Social hierarchies and technological practices: The making of documentary films in India

Nivedita Ghosh
ghosh.nivedita@hotmail.com
University of Delhi, Delhi

ABSTRACT

This article is premised on a critique of the view that technological capacities are independent of social hierarchies and are increasingly becoming participatory, allowing the entry of individuals from different levels of social strata. In response to the work Jacques Ellul and Francois Hetman, this paper argues that knowledge of technology, while indeed providing a momentary space for decision-making, does not necessarily restructure social hierarchies. Through case studies presented from the world of Indian documentary filmmaking, this paper puts forth the view that technology operators, despite being technologically advanced, do not break into the filmmaking hierarchical order. This remains true even where technical knowledge rests most with those in the lowest rungs of the filmmaking ladder. Instead, technological knowledge provides the scope for other kinds of relationships to develop, such as those of 'trusting the technician' or 'admiration for the technician's work'. This admiration is especially acquired through techniques of improvisation that the technological operator becomes proficient in. Furthermore, what continues to define documentary filmmaking hierarchy is conceptualization capacities of the practitioners, which are influenced by a similarity in socio-cultural backgrounds and film school training accessible to only a limited few.

***Keywords*—** *Documentary film making, India, Technology, Decision-making, Improvisation*

1. INTRODUCTION

This paper is based on a larger study on documentary filmmaking practices prevalent in India, outlining the complex social realities and the production culture within which filming activity takes place. The general aim of this research has been to demystify the approaches adopted for documentary filmmaking by studying "filmmakers on their jobs", that is, on what is known as film shoots. The present paper examines one such film shoot in order to address the debate regarding the relationship between knowledge of filmmaking technology, social hierarchies and decision-making capacities within the film crew. Because the process of filmmaking is acutely dependent upon technology, it can be reasonably argued that technologies may hold the capacity to change the direction of the filmmaking process [1] in a significant way. This technology requires operators, who hold different levels of expertise that is drawn on the basis of training and usage. The technology operators are hired on film projects on the basis of this expertise and skill, which are acquired not only through training but also the experience of working on the field. What is significant to note however is that knowledge of technologies not only structures the filmmaking process but is also centered on social relationships, such as those of hierarchy and decision-making. Theoretically speaking, there are several disagreements about how significantly these social conditions influence the operations of this technology. In his critique of Lefebvre's (1970) view that technology operates through class, Jacques Ellul argues,

This remark overlooks the fact that each individual participates in the technological system on all level. To neglect such a fact […] one has to start by ignoring the dissolution of classes, as caused by the growth of the technological system (Ellul, 1980, p.13).

Ellul, despite arguing that modern society does not seem to be experiencing a technocracy or rule of the technocrat, still refers to the work of Francois Hetman (1967) to further substantiate the argument that in a technological system, social distribution is less and less in terms of activities applied to the economy and class and more in keeping with the technological capacity. Technology is participatory, according to Hetman, inviting individuals from different levels, thus having a potential to cut through socio-economic hierarchies. As a result, we are entering into an era of clerks, and these clerks are the decision-makers in all domains because they have the knowledge of the use of technologies. Ellul asserts, Like it or not (and Hetman shows this so well), the experts, the specialists of diverse technologies are to be found everywhere, from business to administration, from the government to agriculture" (Ellul, p. 14).

Although the technological operators are found everywhere, drawn from different classes, to what extent do they become decision-makers still remains to be explored? In response to Hetman's thesis and Ellul's assertions, it is thus argued that knowledge of technology, does not necessarily lead to decision-making capacities. And, in cases where momentary decision-making does take place, there is no necessary restructuring of hierarchies. Nevertheless, technological knowledge possessed by the clerk does provide the scope for other kinds of relationships to develop, such as those of 'trusting the technician' or 'admiration for the technician's work' rather than rendering him/her with the space for decision-making or control. Furthermore, the paper also shows that the question of who will operate which technology is equally an important signifier of social hierarchies, making technological practices unequally structured and dependent upon social accessibilities. To say that technology today is available to everyone and just about anybody can acquire its expertise is to ignore the social processes by which its accessibility, training and even expertise are negotiated at the grassroots.

2. BACKGROUND OF THE FILM UNDER PRODUCTION

The above arguments are established by examining a film shoot that was carried out in a shut-down Solar Power Plant in the city of Greater Noida, Uttar Pradesh. This film was being directed by Canadian filmmaker and journalist John L. on the subject of climate change. The story of the film was based on a book, which at the time of my fieldwork was in the process of being completed by John's partner, a prominent Sociologist Emma K. The core film crew comprised of two major groups - the local members and the foreign members. The foreign crew-members comprised of the Canadian Director John, one Canadian first cameraperson Steve R., responsible for developing the compositions of the primary shots and one Finnish second cameraperson Zach W., hired primarily for his expertise in areal filmmaking. The remaining members were local, arranged via the production company John had contacted for shooting in India. This production company made arrangements for a fixer, a sound person and got John in touch with Flamingo Films, which supplies equipment and equipment assistants on film shoots. On understanding the requirements from John, Flamingo Films provided the crew with the remaining members namely, three light assistants and one grip. In all, therefore, this shoot comprised of the three foreign crew-members, five local crew-members, a fixer, an Indian journalist (working in the same field as the film) and me as the utility assistant/researcher.

3. FILMING OF THE FIRST SEQUENCE: UNDERSTANDING HIERARCHY AND DECISION-MAKING WITHIN THE FILM CREW

In order to understand the nature of stratification and the social dynamics operating within the crew, we refer to the shooting of the first shot, namely the establishing shot for the film. The filming of the first shot (establishing shot) for the film was supposed to introduce the solar power plant to the viewer. The name of the plant was written on top of the building and it was not possible for an ordinary film camera to capture it from a ground level. The solution for this was to use the flying drone camera whose operational expertise rested with cameraperson Zach. Zach had been asked to be a part of this project primarily because of his skill of using a drone camera, a device that he himself had built. He had basically built a small helicopter and attached a lightweight Canon DSLR at its bottom. This helicopter was battery operated and to monitor its movement Zach used remote control. To see what the camera was filming, he used a small monitor that was wirelessly attached to the camera on the helicopter. This monitor had two modes, showing not only the visuals that the camera above was capturing but also its coordinates with respect to the height, velocity and shakes of the camera. In order to fly the drone, Zach needed to know all this information but it was not possible for him to fly it while seeing the monitor at the same time. Therefore, he needed another technical person to shout the information out to him from the screen so that he could accordingly maneuver the helicopter. This 'shouting out' was going to be done by Steve, the First Cameraperson while Director John held a cloth on top of the monitor so that the visuals could be correctly seen in bright sunlight. Thus, all three coordinated in the flying of the drone camera, interestingly with the director assisting the cameraperson in the making of the shot, rather than vice-versa.

Indian	Canadian
Fixer	Film Director
Sound Mixer/Recordist	First Cinematographer
Three Light Assistants	Second Cinematographer
Grip	
Others (Journalist, Drivers, Researcher)	

John's preference for the drone camera was also because it did away with the need for cranes, which were not only expensive but also too cumbersome to be carried around. In documentary film shoots, the locations may often get too small for such giant machines and usually, filmmakers neither have the budget, nor the space to execute crane shots. In order for this shot to be taken, John explained in detail to Zach what kind of a composition he desired. John could only do this conceptually since he didn't have the technical means to execute this shot. The first decision to be made was regarding the path that would be taken by this drone camera. John asked Zach if he could see some initial footage of how things were going to look from above. Zach's camera took its first flight. The helicopter made a loud sound as it took off, even though it hardly had a three feet diameter. On the small monitor, one could see a black and white display, in which the visuals were extremely shaky and the screen itself seemed to be jumpy from poor signal quality. Zach took the camera to the left, right, and a little ahead towards the center of the plant, as though figuring out the path that the helicopter should take to make the shot. Soon however the drone became extremely unstable and started drifting fast towards its right. Zach shouted that one of the wings had stopped working, although it was something that he said he knew how to handle. He managed to land the drone on his hand and joked with John, "at least it didn't crash this time!". John too didn't seem to panic, as if knowing that Zach would fix the problem and instead excitedly asked me about what I thought of the flying drone camera. After the first unsuccessful flight, Zach was soon ready to fly his camera again after fixing the wing problem. This time, John told Zach what he wanted in the shot, namely, the nameplate of the plant situated on top of the building and also some bit from the center of the plant where the solar panels were kept. That was the only instruction given to Zach and

from there on, he was completely on his own to make the shot. The final flight took off and Zach first took the camera to the center of the plant, bringing it back towards the nameplate and finally down filming the entrance of the building.

After outlining the ethnography, in the remaining part of the essay we see how Hetman's clerks, despite being technologically advanced do not break into the filmmaking hierarchy, which places a combination of technical, aesthetic and conceptual decisions higher than purely technological ones. Accordingly, in speaking about hierarchical reorderings, Hetman fails to take account of the higher status accorded to conceptualisation capacities even in a world dominated by technology. This is not to say that the clerk has no conceptualisation skill, but as we see subsequently, the aesthetic sensibility possessed by the clerk is seen to be different from that desired by the filmmaker. In the solar power plant shoot, Hetman's argument thus gets challenged especially when we analyse the relationship between three professionals at work, namely, the director, the cinematographer and the camera assistant.

4. THE DIRECTOR - THE CINEMATOGRAPHER - THE CAMERA ASSISTANT: UNDERSTANDING THE PROCESS OF DECISION-MAKING

To theoretically contextualize this argument, we refer to the very definition of how technology has been understood by scholars. Li-Hua (2009) argues that technology may include more than stable machines and gadgets. Even though traditionally the term may have concentrated more on hardware, the term today includes software technology and other intangible products. Similarly, Matthewman (2011) outlines three dimensions along which social theorists have understood the meaning of the term 'technology'. The first dimension situates technology as a set of "physical things: objects, artefacts, tools, machines and so on" (Matthewman, 2011, p. 9). This understanding of technology is primarily materialistic, a focus that is critiqued following Nigel Thrift's (2004) call for the shifts in the nature of materiality of technology. Matthewman thus asserts that technology may not necessarily be a fixed, stable, bounded thing. With digitisation invading most contemporary technological apparatus, we are confronted with intangible software that render the object de-materialised. The definition of technology as stable objects thus requires expansion. This brings him to the second and third meanings of technology as that which is 'a human activity and knowledge'. Since technologies are produced to create certain effects, and in order for these effects to be realised, there is a need to know how to use them. And this takes us to the realm of the *technique*. As he argues, 'a simple tool can be useless in untutored hands' (Matthewman, 2011, p. 10). The technique according to this definition is thus the knowledge of technology, more specifically, the knowledge about the effects technology is meant to produce and about the processes through which such effects may be achieved. Thus, we arrive at a more complicated understanding of the use of technology, one that is incomplete without incorporating the idea of technique.

Chatterjee [11] (1990) takes this argument further to assert that the concept of technology consists of four closely interlinked elements, namely 'knowledge, technique, the organization of the production, and the product' (1990:19). The concept of *knowledge*, Chatterjee argues has coherence with technology as technology transfer is not achievable without knowledge transfer. A pure dispensation of technology is not enough for its successful implementation and especially in case of complex technology, knowledge is required for a successful global technology transfer. Knowledge, in fact, can be further classified as explicit knowledge and tacit knowledge, where the latter is especially significant when dealing with complex technologies. *The technique* according to Chatterjee is different from knowledge as it covers the instruments of labor (machinery and tools), materials and the way they are brought into function by labor in the working process. The technique is thus the execution of knowledge and incorporates both the social working process and social contradictions (e.g. between machinery and labor, between social hierarchies etc).

Borrowing from Chatterjee's argument, it can be asserted that the very execution of technological knowledge, through the process of what is understood to be technique incorporates social hierarchies. It remains to be ethnographically understood how this indeed plays out in the world of Indian documentary filmmaking. Now, in the making of documentary films, the director and the cameraperson may not necessarily be separate figures and the director may herself compose her shots. On this occasion in the solar power plant shoot however, the two persons were separate claiming two very different roles in the filming process. To explain the difference between the camera person and the director, I refer to an interview with cinematographer Sulekh according to whom:

The cinematographer does not have to know the whole story, but he must know the shot. He does not necessarily have a larger picture in mind. That is the job of the Director. While the cinematographer produces the shot by looking at compositions – light, colour and angle, the director pays attention to the narrative structure, to the content, to the interactions. The cinematographer does not have to necessarily bother about these.

Similarly, in a testimonial, Director Alexander Witt mentions:

Having my camera operator allows me the time and space to concentrate on the look of the scene…while my operator can deal with the mechanics of the shot. Does this mean that the operator is purely a technician? Far from it, he has direct creative input. He works in collaboration with me, using his trained eye, to compose and frame the shot. When a person becomes a camera operator, the technical aspects of the camera are combined with the creative issues of framing, camera movement and film narrative [2].

Accordingly, one of the differences between the cinematographer/cameraperson and the director pertains to monitoring the project as a whole vis-à-vis executing specific parts of the project (something that gives decision-making advantage to the latter). At the same time, the part and the whole need to collaborate for successful outcomes since the director depends upon the camera

operator for creative inputs. In the solar power plant shoot, the decision to make the establishing shot into an areal composition was that of the director, who after watching Zach's work had hired him purely on account of this expertise. Furthermore, although John preferred this areal style to take the establishing shot, he himself did not have the skill to execute this preference, despot being proficient in the handling of cameras himself. For this he had to collaborate with Zach and trust his expertise in the making of this shot, not only technically, but also aesthetically. Thus Zach's inputs were both aesthetic and technical. It can thus be seen that, in this case, the cinematographer and the director are separated by technical capacities, in a manner that the cinematographer has technical expertise over the director.

Further, this technical expertise was also not one that could be easily replaced since flying a drone camera was an extremely rare and specialized skill. However, this expert knowledge did not give an absolutely free hand to the cameraperson. To film this establishing shot, Zach had to take account of the requirements forwarded by John. The technical expertise did not guarantee Zach sole decision-making and this further complicates the relationship between the two figures under analysis. Indeed, Zach took account of what John desired, moulded the inputs in his own vision and then executed the shot. Zach further explained this negotiation between the filmmaker and the cinematographer by stating that,

When you are working with another filmmaker, they need to trust your judgment and give you the space to compose the shot in your way. It cannot work otherwise. It is like this…every shot I make for you, I am present in it, even if it is your direction.

Interestingly, this 'trust' does not exist when the camera is being set up by a camera assistant rather than the cinematographer. In continuing the conversation with camera assistant Amit, as mentioned in the previous section, the hierarchy becomes more evident. A very dissatisfied Amit explained that,

If I can set up the camera, put the lens, focus the camera, you tell me why can I not make the shot? They treat us as though we cannot do more than this. But we also have ideas. How will they know if they don't let us do it? But they cannot do what we can. Can they set up the camera so quickly? They won't even know how to operate some of these cameras.

In another incident where the technician expresses dissatisfaction with the filmmaker after the latter accidentally broke the dolly track during the Solar Power Plant shoot, the Grip provided by Flamingo Films, Dheeraj lamented:

What is the hurry I don't understand? See how he's broken the track. They don't know how to use things, that's why I am here. This was company equipment and I am answerable for it. Nothing will happen to him (John) but I will be in trouble. The boss will ask me… Why did you even let him pick it? But you tell me… could I have stopped him? They do what they want to do.

What emerges from these grievances is a rather interesting difference between those who operate equipment and those who compose the shots. They challenge the popular assumption that filmmakers are not just conceptually but technologically sound professionals. *What we find in this line however is a situation where the lowest rungs of the film hierarchy are occupied by highly technologically equipped individuals, who may at the same time have the lower decision-making capacities on the shoot.* This decision-making is limited not just to shot composition but also over the authority to put forth matters related to their own area of expertise that is handling of equipment. This higher technological capacity of those in the 'lower rungs' is explained further by the founder of Flamingo Films, Nandu, (as he is fondly called) in the following way:

The documentary filmmaker or the cameraperson usually work with limited equipment. He would be initially trained in something and with technological changes; he would try and update his skills. But his options are limited since he cannot purchase every new gadget in the market. However, the technicians and assistants we have here get to work with different directors and a variety of equipment. They learn to use the most advanced and latest gadgets in the market. This exposure is lacking amongst the filmmakers who usually would have acquired training or own now outdated instruments. It is natural the technicians would have better knowledge about equipment compared to the filmmaker.

This situation was again confirmed by filmmakers Sushmit Ghosh and Rintu Thomas who narrated in an interview about the time when their company Black Ticket Films was hired by a filmmaker who came back to the field to film after more than a decade. The said filmmaker was stumped as she had become completely out of touch with the operations of new camera technology because of which she had to rely purely on the cameraperson and technicians to do her filming. This brings us back to Hetman's argument about technology creating a new kind of stratification that replaces older hierarchies with new ones drawing from technological capacities. The situation described above runs contrary to his assertion that technology is participatory and invites individuals from different levels in a way that they are the new decision-makers. As we see in documentary filmmaking, hierarchy is central to the process, and its lowest rungs are occupied by technologically equipped professionals, at times more equipped than the filmmakers themselves. This idea very much goes against Follett's argument that, in an organisation, every individual's authority ought to be drawn from the task and its function s/he performs. The above discussion shows that even when the task and its function become significant in a working setup, it does not render the workers with authority, strong enough to destabilise the established organisational hierarchy. To explain another aspect of this point, a discussion with John becomes relevant. Upon asking him about the relationship between the director and the crew-members, he responds by saying that:

I personally don't like hierarchies. I would like things to be as democratic as possible. But the nature of filmmaking is such that democracies do not work here. Someone has to take the decisions and these decisions have to be followed else filmmaking can become an extremely chaotic process. We might end up with unnecessary delays, escalating costs and bad moods of people whose decisions are not taken into account. But the crewmembers are creative people after all. They need their freedom and I like to give

them the freedom to do things their way, and that's how they give me great results. If I don't like something, I tell them, it's not working. I have learnt it the hard way. I have tried being democratic before. But the hierarchy is much better.

Now, to understand the source of this knowledge hierarchy within documentary filmmaking, the following conversation with Delhi-based filmmaker Aarti M. becomes relevant -

- **Nivedita**: I have observed on film shoots that although the camera assistants efficiently set up film equipment, they are never trusted with composing the shots for the film.
- **Aarti**: Yes, that's because the camera assistant will not know the overall narrative and composition style of the film that is preferred by the director. The film is more of an aesthetic project, not merely a technical one. If we go by what you are saying then anyone who learns how to use a camera will automatically know how to compose a shot. But the two are very different things.
- **Nivedita:** How is it then that the director comes to trust the cinematographer, who would also have a different composition style than the director?
- **Aarti:** Cinematographers are creative people by the end of the day. They acquire training in composing shots and so their creative and aesthetic inputs are more compatible with the vision of the director. This is not the case with the technician whose expertise lies in handling the equipment rather than composing a shot.

From the above discussion, an interesting point emerges regarding the vision of the cinematographer being more compatible with that of the director as opposed to the camera assistant. Thus, it is not merely a distribution but a hierarchical division of film work and it is this *compatibility of vision,* which is presented as a reason for the compositional hierarchy between the cinematographer and the camera assistant. To understand the details of this compatibility of vision, one can look into the training backgrounds of each of these figures, namely the director, the cinematographer and the camera assistant, which will reveal that the compatibility in aesthetic judgments between the director and the cinematographer stems not only from common training but also a similarity in their socio-cultural background.

5. PRODUCTION OF HIERARCHIES AND THE ROLE OF FILM INSTITUTES

Documentary film training in India began with the was efforts of Anwar Jamal Kidwai, filmmaker and former secretary of the Indian Ministry of Information and Broadcasting, who founded the Mass Communication Research Center (MCRC) in 1983. The University Grants Commission and the Canadian International Development Agency funded MCRC while and Jamia Millia Islamia in New Delhi and York University in Canada offered University cooperation. Canadian Filmmaker James Beveridge played a critical role in the founding of this center and was amongst the first to teach the practice in India. MCRC thus produced the first generation of regionally trained documentary filmmakers in the country. Since then, several institutes have taken up the teaching of this practice including notable ones like National Institute of Design (NID, Ahmedabad), Satyajit Ray Film and Television Institute (SRFTI, Kolkata), Srishti Institute of Art, Design and Technology (Bengaluru) and so on. Apart from these, there are also several independent and private training programmes and schools spread across the country that provide training facilities to aspiring filmmakers. Institutes offering documentary filmmaking courses in India today may be divided into:

(a) Government or Privately run Film Schools (e.g. MCRC, SRFTI)
(b) Design Schools (e.g. NID, Srishti, SACAC)
(c) Academic Departments (such as that of Anthropology, Sociology or Education)
(d) Privately run courses by filmmakers (e.g. Impulse by Kavita Joshi)
(e) Small scale and private mass communication schools also offering documentary filmmaking as a course among other things. (Amity, MIT etc.)
(f) NGOs (PSBT e.g. often releases instructional videos and organises lectures on the practice)
(g) Distant online courses

The course structure of these film-training programmes involves a mix of technical and conceptual aspects, taught both theoretically and practically. Apart from theory and practice, viewing and discussion of films made by eminent filmmakers are common to all of these programmes. The films screened include a mix of classics and contemporary productions (Godard, Ray, Fellini, Jean Rouch etc.) and group discussions on them are crucial for understanding the shot composition and narrative development. These were not just from the documentary but also the fiction category, which if not viewed and discussed in detail, at least found a mention during the class discussions.

It is argued here that the training modules, film screenings and discussions generate a common language to talk about films and filmmaking. Documentary training thus establishes certain standardisations in composition and storytelling practices [3]. Which further leads to the argument that training in these premier schools provides a common basis for conceptual discussions amongst filmmakers, which helps them develop what we earlier referred to as a 'compatibility of vision'. It is true that not all documentary filmmakers go through formal film training and may limit themselves to self-learning, learning on the field or by joining some short private course along the way. However, even the self-taught ones do 'catch up' with the classics and pick up compositional styles through screenings and discussions in film festivals, and more recently, through online forums and courses.

Furthermore, in India, an interesting point of commonality between documentary filmmakers is their undergraduate training in liberal arts courses like Sociology, English Literature, History, Fine Arts, Journalism etc. This background also allows the filmmaking community to develop this compatibility of vision especially with respect to understanding social issues in a certain critical manner. This is similar to the process of 'acquiring creativity', as explained by Kerrigan and McIntyre (2010). The authors argue that, for creativity to occur, a set of rules and practices must be transmitted from the field or domain to the individual. This model of creativity illustrates how it is possible for the filmmakers to draw upon their knowledge and how they are able to acquire

this knowledge through mediating social and cultural conventions and then demonstrate their creative understanding. The authors argue that additional training cements this knowledge along with the secondary process of education such as watching many documentaries to understand the style of other practitioners and what audiences appreciate. It is argued here that this process equally contributes to the development of this compatibility of vision between filmmakers and cinematographers.

Interestingly, the rung of technicians that I encountered during fieldwork had not been trained from any of these premier institutes. Most had barely cleared class 10th and acquired training on the job or through production houses like Flamingo Films, which provided in-house training for 'the boys'. There were also some fly-by-night small film companies that catered to the wedding and 'family function' videography, which provided opportunities to the technicians to pick up some skills. Higher fee structure, limited availability of seats and selection on the basis of an already acquired knowledge structure kept the technicians out of the more premiere institutes. To understand the above situation better, Bourdieu's concept of 'cultural capital' becomes useful. Explaining the presence of social assets that assist individuals to gain social mobility in a hierarchical society, Bourdieu writes:

When one speaks of the aristocratic asceticism of teachers or the pretension of the petit bourgeois, one is not only describing these groups by one, or even the most important, of their properties, but also endeavouring to name the principle which generates all their properties and all the judgement of their, or other people's, properties. The habitus is necessity internalized and converted into a disposition that generates meaningful practices and meaning-giving perceptions … [A]n agent's whole set of practices (or those of a whole set of agents produced by similar conditions) are both systematic, inasmuch as they are the product of the application of identical (or interchangeable) schemes, and systematically distinct from the practices constituting another lifestyle … (Bourdieu, 1984).

Accordingly, Bourdieu explains that lifestyle specific *habitus* generates practices in a way that individuals become predisposed towards specific tastes, judgements and perceptions. Within the case of documentary filmmaking, an individual agent's or filmmaker's constituting 'group lifestyle' is central in predisposing him/her towards a certain aesthetic perception. Within this lifestyle, the role of education in general and that of film training and liberal arts education in particular plays a particularly significant part in developing compatibility of aesthetic vision between the different filmmakers and cinematographers. We can borrow from Bourdieu's conceptualisation in order to further understand the role of education in developing the documentary filmmaker's vision:

The education system reproduces all the more perfectly the structure of the distribution of cultural capital among classes … in that the culture which it transmits is closer to the dominant culture and that the mode of inculcation practised by the family … An education system which puts into practice an implicit pedagogic action, requiring initial familiarity with the dominant culture, and which proceeds by imperceptible familiarization, offers information and training which can be received and acquired only by subjects endowed with the system of predispositions that is the condition for the success of the transmission and of the inculcation of the culture … This consists mainly of linguistic and cultural competence and that relationship of familiarity with a culture which can only be produced by family upbringing when it transmits the dominant culture. (Bourdieu, 1973).

In this case, both linguistic and cultural competence derived from class specific upbringing makes for easier entry of the aspirants in the film institutes. Documentary film training through these institutes requires that initial familiarity of the aspirant with language skills, perception, understanding of social issues, exposure to international film history and styles etc [4]. Accordingly, candidates who are selected are already expected to have a familiarity with certain cultural elements, which then makes for an easier entry into these institutes. For the technicians, too cultural factors were at work, though in a very different manner. In the 34 interviews I conducted with film technicians such as grips, light boys, camera and sound assistants and location assistants, 29 had entered the film production line through a known contact such as an uncle, a friend, a brother or a village acquaintance. 4 had accidentally chanced upon this career while only 1 had actually made it into the line because he wanted to. Not a single one of them was a woman. Not a single one was interested in the documentary line per se but preferred to work in it over fiction. This phenomenon was explained well by Camera Assistant Pankaj:

If you are a newcomer in this line, it is better you come to Delhi (and work in documentary film shoots). Here you will actually get to learn something. If you go straight to Bombay, they will not even let you touch the machines. My brother has been there for seven years and he still doesn't know how much I know, and I have only been in this line for three years. In Bombay, for the first two-three years, they will just ask you to watch and learn. How much can one really watch? Here you get to learn much faster and that too on all the latest machines that are used by the foreigners.

Furthermore, entry into the film line for the technicians was initially more of a work-related prospect rather than a passionate aspiration. At the same time, once, having entered the line and having spent time in learning on shoots, several of the technicians showed interest in acquiring mobility by stepping up to the position of a cinematographer, sound recorder and even a filmmaker. All this, while acknowledging that such mobility is limited and lack of funds makes it even more difficult to step up the ladder.

6. SUMMARY NOTE ON HIERARCHY BETWEEN THE CREWMEMBERS
Accordingly, we see what kind of social hierarchies are prevalent within documentary film crews. These hierarchies are not only a result of but also reinforced by the training and background of the crewmembers. While filmmakers tend to pick up compositional styles from their training and exposure, the technical assistants pick up the ability to operate on different equipment and machinery. To return to Hetman's assertion about technicians breaking into the new work hierarchy thus stands challenged. It is true, that the hierarchy fumbles as the director assists the cameraperson in the making the shot; it fumbles when the director

stands inept in handling the technology that the cameraperson or camera assistant can, but it reconfigures in the decision of what has to be filmed after all. It reconfigures if a certain shot does not produce the effect desired by the filmmaker and it will reconfigure again in the decision of what shots will make it to the final film. Rather, the technician's ability to break the hierarchy can be understood as what author Beatrice Jauregui (2016), refers to as 'provisional agency'. Jauregui uses Sherry Ortner's distinction between agency as "power or imposition of will" and "agency as a project or the pursuit of goals"(ibid: 54). Ortner claims that the two forms of agencies are separate, carrying different meanings, even if they may appear to be articulating with one another. Power for Ortner always lies in the pursuit of goals or service of projects. Using this idea, Jauregui asserts that the pursuits of goals (within a project) may accrue provisional agency to an individual, which is dependent upon his/her "contingent capability to provide for the self and others as collective beneficence," (ibid: 55). Jauregui's understanding of agency moves away from the Foucauldian idea of power as a totalising force and shifts to the Weberian authority model, which outlines the varying capabilities, and interest of individuals in giving and obeying commands. Accordingly, Jauregui argues "the probability of obedience to authoritative command changes depending on a host of factors shaping the social field of exchange relationships" (ibid: 57). She further goes on to assert that, "in this shifting field, *all* subjects involved may have provisional agency; however, some subjects will be imbued with extra quality of provisional authority as well, by virtue of their official position or their capabilities…" (ibid: 58). In the above case, therefore, this provisional authority would be held by the director, by virtue of his official position, while the cameraperson and camera assistant carrying varying degrees of provisional agency. Moreover, the provisional agency of the camera person will be higher than that of the camera assistant by virtue of the compatibility of vision that he shares with the filmmaker. In the next part of the discussion, we see how, despite weak decision-making capacity, the technology operator gains trust and admiration at the workplace, thus contributing to a sense of meaningfully contributing to the filmmaking activity. It is thus argued that this sense meaningfulness may be derived not merely from decision-making capacities but through alternative means, specifically that of the ability to improvise.

7. FILMING OF THE SECOND SEQUENCE: ADMIRATION AND TRUST FOR THE TECHNOLOGY OPERATOR

After filming the establishing shot with the help of a drone camera, it was time to move on to the next sequence, which was to be filmed with the help of a camera mounted on a dolly inside the power-plant solar energy production line. As we will see, filming of this sequence further questions the capacity of technology in breaking and remaking hierarchies. At the same time, it also highlights yet another aspect of documentary film shoots, namely the necessary ability of the crew to be able to improvise on feet in a quick and responsive manner. The tracking shot was meant to portray the condition of the shutdown plant through a ghostly and tragic effect. Since the solar energy production area was dark, with no natural light coming in, this effect would be created through artificial lighting, produced through electricity supplied by generators. These generators were loaded in trucks and could not possibly be brought inside. For the lights to receive electricity, generator cables would be used that were to enter the plant through windows. But the division in which the crew had permission to the film had no windows and the plant manager or the employees had no authority to provide permission to film in the other divisions. This was mainly because inside the plant, one had to be very careful about dust particles, to the extent that one had to wear body suits, caps, shoe covers and also pass through purifying air cubicles before entering the production area. At this moment, it was the journalist whose contact with the plant owner came handy and after explaining to him the situation, she managed to get permission to film in the next division.

Soon enough, the cables were brought in through windows of the second plant division and the light-camera set up started. In the process of this setting up, the equipment also had to be lugged from the first to the second division. This equipment was so heavy that two people were engaged in carrying one item at a time. In this shifting, even I pitched in and so did John. John decided to transfer the dolly, which is a rubber wheeled camera support, meant to move on tracks. Flamingo Films supplied the Dolly and the grip, Dheeraj, who was put in charge by the company to take care of the equipment. John decided to transfer the tracks of the dolly, by simply pulling them through the ground rather than folding them up in the bags. While doing this, one side of the track broke. While John merely gave a guilty smile, Dheeraj panicked. Since he couldn't say anything to John, he found me suitable enough to vent out his disapproval of the filmmaker's behaviour, in the way mentioned in the previous section. *It is interesting to note that despite John being 'friendly', Dheeraj could not speak to him about this equipment breakage directly, thus making Heimer's (1992) argument that friendliness can allow people to arrive at mutually beneficial conditions rather simplistic. Friendliness, therefore, cannot necessarily break class driven technical hierarchies, as we see in this case.*

Now, the breakage of the dolly was ignored by the remaining camerapersons who got busy in discussions on composing the shot that would be taken on the dolly. To test how their composition would look on the camera, Steve, decided to mount the camera on the dolly and take a trial run. However, while mounting the camera, he realised that the sizes of their Red camera socket and the dolly handle were different and the two would not fit. Steve quickly lost his cool and told Dheeraj that because of this they might not be able to take this dolly shot at all. Dheeraj tried to explain to him that he was never provided with the instruction that the crew was going to use the Red Camera, else he would have carried the required part along with him. An angry and sarcastic Steve asked our fixer to arrange for the missing part immediately, but it would take at least an hour for it to arrive from the equipment supplier's office in Malviya Nagar. The crew didn't have that much time and Steve grew impatient. He also asked me not to take photos or videos of this faux pas, since things had suddenly become 'serious'. Dheeraj looked at me, smirked and said, "These foreigners panic at the smallest things. Now just wait and see what I do". Dheeraj searched his bag and took out a conical shaped object and a small ball. He joined the two and fixed the contraption on to the dolly handle. He then placed the camera on it, and the two got fixed. Dheeraj proudly looked at me and said, "*Mere Paas sab jugaad hai*", roughly translating into, *"I have a fix for every problem"*. Steve ignored Dheeraj's gloating and continued to compose the shot as if nothing had happened at all. However, the tension did not end there. Since the dolly track had broken, a bump was visible in the camera while it went over the fractured area. This time Steve didn't get angry with Louis [5], because of whom the dolly had broken, to begin with. The grip, Dheeraj came to the rescue again at this point. He took out a medical tape from his bag and joined the fracture so smoothly that the bump

was almost invisible. By now Dheeraj was visibly proud and happy since he had quick fixed a problem again. The shot was now made as planned after which, an eager to talk Dheeraj narrated his story:

All these techniques are a result of years of experience. And still, not everyone can fix things. You have to be eager to learn and keep your eyes open on shoots. This is why I am in great demand for shoots. People especially ask for me. Sometimes they refuse to work with anyone else. I have more than 15-years experience in this line and I have travelled the world. I just returned from Russia this January. The film people paid for all my costs... after all, I save so much time and money for them. And who could predict? I ran away from my home in Himachal when I was only 13. I didn't even finish school. And today I make a good living, travel everywhere. But honestly, sometimes I feel like quitting all this and go back home. There is no the time for family in this line. But I can't do that easily because they keep telling me… I am a hard one to replace.

7. THE SIGNIFICANCE OF JUGAAD OR 'INDIAN IMPROVISATION'

Breakdowns are common in film shootings. Missing and broken parts, equipment malfunctions and their resolutions are frequent. But even if equipment is working fine, the very process of documentary filmmaking throws up situations that require making use of immediately available objects in order to execute specific shots. This act falls within the purview of what can be understood as the process of improvisation. Improvisations, however, themselves depend upon a variety of factors. To begin with, technologies in themselves carry the potential of malfunction. As we have learnt from Beck (1992), technological risks are embedded in the very conception of modern societies, which he refers to as *risk societies*. Accordingly, the technology operators in a way are already prepared for damage and malfunction during usage. In the world of filmmaking, this preparedness involves carrying potentially relevant objects such as a knife, tape, cloth, plastic bags, batteries, equipment parts etc. At the same time, the preparedness of how to deal with a breakdown also depends upon the skill and experience of the technician. The technician's skill and experience allow him to resolve technological limitations and breakdowns through intelligent improvisations, thus saving time and money for the crew. Improvisation, according to Landgraf (2011) is an "unforeseen, unforeseeable, and unplanned activity that is inventive" (2011, p.5). Thus, there is an inventive or creative aspect of improvisation as a technological practice.

However, scholars have argued that the concept of creativity is a stable concept and a term more fruitful for analysis in the face of breakdowns and malfunctions could be that of *bricolage*. For Levi -Strauss, the identity of the bricoluer is opposed to that of the engineer precisely because the latter defines the finality of the object already in advance. The bricoluer, however, accumulates resources that could be useful in the future for any reason, thus making the process outside of the parameters of clearly defined purposes. In the above discussion we see how Dheeraj acts like a bricoluer, because of his ability to use objects in a way that differs from their original purpose, and as Sawyer argues, is able to conceive what to do in a situation and in fact does it simultaneously. Dheeraj is able to act like a bricoluer, within an unexpected problem-solving mode, in a situation when it is time to improvise. He hasn't planned the task in advance and on the contrary, acts by intuition, depending upon the situation within which he finds himself. Thus, Dheeraj's improvisation borders on a 'mysterious outcome' since it is not known before hand whether his attempt at resolving the situation will ultimately be successful or not.

Loarne (2005) argues that the relationship between the bricoluer and his/her material is negotiated by the culture of his/her community. The culture gives the bricoluer, the basic framework, which will orient him/her to change the nature and finality of the objects. Accordingly the process of bricolage entails a specific kind of materialistic relationship with the environment. In the case of Dheeraj, the specific cultural undertone of the bricolage process can be gauged through the word he uses to refer to the process of his improvisation, namely *jugaad.* Jugaad can be understood as "a fix-it attitude that creates a just-in time solution, to solve a problem"[15]. Jugaad cannot be taught per se and the improviser (who is colloquially known as the *jugaadu*) is produced by a particular historical configuration. Jauregui considers *jugaad* as a tactical power, which can range from being *"an ability or skill, a tool or formula, an industrious ethic, an entrepreneurial spirit, a mentality or mindset, a tradition or value set, or even a culture within itself"* (Jauregui 2016: 53). Jaurgei argues that the concept of *jugaad,* though indigenous to India, has been exported to other parts of the world especially which faces severe resource constraints. She mentions how a former Indian national minister of commerce and industry even claimed that *jugaad* forms the bedrock of Indian discovery and development, going so far as to wonder whether it is a form of scientific innovation, representing a "suppressed Indian inventive gene" (Jauregui 2016: 54).

Certainly, there is a number of critics to the idea and many are dissatisfied with calling *jugaad* 'innovative' and argue that it is at best an adaptive measure that serves as a temporary stage or stepping stone on the way to a truly systematic innovation (Kristen 2010). Sociologists have also argued that *jugaad* exposes people to systematic risks and reinforces dependencies on detrimental parts in the form of using ad hoc materials and skirting around resource constraints rather than finding a positive force for social mobility and political and economic transformation. Jauregui further argues that in India though, *Jugaad* is an everyday mode of sociability and is conceived of as something constructive, though, as argued previously, does not provide agency to the improviser since it is not regarded as a potentially transformative capacity that takes can restructure power relations.

This is particularly important to understand because, *jugaad,* as we see in the present shoot, is undertaken by those at the lowest rung of the filmmaking hierarchy - the technicians. Conversations with Dheeraj, for instance, reveals how the acts of improvisation instils a sense of achievement and fulfilment in the worker along with a sense of momentary agency. This is so, even if he has been performing the same tasks for the last 15 years of his professional journey. It has to be re-asserted that repetition is central to the very process of improvisation and in the world of documentary filmmaking, repetition of tasks is seen as a manner of gaining more skill and experience, especially for those belonging to the lower rung of the hierarchy. However, this is not necessarily mindless repetition, but rather, an engagement with reasoned repetitive processes. Knowledge and experience gained by performing mindful repetitive tasks also becomes a way of acquiring upward mobility, and a sense of being

'admired and wanted' in the work sphere. It thus becomes imperative to understand the workings of repetition and improvisation, in order to throw light on the work culture of those belonging to the technology rather than the conceptual side of filmmaking. As argued by Landgraf, rather than being the expression of unbridled freedom, improvisation must be seen as a result of engagement with structure and repetition. The act of improvisation is thus possible only in the face of a repetitive structure. According to Deleuze (1994), in the act of repetition, one needs to see what is being repeated? "For there is no repetition without a repeater" (Ibid, p. 23). For the repeater, the repetitive act comprises of both conformity to the given model and a habituated action, once it is acquired. Habit however never gives rise to true repetition.

This is because, Deleuze writes, "sometimes the action changes and is perfected while the intention remains constant; sometimes the action remains the same in different contexts and with different intentions" (Ibid, p. 5). In order to locate the element of improvisation thus, one needs to look at repetition as being outside of the ambit of habit. For Judith Butler (2004) the act of improvisation renegotiates the line between restrictive/oppressive structures on one hand and self-fulfilling, self-authoring freedoms on the other. For Butler, improvisation is a way of enacting one's identity, where an individual's "doing" (active rather than habitual) confronts constraining social structures. Butler thus highlights the role played by 'constraint' in creating acts of improvisation. That is, in the event of breakdowns, missing parts, weather spoilers etc. one is forced to improvise or solve a problem, especially through limited means. Furthermore, according to Butler, in this act of improvisation, the thing created is not only the object of the invention but also the improviser herself. Therefore, improvisation is a process of a simultaneous composition of and also a performance by the doer.

Thus, through improvisation, the doer is not only creating the object of the invention but in a way, recreating herself. It can now be argued that, if it is repetition than brings forth improvisation, far from being meaningless, the repetitive work of the technician in the film line allows him the space to recreate himself. The worker, by spending time and effort on the equipment, learns and masters it in his own way. Through this repetition, the machine no longer remains in total control of the worker (the worker does not remain a slave to the machine) but is transformed into a tool, which can be used/modified/reconfigured, by the worker to resolve situations in the face of breakdowns. Now, it can be further argued that improvisation itself is not unexpected or unique to this practice. As mentioned before, breakdowns are anticipated and expected part of filmmaking, a point established by the preparedness with which the grip e.g. comes for the shoot. *In a way then, improvisation itself is repeated.* Repetition and improvisation thus pave the way for self-fulfilment and meaning for the technician. This also adjoins with what the worker thinks about his own work. Despite strenuous work conditions, the technicians seem to take pride in what they do, and show an interest to learn more, and do more. Ironically, rather than the workers, the person who does mention about the difficult work conditions of the technicians was their boss, the owner of Flamingo Films, Nandu according to whom:

This line is tough. Anyone wanting to enter this line has to be ready to work; be ready to sweat it out. These boys have to stand in extreme heat or cold for hours till the shoot wraps up. They don't have it easy. They have to reach the location hours before the actual shoot begins and hours after the wrap-up. Sometimes, they have to set up at midnight so they often go without sleep. And the equipment is so heavy. Imagine standing hours with a boom mic or with a sun reflector. It's not easy.

This point was further substantiated by the fixer through a piece of advice she had for me. She said that "A golden rule of surviving film shoots is to sit whenever possible, wherever possible". For the worker on the other hand, apart from lack of free time for the family, grievances amounted to be lack of decision-making and limited opportunities to learn and grow in the field. Grip technician Dheeraj, however, believed that difficult work conditions were something to be faced bravely rather than something to be whining about.

Thus, the technicians identify with their work and have an opinion about the way it should be done. They are not meaninglessly repeating what they are required to do. This is significant also because film shoots are not just physically taxing but because they involve a long period of waits between set ups, takes and retakes, they can induce mental boredom. This is true not only for the technicians but also for anyone having to wait for their turn/role to come, e.g. the fixer or even the respondent. These empty periods can induce frustration, boredom and even more exhaustion for someone having to do this repeatedly. Barbalet (1999) argues that boredom is a result of the absence of meaning in an activity. This absence of meaning causes irritability, restlessness and can also induce intra-group conflict. However, in the film line, we see how boredom can be induced without necessarily experiencing meaninglessness, and rather can be accepted as a part of one's everyday work environment.

8. CONCLUDING NOTE
This essay allows an exploration of the unfolding of social hierarchies, and the manner in which they are generated in the world of documentary filmmaking in India. These hierarchies are not only a result of but also reinforced by the training and background of the crewmembers. While filmmakers tend to pick up compositional styles from their training and exposure, the technical assistants pick up the ability to operate on different equipment and machinery. To return to Hetman's assertion about technicians breaking into the new work hierarchy thus stands challenged. It is true, that the hierarchy fumbles as the director assists the cameraperson in the making the shot; it fumbles when the director stands inept in handling the technology that the cameraperson or camera assistant can, but it reconfigures in the decision of what has to be filmed after all. It reconfigures if a certain shot does not produce the effect desired by the filmmaker and it will reconfigure again in the decision of what shots will make it to the final film. However, the process of improvisation stands central to the act of meaning-creation in the technological workspace, along with creating opportunities for upward mobility in the filmmaking line. The aim of this essay, which was to elaborate upon one aspect of the everydayness of the documentary filmmaking process, by looking at its technological relationship with its practitioners, thus allows us to grasp the meaning of working in an environment, which continues to be determined by social hierarchies.

9. REFERENCES

[1] The argument that technologies have the potential to alter the course of a film's making has been challenged by scholars such as Barry Salt (2009), who argues that filmmakers always find a way to get around the limitations of technology. However, this essay holds that technological challenges, rather than impacting the story in a big way, influences the filmmaker's preferred style of shooting. It is in this regard that it has been argued here that the filming process does get influenced by technological directions.

[2] www.theaco.net/Testimonials-full.asp

[3] This is not to say that there is no scope for improvising or developing one's own style. For instance, an important difference between film and design schools is that students in the latter, students got exposure to other forms of arts as well (such as textile designing, sculpture, painting etc.) because of which, design became a central aspect of their narrative development. Design school students are thus able to make use of other media such as puppetry or painting within documentary filmmaking, allowing for various types of innovation within the practice.

[4] For instance, film institute entrance exam questions usually ask the aspirant about their favourite director, films, an issue that they feel about the most, books they may have read recently, their engagement with earlier creative projects (design, writing, filmmaking etc.).

[5] Steve's ignoring of the breakage caused by John on one hand and a rather a visible display of authoritative displeasure to Dheeraj on the other also shows how 'affects' too are hierarchically organised. With whom one can engage in a visible display of anger, too signifies a structure of organisational hierarchy.

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