthropology. Refuting the divide between the 'savage' mind and the other more civilised ways of thinking Levi-Staruss contended that all humans think with similar structures. Contrasting the two modes of thought and comparing them he said that scientific rationality was akin to the process used by engineers in a formal procedure. Mythical meaning making for the 'savage mind' follows a bricoleur approach combining knowledge production in terms of whatever material like rituals, artefacts and social practices are available. Levi-Staruss' structural usage of bricolage has influenced post structuralism as well. The post structural researchers use the bricolage to challenge the epistemological and ontological basis of knowledge production. Denzin and Lincoln (2018) use bricolage as a metaphor to highlight the ways in which post structuralists, post modernists and postcolonial approaches challenge meaning making in the context of a dominant paradigm. The 'post' researchers have developed multi methodological and multi theoretical approaches to challenge the dominant ontology and epistemology. They trace the ways in which theory has progressed from a positivist approach to the post positivist interpretive approach, the post modern, post colonial and post humanist approach. The researchers today follow a more critical and eclectic approach. Interdisciplinary boundaries are blurred thus leading researchers to borrow from disciplines and to combine multiple discourses. A bricoleur approach allows the researcher to understand the complexity of meaning

making. Critical research, they argue, appreciates the underlying power structures in theory building and the ways in which mainstream research practices are implicated in these structures. Bricolage allows for interdisciplinary movement thus leading to criticality. Such a research approach creates conditions for transformation by confronting structures of oppression. Criticality in research for them is a tool for developing emancipatory consciousness. The critical researcher does not claim neutrality.

Denzin and Lincoln (2018) discuss the different types of bricoleurs. The interpretive bricoleur is one who follows the approach that there is no one correct interpretation. They understand that research is an interactive process that depends on the researcher and the research subjects' personal history, biography, gender, class, race, ethnicity etc. They recognise that all knowledge is subjective and is constructed from a particular perspective. Research is a reflexive process herein the researcher appreciates the ways in which research is influenced by these factors. The phenomenon being investigated too is understood in the context of the ways in which it is intertwined with other social phenomena and institutions.

The methodological bricoleur is one that draws upon multiple research tools to do research. The approach to research is not merely eclectic but it also helps understand the multiple ways in which meaning making happens in society. They use whatever tools are available at hand and the choices are fluid and change as the research progresses.

Theoretical bricoleurs use multiple theoretical perspectives to understand a phenomenon. For instance a feminist visual researcher could use media perspectives, visual theory perspectives along with Marxist perspectives to understand the meaning making in the context of gender.

Political bricoleurs work on the ways in which knowledge construction and power are connected. They understand that all research has political ramifications. While investigating hegemonic gender constructs they question the dominant narratives and the ways in which gender discourse is shaped. They are aware that science is power. They develop counter hegemonic constructs against injustices. Research and

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<sup>2</sup> Structuralism as a method of inquiry was used by linguists in the 20th century. The focus was

on the rules which governed the use of language. Ferdinand de Saussure (1974) used structural linguists to analyse language.

knowledge construction is directed towards the disenfranchised.

For the narrative bricoleur research texts tell stories about the world. They believe that reality can never be objective. The stories that researchers tell are framed in the dominant traditions whether positivism or any of the 'posts'. They question the univocal representations of reality. They rely on multiple voices and sources.

Denzin and Lincoln's conceptualisation of the bricoleur influenced Kincheloe (2005) who looks at bricolage as a critical mode of inquiry. For him bricolage is an emancipatory research that is rooted in critical theories. Going beyond Levi-Strauss, his approach to the bricolage is post structuralist. He explores the myriad ways in which discourses, ideologies and power shape knowledge production. Mono disciplinary approaches for Kincheloe are unable to explain social phenomena in their entirety. A non bricolage knowledge production is constrained with the disciplinary blinders and is often blind to the power structures that shape dominant discourses. Monological methods are inadequate for research. He argues that a bricoleur approach enables us to better study phenomenon in the contexts in which it exists. Even though it is impossible to study all factors that shape a phenomenon, nevertheless a bricoleur approach is better than a monological approach. Berry (2004) further explains that a monological approach limits an individual to only one aspect of the phenomena methodologically and theoretically. A multi methodological approach helps the researcher better understand the object of research in its complexity.

Knowledge construction is always contextual and it is always temporally and culturally situated. Kincheloe (2004) proposes the term 'symbiotic hermeneutics'. The process entails an awareness of the epistemological dimensions that have to do with the larger contexts of knowledge construction. It focuses on the ideological context. Ontological awareness leads to studying the object in the context of its situatedness and the ways in which it interconnects with other phenomena. It also means scrutinising the object of inquiry in its social and historical contexts. Symbiotic hermeneutical approach does not work towards achieving a final definitive knowledge. Knowledge for Kincheloe always exists in multiple vantage points and there can never be a definitive and

final knowing of a phenomena. Drawing on Foucault's discourse analysis Kincheloe (Kincheloe, 2004) establishes a connection between knowledge and power. The episteme is always understood in a historical and sociocultural context. Those in power produce a particular sort of knowledge like Rene Descartes did in his famous Cartesian dualism. The methodology and theories too are influenced by the episteme. Knowledge production has always marginalised and undermined knowledge produced by those not in power.

Critical bricoleurs and critical hermeneutics always work to undermine dominant epistemes. Bricolage works towards a praxis of research. It is directed towards not just exposing the ways in which knowledge is produced by those in power but also towards action. Kincheloe's critical bricoleur moves beyond the symbiotic hermeneutics and focuses on the ways in which meaning is produced in different contexts like texts, stories, theories etc. The critical bricoleur like the interpretive bricoleur of Denzin and Lincoln (2018) draws on a range of critical theories- feminism, Marxism, postcolonialism to mention a few. The critical bricoleur of Kincheloe (2004) garners subjugated knowledge. Subjugated knowledge is knowledge that has been excluded from mainstream knowledge (Foucault et.al 2003). The critical bricoleur is also dedicated to political action. It leads to more democratic knowledge production.

Kincheloe (Kincheloe et al., 2018) following Paulo Freire's principles on engaging research contends that theory is formulated through action and is further refined and developed through action as if in a continuous loop. Research which leads to action leads to social transformation. Freire opined that the oppressed must lead the change for any social transformation and justice since they have an intimate knowledge of the conditions of their oppression. Critical research is a tool that creates circumstances for the oppressed to be empowered. Oppression has to be understood as a multipronged hydra which creates conditions for total subjugation. For example women were oppressed on all fronts- education, work, health, politics etc.

The aim of the bricoleur is not just to increase knowledge but also to set in motion the forces of transformation and change. Bricolage is an emancipatory research construct. As active bricoleurs we shape the research methods in the field as needed.

There are two types of bricoleurs - those who allow circumstances to shape the methods employed and those who are interested in the genealogy and archaeology of knowledge construction of a particular discipline. Researchers are reflexive and develop critical consciousness in their approach and try to understand the ways in which their research is shaped by their situatedness. Research is for social change and counters the hegemonic discourse. It is research for social change and transformation. The bricoleur as detectives seek to learn from the marginalised. They develop a double consciousness- of themselves and their research subjects and the ways in which they influence the research outcomes. The bricoleur researcher is aware of the various locations in which meaning making and knowledge construction takes place. The meaning making is prescribed by the very act of being in this world. The bricoleur researchers are pushed into the hermeneutic circle where they deal with differences in meaning making depending on social and cultural spatiality in terms of dimensions like class, age, gender, language, ethnicity etc. The bricoleur enters the field using any one dimension and through that explores other interrelated dimensions. The critical bricoleur is cognizant of the ways in which power undermines access to resources and creates inequality and differences in society. They are also aware of how power shapes what people know and the ways in which they know things and also what they don't know. The researcher recognises injustices in society and the source of those injustices. By establishing a dialogue with the research subjects the researcher comes together with them to know their world. To make sense of their reality and to understand that reality is polysemic. Research is not authoritative and is instead directed towards making the world better.

Kincheloe (Kincheloe, 2004) states that the bricoleur in constructing a bricolage relies on feedback loops. The feedback loops rely on new perspectives and new ways of meaning making. In constructing a feedback loop for the bricolage Kincheloe outlines some features. These are:

multiple epistemologies that depend on where the researcher stands. There is diversity in the ways that meaning making happens.

The narrative that results from the research process is also understood in terms of its historicity and location. The researcher and the reader view the

narrative from their vantage points and these influence each other. The researcher is aware of the discursive rules and practices that underlie any knowledge construction. The bricoleur researcher understands that knowledge construction is influenced by those in power. All interpretation of research is from the perspective of the researcher. Their situatedness influences their interpretation of whatever they observe.

The representation of any research is never the all encompassing truth. It is always an outcome of several factors like the prejudices, strategies of writing and language used. Knowledge construction always happens in a particular time and place. The researcher is influenced by the dominant discourse and spatiality of research. Power operates in a complex way influencing research. It grants legitimacy to certain elements as opposed to the others.

The bricoleur recognises that there is no certainty and no final authority. There is nothing natural about this world and it is a social and cultural construct. The social, cultural, political, emotional, affective etc elements are all elements that add complexity to the bricolage. The bricolage brings together diverse types of knowledge from varied epistemological and ontological perspectives. This leads to new epistemologies and ontologies. The knowledge produced must be enacted in light of the struggles. The bricoleur's own self consciousness adds to these polysemic interpretations.

Berry (2004) gives us a methodology to construct the bricolage. The starting point of a bricoleur is termed as Point of Entry Text or POET. The POET is the focal point for the bricolage. It can be a photo, a theory, a social issue, history, a flyer, a movie, a book or anything at all. The POET is poststructural and can be constructed and deconstructed by the reader or the researcher as they pursue the issue. Each reading and interpretation of the POET can lead to multiple interpretations and conflicts and challenges but the original POET remains. The interconnections with other related issues can reframe it. Berry uses the metaphor of trees and forests. She also denotes the POET as the bottom text over which transparency sheets can be overlaid. The transparent sheets cannot however cover the basic POET. It is also a hypertext which connects with other issues or discourses. The POET, much like life, is complex and a multilayered phenomenon. It is not a linear interpretation but it is

like a butterfly threading through different features of the phenomenon. “Bricolage generates knowledge that is used for social action that transforms grand narratives and discourses and traditional procedural research methodologies” (Berry, 2004, 106). Bricoleur research helps understand this diversity, plurality as well as facilitates multiple readings of the issue. Using the POET as a point of entry the bricoleur researcher can then choose to indulge in various dimensions of the phenomenon or issue under consideration. These dimensions can be - theoretical, philosophical, narratological, focus could be on modes of power, interdisciplinary, in the context of human activity, archaeology of knowledge, semiotic readings, methodological and so on. This creates a butterfly effect with a constant to and fro between various dimensions. In the next section we will construct a bricolage of the conception gender- in sports and then theoretically.

#### Section 2: The POET: Gender Testing in Sports

Gender as an issue is of interest not just to academicians but also to the person on the street, activists, civil society and media too. Common sense understanding of gender is a part of the everyday structures with which we think about the world. As researchers these taken for granted perceptions and structures need to be understood and analysed. Much like the butterfly effect (Berry, 2004) the understanding of gender cuts across various disciplines, overlapping and intersecting dimensions.. A monologic research methodology would not do justice to the richness of the debates and discussions on gender. In this case we begin the discussion on gender through gender testing in sports. We also look at some cases of sports women who were debarred from competition because of their gender.

The POET that I use as a starting point in this analysis is a longish quote on the Olympic runner Stella Walsh “In the 1936 Berlin Olympics, the runners Stella Walsh of Poland and Helen Stephens of the United States were rumoured to be male impostors because of their remarkable athleticism, ‘male-like’ muscles and angular faces. After Stephens narrowly beat Walsh in the 100-meter dash and posted a world record, Stephens was publicly accused of being a man, by Walsh or Polish journalists — accounts vary. German Olympics officials had examined Stephens’s genitals before the event and declared her female. Four decades

later, in an unexpected twist, an autopsy of Walsh revealed she had ambiguous genitalia.” (Padawer, 2016). This quote brings into focus the aesthetics of being a female or a male. The suspicion on the gender of Walsh arose because she looked masculine and had a well developed set of muscles. One would assume that any athlete who has trained hard would have a well developed set of muscles. Women who participate in sports are taller and have well developed muscles. Some of them are generally more masculine. Any woman who is good at sports will be taller, have a higher muscle to fat ratio (Heggie, 2010).

It was only in the twentieth century at the 1924 Olympics that women were allowed to participate. Prior to that the ‘scientific’ belief was that sports and physical exercise led to female sterility and women developing masculine characteristics. With the participation of women in sports there were also cases of gender fraud in which men posed as women and participated in the sporting events. Most international sports organisations allow individuals to compete either as males or females. All individuals who are intersex or transgender have to compete either as male or female. These organisations use ‘science’ to determine the eligibility of an athlete to compete. These ‘objective’ tests can be traced back to the 1930s. The famous case is that of Heinrich Ratjen who competed as Dora Ratjen in the 1936 Berlin Olympics. It is said that he bound his genitals to compete as a woman. Ratjen’s case of ‘gender fraud’ to date is the only genuine case of a gender deception. However Ratjen’s gender deception was discovered in the 1950s by a policeman and medical examination declared him to be a man. He spent the rest of his life as a male. There are conflicting accounts and it was more a case of “gender uncertainty, medical error, fear and embarrassed silences” (Heggie, 2010, 163).

Mary Weston and Zdeneka Koubek who were international record holders in the 1930s competed as women. Both the athletes after retirement underwent sex change operations and became males. They were not penalised since they competed as ‘women’ and the change in gender happened after they quit competition. In the 1930s gender testing was still based on the visual.

These cases of gender fraud, gender ambiguity and gender change led to a demand for more vigorous testing of women athletes. In 1946 the IAAF and IOC declared that all female athletes needed a medical

certificate to prove their gender. There was no standardised testing and the sporting bodies relied on a nation's cultural and social definitions of femininity. This changed by the 1960s (Heggie, 2010).

By the 1960s there was a standardisation of scientific testing of femininity. State, national, social and cultural parameters were now no longer sufficient. In the 1960s with the success of women athletes who appeared to be from Eastern Europe there was a clamour from Western nations to introduce sex testing. The East European athletes looked distinctly masculine and did not conform to Western notions of femininity. The first such tests in 1966 in Budapest relied on a visual examination of women athletes. Physical examination was introduced later. The more stringent Barr Body Test for chromosomal testing was introduced in 1967. No reasons were given for choosing test. The test was based on the assumption that men would test XY for the 23rd and final pair of chromosomes<sup>3</sup> and women would test for XX. Many individuals however fell in between the XX and the XY chromosomes. The Barr test “does not necessarily map onto the physiological or phenotypic sex, which are the only kinds of sexual identity to confer a sporting advantage” (Heggie, 2010, 160). If men had taken the test then those men with an extra X chromosome as in the case of Klinefelter syndrome<sup>4</sup> would have qualified as female. There are also other conditions where individuals could have one or three or more sex chromosomes. It assumed that gender was binary- male and female. Despite the criticisms the Barr test continued to be used till the 1980s.

The first athlete to be tested using the Barr test was Ewa Klobukowska in 1967. She failed the test and her medals were taken from her. However in 1999 after three decades her medals were returned (The Quint, 2021). The case of the Spanish hurdler Maria Jose Martinez - Patino in 1985 led to the discontinuation of the Barr test. Patino was barred from competition using the Barr test. She contested the ruling and further testing proved that she had testes underneath her labia and she had no uterus or ovaries; this condition was

called Androgen Insensitivity Syndrome. It was argued that the Barr test was problematic since merely testing for chromosomes did not establish that an individual had a sporting advantage. This brought into focus the issue of human rights, scientific objectivity and also the assumption that humans could be fitted into the gender binary (Heggie, 2010).

The International Association of Athletics Federations (IAAF) due to the pressure of the medical fraternity had stopped chromosomal testing by 1988 and by 1992 they abandoned all forms of sex testing of female athletes while retaining the right to test an athlete when needed. The logic given was that due to the testing of athletes for doping the athletes were required to urinate in front of witnesses so it was also a visual examination. In addition they also said that modern sportswear was so revealing that it was difficult to hide your gender. The International Olympic Committee (IOC) however continued chromosome testing even introducing new tests in 1998. It too ultimately abandoned blanket sex testing in 1999.

Gender testing of any sort was stopped till the twenty-first century. South African athlete, Mokgadi Caster Semenya, underwent a gender test in 2009 and was banned for a year due to high levels of testosterone. Semenya was tested for gender since her performance had dramatically improved in less than a year. Logically the investigation should have focussed on doping rather than on gender. Her case was also politicised as being a case of a white gaze of a black female. The South African government supported Semenya and challenged the IAAF's decision. Nine years later in 2018, the Court of Arbitration for Sport (CAS) declared that all female athletes like Semenya who had high testosterone levels must reduce the levels by taking medication. Semenya has refused to take medication to reduce her testosterone levels. She did try to take the medication but it made her unwell. Semenya then lodged a complaint with the European Court of Human Rights. (Heggie, 2010). Though the ECHR ruled in her favour the IAAF did not change its rules. “World Athletics president Sebastian Coe said

<sup>3</sup> Humans have 23 pairs of chromosomes which include the sex chromosomes. The sex chromosomes for women is XX and for males in XY (Mayo Clinic, 2019).

<sup>4</sup> A male with Klinefelter syndrome is born with an extra X chromosome. He has low

testosterone levels and a low muscle mass. Facial and body hair are also less. There may also be enlarged breast tissue (Mayo Clinic, 2019).

that the decision to exclude transgender women who had gone through male puberty was based "on the overarching need to protect the female category"(Ewing, 2023). There is a blanket ban on athletes with Disorder of Sexual Development (DSD). DSD means that an individual is born with an intersecting anatomy. The term includes several conditions with a wide range spectrum of variations between male and female (Chattopadhyay, 2023).

Indian athletes Santhi Soundarajan in 2006 and Pinki Pramanik in 2012 were also banned from sports as they were also cases of DSD (Padawer, 2016; Chattopadhyay, 2023). In clear violation of their human rights and dignity Soundarajan was asked to strip and was examined by doctors who did not speak her language. The Government of India did not share the details of why she failed the test. It was in 2013 through the media that it was revealed that Soundarajan, was an intersex individual (Chattopadhyay, 2023). Pinki Pramanik was accused of raping her female flatmate. She was arrested by male policeman in clear violation of her rights as a woman. Like Soundarajan after her arrest Pramanik was stripped and physically examined. While under arrest she was treated as a male and was locked up in a cell meant for men. Several medical tests proved inconclusive. Finally she was released with the medical board declaring her incapable of raping anyone but they also said that she had prominent male features and declared that she had DSD. The court refused to dismiss the charge sheet since 'she was not a female in the ordinary sense of the term'. However later she was granted bail since she was "incapable of sexual intercourse like an ordinary male" (Chattopadhyay, 2023). In 2014, Dutee Chand<sup>5</sup> from India tested positive for hyperandrogenism (The Quint, 2021). The Government of India challenged the decision and went to the CAS and the verdict was in her favour. These athletes had an androgynous appearance with a deep voice and boyish looks.

The IAAF rules for female athletes with DSD bars women from track and field events ranging from 400 metres to 1 mile. This implies that any races above 1 mile permit athletes with DSD to compete. The IAAF rule states that female athletes who do not lower their

testosterone levels will only be allowed to compete in events that are not of an international level. The IOC states that "Although rare, some women develop male-like body characteristics due to an overproduction of male sex hormones, so called 'androgens.' The androgenic effects on the human body explain why men perform better than women in most sports and are, in fact, the very reason for the distinction between male and female competition in most sports. Consequently, women with hyperandrogenism generally perform better in sport than other women." (Henne, 2014, 788). This goes beyond the initial purpose of preventing gender fraud in the 1960s and is a comment on gender (Fausto-Sterling 2000; Heggie, 2010).

These decisions raise questions about gender. A binary understanding of gender is problematic. Also how does one distinguish between sex and gender? In order to understand these issues it is important to theoretically trace the ways in which the understanding of sex and gender has developed. As a bricoleur researcher we now proceed to understand how sex and gender have been theoretically understood. In the next section we seek answers to these questions.

### Section 3: A Theoretical Understanding of Gender

From antiquity to the middle ages women's bodies were not considered to be different from male bodies. It was presumed that women merely had an inverted penis and the womb was an inner scrotum. It was assumed that these were differences which were ordained by God. 18th century feminists like Mary Wollstonecraft (1793) questioned this belief. She argued in her work 'A Vindication of the Rights of Women' that men and women were different from one another because of their socialisation.

Scientific accounts from the 17th to the 21st century begin to depict women and men in terms of cultural stereotypes which justify social norms. In 1913, a British doctor Walter Heape argued that men and women had different reproductive systems and since all other systems and organs were affected by these. Thus for Heape men and women were essentially different from one another. In his work 'Sex

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<sup>5</sup> Dutee Chand was the first Indian sports person to declare herself as gay.

Antagonism' in 1913 he scientifically argued that suffragettes were damaging their child bearing potential by channelling their energy into activism. This view was popular in the 19th century and this 'science' established that gender preceded sex and sex in turn was linked to reproductive organs. Further 'scientific' development led to W.K. Brook's 'scientific fact' that the ovum was conservative in comparison to the more progressive sperm. He added that women's brains were more suited to dealing with the ordinary and the everyday lives. men on the other hand were more suited to being progressive, mathematically oriented, outgoing and progressive. In 1887, Patrick Geddes and Arthur Thomson argued that men and women have different metabolisms. The metabolism of men was anabolic and it conserved energy. Women on the other hand had catabolic metabolisms and were always deficit in energy. So this made women sluggish and passive and men more aggressive and outgoing. They further agreed with Brooks and went on to say that social policy should be designed keeping in mind the biological facts about men and women (Moi, 2001). Such 'scientific' facts led to the banning of women from all sporting activities till 1930.

In the 21st century too we have Emily Martin's work which points out that biological textbooks are still misogynistic in the portrayal of the sperm and the ovum. The sperm is shown as being active and aggressive and the ovum is depicted as being sluggish and slow; this has also had an impact on the way that men and women are portrayed. Martin goes on to say that such imagery in scientific literature is obviously influenced by cultural connotations (Martin, 2013). The Barr Body test too is based on 'science' which assumes that there are only two types of individuals based on chromosomes XX for female and XY for male.

Such scientific accounts whether in the 19th century or afterwards are biologically deterministic. Males are depicted as being strong, outgoing and fearless. Females are depicted as being inward looking and passive. Also heterosexuality was the norm..

In the 1950s and 1960s the term sex referred to biology and gender to what the individual felt. Gender became a psychological category or cultural and sex was a biological category (Pickett, 2002; Weeks 1998).

Feminists of the late 1960s and 1970 contended that the inequality between the two sexes was a product of

patriarchy. Gayle Rubin (1975) and Ann Oakley(1972) described gender as being different from sex. Further they said that gender was socially constructed and sex was biological. Rubin further posited that gender was social and a product of social relationships rooted in kinship. Biologically for Rubin the differences between males and females were not as portrayed by society. For instance women may be taller than men or some men may not be as strong as some women; just as some women may have masculine attributes and some men may have some feminine attributes. These differences were not so stark as portrayed by society. The engendering of individuals becomes important for heterosexuality to operate. Sherry Ortner (1974) wrote that the female body was placed closer to nature as opposed to the male body, which was perceived as being cultural rather than natural. This places the male body using the patriarchal logic on a higher pedestal as opposed to the female body.

In the 20th century thinkers like Judith Butler (1990) and Donna Haraway (2017) point out that the category of sex has been left unquestioned by the earlier theorists. According to them the focus on gender had assumed that there were only two sexes- male and female. This had invisibilised sex and was also based on the hegemonic normativity of heterosexuality.

All those who do not fit into the binary like transvestites are perceived as being non normative and abnormal. Rubin (1975) points out that for instance societies like the Crow, the Omaha, Kwakwilt and the Eskimos have institutionalised transvestism. It is normal. Gender thus is a social arrangement and is directed towards organising human activity. For Rubin sex too is culturally determined and all societies have arrangements through which sex, sexual identity are perceived. The psychoanalytic theories on sexuality by Sigmund Freud and Jacques Lacan, for Rubin, are based on the division between men and women and also on the ways in which bisexual and androgynous infants are transformed into boys and girls. In the pre Oedipal complex, children are described as being bisexual and androgynous. These children exhibit the characteristics of both boys and girls. As they grow because of social structures, those who have biological characteristics of women are forced to become social women. The same is true for social men. Their androgynous characteristics are suppressed. This



regulation of sexuality leads to the emergence of men and women.

Post structural theorists like Butler (1990, 2017) and Haraway (2017) argued that the invisibilization of sex has rendered it as a category which is ahistorical and disembodied. While acknowledging that it is important to avoid biological determinism they also contend that sex has to be understood as a culturally constructed category. It cannot be viewed as something which is not influenced by society and cultural perceptions. For Butler there is no distinction between sex and gender. Nature does not fix sex rather it is a part of the social and political fabric of any society. Gender for her is performative and is an outcome of actions and behaviour. A masculine or feminine identity is socially constructed on the sexual body. Sex is the effect of the performance of gender rather than its cause. Gender is contingent on the process of identity formation and sexual desire. So a person with XY chromosomes, that is a male, might have the sexual desires of a female and may decide to dress, speak, walk and talk like a female. That means his gender performativity is that of a female. Gender for her is a social contract and it is the performance of gender that constitutes the identity of an individual. Butler talks about anatomical sex gender identity and gender performance. The anatomical sex of the performer could be different from the gender and it could also be different from gender performance. In this case there is a dissonance between sex and gender performance and also between sex and gender. Terms like queer, butches femmes, dicks and fag destabilise the categories of sex. These are denoted as derogatory terms within the larger hegemonic heteronormativity. In the case of a lesbian homosexual couple the butch identity does not mean that one of the females is behaving like the male as in a heterosexual couple. All that it means is that the girl, i.e. the butch is actually stressing on the masculine features in a female body. Destabilisation of identity upsets the commonly held concepts of masculinity and femininity and sex as natural and gender as cultural. The creation of this parodic identity deconstructs the status of heterosexuality and the fact that it is not normal. Butler uses the term 'heterosexual matrix' to denote the power of heterosexuality and its normativity (Butler, 1990).

Haraway (1998) questions the essentialism of the biological category of sex. She argues that the feminist in the 1950 and 1960s did not question the binaries of

sex/gender and nature/culture. The politics of these binaries and their social construction were rooted in Western colonialism. For her sex and gender have to be understood in the context of the ways in which the identities of actors are constructed. She brings into play the social, cultural, racial and other forms of embeddedness and the ways in which they intersect with the spatiality of the individual.

Feminists contest the domination of an androcentric perspective. They use the term heterogender to highlight the ways in which the heterosexual imaginary is situated and understood. The othering of the non normative categories has marginalised them and labelled them as abnormal. Following Rubin's (1975) the 'Charmed circle of Sexuality' we see that some forms of sexuality are inside the circle while others are outside and on the margins. The good, the normal and the accepted sexuality is heterosexuality, monogamous, reproductive and non commercial sexuality. Any form of sexuality which goes against this normal is considered to be abnormal. This includes homosexual female bodies, transvestites etc . The moment we look at gender as heterogender we begin to look at it as hierarchically organised in a patriarchal context. Chrys Ingraham's heterosexual imaginary is that "image or representation of reality that masks the historical and material conditions of life" (Ingraham, 2013, 79). It links the ways in which gender is understood in the context of heterosexuality and the ways in which the dominant epistemology conceals the ways in which this is normalised as opposed to the others. Both heterosexuality and gender have to be understood as socially and culturally constructed. For Rich (1998) compulsory heterosexuality has to be recognised as a political institution it has to be understood in the context of patriarchal and male power . Marilyn Strathern (1988) uses the Melanesian term 'dividual' instead of the Western individual to stress the fact that the person is culturally and socially embedded. The hierarchy between men and women is not biological but an outcome of the social matrix of relationships within which they exist. This hierarchy she adds critiquing Rubin is not structural but varies from context to context.

The poststructuralists discussed in the preceding section oppose the binary of sex and gender and stress on the importance of looking at women as a category outside the normative masculine frames of

objectification. The moment we do this we begin to look at categories that are not defined by hegemonic normative heterosexuality. This also does away with the sharp distinction between men and women. Michelle Foucault (1976) in his History of Sexuality argues that sexuality is produced through political discourse. It is these political discourses through prescriptions and equipment that privilege certain scientific discourse. In the 18th and the 19th century we see the labelling of certain sex qualities as not normal as opposed to others that were classified as normal. Any sexuality which does not fit into the institution of marriage and procreation within the confines of marriage is treated as abnormal. For him sexual categories are contingent on human construction. We see this in the case of all the sports cases discussed in the preceding section.

The trans-identity destabilised the uniformity of the systematic neat and tidy demarcation between men and women. It disturbed the hegemon is socially constructed 'natural' and rearticulated the normative linkages between the two biological categories of male and female. Fausto Sterling (2000) uses the term intersex to define people who have both male and female characteristics. Feminists like Nancy Hartsock, Sandra Harding and Iris Young contend that metanarratives in terms of identity construction are not desirable. It is the metanarrative of the female and male bodies that have rendered all other bodies that do not fit into the binary as abnormal (Jackson & Scott, 2013).

In this section we have discussed the ways in which 'science' constructed the female and male body. From the 18th century to the 21st century science has portrayed the female body as inward looking, sluggish with a slower metabolism. The male body has always been portrayed as energetic, aggressive and outward looking. The female body has always been scientifically constructed against the standardised male body. The 'normal' body one that fits into the male and female binary. It is also heterosexual. Theorists have debated on sex and gender and in the 1950s and 60s it was believed that sex was biological and gender as social and cultural. However critical theorists like Butler and Haraway have argued that sex too is culturally constructed. Butler's concept of gender performativity stresses on how gender is constructed on the sexual body and sex is an outcome of gender performance. Haraway questions the

'scientific' biological essentialism and contends that sex and gender have to be understood in terms of identity construction. There has to be recognition of their social and cultural embeddedness. The structuring of knowledge and the dominant epistemes are outcomes of the power structures of society. Feminists question the construction of the dominant and hegemonic masculinity and femininity. It is these constructs that have problematized the androgynous bodies of some female athletes.

#### **Section 4 : Conclusion**

Using bricolage we have examined the ways in which gender has been conceptualised. Methodologically the POET that we used was gender testing in international sports. As a theoretical bricoleur we then examined the theoretical conceptualisation of gender. The bricolage also examined gendered identity construction and the grand narratives constructed to understand gender.

In the context of the sporting arena we have seen that the conceptualisation of gender is a binary one. The IAAF and IOC judge all female bodies against the normative female body. The normative female body has not been culturally or socially defined since 1960. When women started competing in the 1930s certificates from state authorities were enough to prove their femininity. However this changed and there was a standardisation of gender testing. Using 'science' gender testing began with a visual examination of the body of the athletes and progressed to the controversial Barr Body Test and hormone testing. Initial cases of gender fraud with men competing as women led to gender testing being introduced. Late with the success of 'masculine' East European athletes gender testing became more 'scientific'. Any female athlete who had a deep voice and a flat chest were suspect. They did not fit into the standard female trope. Visually these athletes had deeper voices, broader more masculine stature and flatter chests.

The problem is that the sporting bodies have limited gender to only the male and female binary. Gender is a complex multilayered phenomenon and cannot be neatly tied up in the gender binary. Testing is not done for men only for women. Some female bodies have been labelled as 'abnormal' as compared to others. These are issues surrounding hegemonic heteronormativity and science. Science has helped sports decide who will compete and who will not.

Bodies that are a problem to be fixed. Semenya, Soundarajan, Pramanik or Dutee Chand' have 'abnormal' bodies that have to be fixed. The issue is not that of the human bodies that have been subjected to steroids and other drugs to perform better. It is an issue of fitting into scientific stereotypes (Fouché, 2012). Feminist movements of the 20th century led to participation of women. Physiological differences between men and women athletes are quite small vis-à-vis the general population. Differences of strength are there but in terms of endurance the differences were very small. Gender verification and sports is dependent on fixing and identifying what appears to be unnatural to the gaze of the authorities. Suspicion is generally aroused when the athlete does not fit into the cultural rubric. They are not feminine enough and have androgynous bodies. The treatment of athletes is based on a binary division between men and women. There are very real consequences of transgressing the man and woman divide even though there are new age gender verification scientific techniques. There is a focus on fixing the outliers even if it means forcing them to alter their bodies by measures like taking medicines to reduce certain hormones.

The gender binary has no scope for athletes like Patino, Soundarajan, Pramanik and Dutee Chand and Semenya. The trans body in some cases and the androgynous body in other cases has been labelled as problematic. They have all been clubbed under the term DSD which includes a wide spectrum of biological variations. Maps athlete bodies are considered 'normal' and they are not subject to any tests including excessive or less testosterone. To normalise bodies like those of Semenya the CAS has prescribed medical intervention through drugs to bring down the excessive testosterone. On the one hand drugs are banned and on the other hand they are prescribing drugs to be ingested. Certain bodies are more acceptable than others. Tests declared natural female bodies as abnormal and not female. Female masculinity was deemed to be abnormal. They were declared unnatural even though biologically they were naturally women.

The cases of the athletes discussed above highlight the social construction of biology. It is not possible to assign human beings to only the two sex categories of male or female. The common perception of anatomical sex being embedded in the biological male or female body is obviously destabilised. What we refer to as sex

covers a wide range of categories like chromosomal sex, anatomical sex, reproductive sex and morphology. These are a variety of bodily aggregation sexes that are a mashup about how the body is understood.

The usage of the terms gender and sex are an outcome of the political history of the times; they are a product of the dominant epistemology and ontology. In the name of equality and fairness the sports world maintains a very strict division between men and women. The term gender test itself is confusing and incorrect. It implies that the athletes have failed to fulfil the social identity of a particular gender. In all the cases it is the identity of a female rather than the male which is in question. Gender is personal, private and a lived experience.

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