

Social construction of technology sociology essay

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Social construction of technology

Introduction

In this paper, I will be discussing the social construction of technology commonly known as SCOT developed by Trevor Pinch and Wieber Bijker in the 1980s. The social construction of technology (SCOT), started development in the 1980s and its development can be traced to changes in the units of analysis from artefacts to technological culture and can also be traced to the central methodological heuristics and theoretical claims from social construction of technology to co-production of technology and society where artefacts can be seen as materials and processes. Also, its development can be traced to understanding the development of technology to questioning the politics of modern techno-scientific societies. According to (Wajcman, 2000), the Social construction of technology approach emphasizes that technological artefacts are open to sociological analysis especially with respect the design and technical content and not just their usage. I will start by giving a brief history of the social construction of technology and then go on to discuss about its components and how it affects the social groups of people where a social group is said to be a group taking interest in an artifact and having an understanding and same meaning to that artifact. It will also show how the SCOT approach helps relates to the way we humans do things. This essay will show the criticisms of the social construction of technology that is of a view that society is

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composed of groups and will be supported by various citations from various Authors of this work. The essay will continue by showing how SCOT criticizes technological determinism where Technological Determinism (TD) entails a linear technological and one dimension technological view of development therefore, TD implies a poor research. It will also highlight the components of SCOT and shows how it affects the social groups of people where a social group is seen to be a group of people with similar interest of an artifact and having an understanding and same meaning of that artifact. I will go on to talk further about the weaknesses of SCOT and the strength and will also use some common examples to illustrate the role technology plays in how it applies to how we organize our activities.

A brief History on the Social Construction of Technology, (SCOT)

Social construction is a phrase that was first used by Berger and Lukemann (1996) in their 'treatise in the sociology of knowledge. (Bijker, 2010). (Alfred Schutz, 1943) argues that the social construction should be the object of social knowledge as reality is socially constructed. Also, in the 1970s, social constructions of scientific facts were first developed followed by the social construction of artefacts. (Bijker, 2010). The social construction of technology (SCOT) grew out of the combination of three distinct bodies of work and they include: the early science-technology-society (STS) movement, the sociology of scientific knowledge and the history of technology. The first started in the 1970s, mainly in the Netherlands, Scandinavia, the UK and the USA. (Bijker, 2010). Social construction of technology was developed by Trevor Pinch and Wieber Bijker in the 1980s. It

has gained advantages in analyzing users as agents of technological change. Relevant social groups who are involved in the development of artefacts in SCOT are defined as the groups who share meaning of the artefact and this meaning can be used to explain particular development paths. (Kline and Pinch, 1996). A social group can consist of Engineers, advertisers, consumers, etc. SCOT aims at what's counted as a successful artifact and a satisfactory test of artifact. (Kline and Pinch, 1996).

Criticisms of SCOT's Approach

One of the major critics is of SCOT's view of society as composed of groups." Pinch (1996) sums it up best when he states, " The particular way in which society is conceptualized and linked to artefacts is via the notion of relevant social groups" (p. 23). " Implicitly, SCOT assumes that groups are equal and that all relevant social groups are present in the design process. (Klein and Kleinman, 2002). For power asymmetry between groups, this has been a failure as some groups may be effectively prevented from participating in the design process at all (Williams and Edge 1996). Some key elements are found to be missing in this approach and this would be the sociological enterprise. This approach has to do with artefacts and their relationships with the people whether conceived in terms of groups, actor network, or systems. (Deborah, 2012) Sociologist often talk about structure and agency which are more complicated when dealing with technologies conceived in terms of human actors as being located within wider structures and the society in terms of structuring factors such as class, race, gender. These sociologists make use of the methodological technique such as social network approach and have conventional representations of macro

structures somehow shaping the micro domains. (Deborah, 2012). Also, there was a critic about SCOT's neglect on gender but was clarified when Cynthia Cockburn and Susan Omroyd brought up the idea that Pinch and Bijker drew the attention of the consideration of women as highly important to the social group of women bicyclist. The concept of 'actant' where both human and non-human entities can have agency is the distinction between human actor and the rest of the world. (Deborah, 2012) It has been criticized that there was little to say about power in SCOT's theory and this was also bridge where Pinch and Bijker stated that the strategic importance of reorienting technology studies back towards the artifact and away from social theory and so, no principle prevents the SCOT approach from considering power structure and social relationships between social groups. Below is a quote to support that statement." In Social Construction of Technology and closely allied "Social shaping of technology" tradition, (MacKenzie and Wajcman, 1985), Donald MacKenzie and Graham Spinardi (Mackenzie and Spinardi, 1995) argued for the possibility of uninvention of the atomic bomb; (Bijker, 1995) developed a concept of power that drew on social constructive view of technology; and (Hommels, 2005) described how within a constructive view also the hardness and obduracy of technology can be accounted for and thus helped bring back the societal impact of technology into research agenda that had been temporarily pushed out by criticizing technological determinism.(Deborah, 2012)" Social construction of technology also criticizes technological determinism and this comprises of two elements of which the first is; technology develops autonomously and secondly that technology determines an important degree societal development. Technological determinism implies a poor research strategy <https://assignbuster.com/social-construction-of-technology-sociology-essay/>

and this was argued because it entails a linear, teleological and one-dimension technological view of development. (Wajcman, 2000) Technological determinism suggests that social and political interventions in the course in technology are impossible and this makes the politicization of technology to be of a futile endeavor. (Wajcman, 2000). The Social Construction of Technology comprises of the following; Interpretive flexibility; this refers to the way in which different groups of people involved in a technology have different understanding of that technology including the understanding of its technical characteristics. (Wajcman, 2000). The design of technology is an open process that can produce various outcomes and is dependent on the social circumstance of development. (Pinch and Bijker, 1987). This distinguishes SCOT from other constructivist approach in the history of technology. (Kline and Pinch, 1996). Relevant Social Group; " all members of a certain social group share the same set of ideas attached to a specific artifact" (pinch and Bijker 1987, 30). These groups are the agents in the agency centered approach whose actions manifest the meanings the impact to artefacts and can be identified as Actors. (Klein and Kleinman, 2002). The development of technology involves different groups of which the individuals of the group have their own meaning and view as to what an artefact should look like and so they have to come together to negotiate its design while the construct different objects. Because of their different definitions and working techniques, the development process continues until every individual in the group see to it that their artefact works. (Klein and Kleinman, 2002) Closure and Stabilization; the design process of more than one social group will have controversies because of the diverse understanding leading to the interpretation of conflicting images of an

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artefact. Therefore, the design process continues until every member of the different social groups comes to a common agreement on the artefact. When this closure is bridged, further modifications are brought to a halt as the artifact takes its final form. (Klein and Kleinman, 2002) This sometimes brings about future decisions on the artefact and occurs through closure mechanism. (Bijker, 1987). Examples of such mechanism may include; rhetoric closure; where a declaration is made by the groups that the artefact is okay and hence no additional design should be made as no further problem exist. (Klein and Kleinman, 2002). Closure by redefinition; this occurs when diagnosed problems are not solved and are therefore redefined so that they are no longer problems to the social groups. wider context; is the wider social cultural and political milieu where the artefact development takes place and plays a minor role in Pinch and Bijkers's original conception of SCOT therefore, the rules governing the interaction of the social groups, relation to each other and the factors contributing to the differences in their power will remain invincible. (Kline and Pinch, 1996)

Weakness of SCOT

The development of SCOT was basically to deal mainly with the design stage of technologies. (Kline and Pinch, 1996). It is said that SCOT has analyzed a few part of the social structure and power relationships within which technological development takes place. Arising concerns are that the reciprocal relationship of the artefacts and social groups that have been neglected whereas, it is important to show how social groups identities are reconstituted in the economy and also how they come together to shape technology. (Kline and Pinch, 1996)As Gender applies to SCOT, feminist

scholars have recognized that the gender relationship is as a primary manifestation of power relationship among social groups. The virtual absence and weak influence of female social groups leads to the construction of technology as a masculine culture and this has been criticized by Judy Wajcam one of the authors of Social Shaping of technology that Scot has neglected this relationship by failing to recognize that gender analysis has not been entirely absent from SCOT. (Kline and Pinch, 1996).

How technology helps us in the way we organize our activities.

Social construction of technology (SCOT) helps us organize our activities by conceptualizing the hardness of obduracy of technology. Because we now live in a technological culture, SCOT offers a conceptual framework for putting issues on the political agenda. (Wajcman, 2000). Society including politics is technically built as technology since technology is socially and politically constructed. (Wajcman, 2000). According to (Smith and Marx, 1994), Technological determinism refers to a belief that technology advances along a path of its own making, inevitably bringing progress along the way. Since there are different stages of Technological determinism, all of them share a common assumption that new technologies are the primary cause at the micro level with respect to social order as well as micro level influences in how people view the use of technological tool. (Chandler, 1996) Technological determinism has proven to be problematic because it records that individuals are not responsible for the technology they use because the path of technological evolution is seen as one that is followed not created. (Campbell and Russo, 2003). Whereas, with the SCOT approach,

people shape technologies (MacKenzie and Wajcman, 1985); Winner, 1997). An example to illustrate SCOT approach;" It's of farmers in the United States adapting to the use of the motor car. Here, the Interpretative flexibility of an artifact will be the use stage of the technology thereafter, the connection of the relationship between social groups and their ability to shape the development of an artifact and how the artifact shapes them the users will be highlighted. This will be done in close consideration of gender relationship between the social groups. Historians and social commentators generally assume that the automobile has transformed American society. There can be little doubt that America has become a " car culture." But rather less attention has been given to how American society shaped the car- particularly rural society. Although historians usually mention the farm background of Henry Ford and describe the importance of the rural market in the diffusion of the automobile in North America, they have, by far, concentrated on the history of the car in urban settings. Most authors relate the technical, business, and social history of the automobile in terms of urban inventors, urban manufacturers, city pleasures, city traffic jams, and suburban sprawl.' Those who have studied the automobile in the American countryside have concentrated on the social " impact" of the car and the fascination of rural people with Henry Ford and his Model T. They have described in passing how farm people used the car or modified it for purposes not intended by manufacturers. But these actions have taken a backseat to a form of technological determinism evident in most rural as well as urban automotive histories, in which autonomous technological forces drive social change. This example argues that users of technology acted as agents of technological change. By treating farm people as active

participants in the social construction of the automobile, extend recent work will be extended in the history of technology that shifts the field's traditional focus from the "producers" of technology (e. g., inventors, engineers, and manufacturers) to the "users" of technology (e. g., laborers, factory owners, home-workers, and consumers). Within this growing body of scholarship we support a more specific claim that the use of an artefact or system has not only resulted in unforeseen consequences, but that users have helped to shape the artefact or system itself. The main antagonism between farmers and the early car and its drivers seems to have stemmed from the dramatic effects that the car had upon livestock. The early car was expensive, unreliable, and certainly not quiet. A flurry of legislation around 1908 required cars to slow down for horse-drawn vehicles, or stop if the horse appeared frightened. Lucrative "speed traps" also date from this period. The threat was perceived to be such that, as in the case of the bicycle, many farmers took the law into their own hands. Referring to SCOT we can say that these actions, termed an "anti- auto crusade" by one historian, showed the existence of an important relevant social group. For them the car was not the fond object of joy later encapsulated in such names as the "flivver" (so called apparently because the vibration of the car was considered to be good for the liver) or the "Tin Lizzie" (another nickname for the Model T) -it was the "devil wagon." Did this meaning of the car for this social group lead to a radical interpretative flexibility? The answer must be yes. By attempting to destroy cars directly and make roads impassable to cars, this social group was trying to affect perhaps in the most dramatic, direct way possible the development of the artifact. If they had succeeded the car might have taken a very different form. It would have been a short distance city vehicle only.

Railroads would have remained the main form of transportation to rural areas-modern America would look very different. The anticar movement failed because of a combination of circumstances. Faced with the saturation of the urban luxury car market, manufacturers developed a large rural market by producing more affordable cars designed to navigate country roads. The inexpensive Model T, to take the most successful example, sat high off the ground (also making repair easier) and had a high horsepower-to-weight ratio and a three-point suspension. The introduction of the Model T in late 1908 also came at a time of growing support for the car among farm leaders. The National Grange had passed a resolution that summer stating that the "motor vehicle is a permanent feature of modern life" and had a right to use rural roads. The Grange followed the lead of the influential Midwestern paper, Wallace's Farmer, which had begun to promote the gasoline automobile. In January 1908 using the same methods it employed for any new technology it favored: advertisements, editorials, articles, and requests for readers' experiences. The paper's editor stated in February that "farmers have had their fun-and sometimes it was not fun, either-with the users of the automobile." Although farm people had justifiably "called it the rich man's plaything" and had sworn at it for disrupting rural life, they had begun to value cars and to buy them for themselves. The Rural New Yorker, a former critic of the automobile, started to promote it in 1909. Gradually, the advantages of the car became all too clear-cut. The car promised to end the relative isolation of farm life. And the possible income to be derived from wealthy city people did not go unnoticed. Tourism thrived, as did repair shops. Farm men, many of whom had operated steam engines and stationary gasoline engines, were well-placed to become car users. As <https://assignbuster.com/social-construction-of-technology-sociology-essay/>

buggy cars, convertibles, and the Model T spread into rural areas, the anticar movement vanished. By 1920, in fact, the U. S. Census reported that a larger percentage of farm households owned an automobile than did non- farm households (30 percent to 24 percent). Thus the radical meaning of car as " devil wagon" did not stabilize. Interpretative Flexibility in the Farm Yard; the main social groups of relevance to understanding the developments of the rural car are manufacturers, farm men, and farm women. Presently, America Adopts the Automobile. The Moline automobile could be converted to a " truck" by removing the tonneau. As regards to its fundamental design-by 1909 the " large, front-engine, rear-drive automobile" of system Panhard. It is clear that one social group initially had more influence than any other in terms of giving a meaning to the artifact. Farm families started to define the car as more than a transportation device. As the years went by, the farmers, that is the users of this automobile started creating ideas and getting it publish as to how the automobile can be used for convenience to save energy, time and money. The remarkable interpretative flexibility of the rural car has a strong tie to the structure of gender relations between farm men and women. Most generalizations about social groups as large and culturally diverse as farm men and farm women are highly problematic, but gender relationships on farms during this period appear to have been fairly stable. As head of both farm and family in the 19th century, men were in a position to control the productive and reproductive labor necessary to sustain a large family and, increasingly, to farm on a commercial basis. By the turn of the century, farm women appear to have gained more control over their public and domestic lives as gender relations changed with " modernization," but many traditional sexual divisions of labor remained. On most family farms,

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men (husband, sons, and hired hands) performed what were regarded as the main income-producing activities in the field, barn, and machine shop; women (wife, daughters, and hired help performed "supportive" tasks (from both men's and women's points of view) in the house, garden, and poultry shed. Men and women often shared tasks in the dairy. Although many farm women worked in the field at harvest time and at other periods of labor shortages, they usually viewed this economic function, as well as their income from selling vegetables, eggs, and dairy products, in terms of "helping out" the man in the field so that the farmstead could stand on its feet economically. For the same reason, women before World War II seem to have accepted the mechanization of "men's" jobs in the field before the mechanization of "their" work in the house, but not without some protest. Within this flexible and historically variable gender structure were gender identities among farm men and women that help explain the social construction of the rural automobile." (Kline and Pinch, 1996).

Conclusion

In this essay, I have discussed briefly about the history of the Social Construction of technology and as developed by Trevor Pinch and Weiber in the 1980s. I have been able to outline the components of SCOT and explained briefly in each of them. This essay also shows the critic of the SCOT approach as it relates to politics, gender etc. Also, in this essay, SCOT criticizes technological determinism as its development which entails a linear theological and one dimension approach implies a poor research strategy. The weakness of SCOT where briefly noted in this essay as well as its strength and a relative example was illustrated as to how the approach of Social

construction of technology plays a role in which technology helps us organize our activities.