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NEW MEDIA TECHNOLOGIES AND THE EMERGING SOCIAL TECHNICAL NETWORK

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Abstract:
World history has been characterized by periods such as Feudalism, Industrialism and Capitalism that have served social scientists as tools to analyse and identify particular societies. Similarly, the characteristic and defining feature of the contemporary society is Information and Communicating Technology (ICT). Resultant to the ICT explosion and application there has been radical transformation in education, corporate sector, Government sector and most significantly, democracy is being reassessed. This paper attempts to gaze into the social impacts of new media technologies assuming that in this ICT dominant world human and social contexts of technology are undermined with an assumption that ICT and its applications have the same meaning and consequences for all. But recognizing the fact that social context plays a significant role in influencing ICT and its applications in diverse ways, an attempt is also made to highlight the reciprocal relationship between social context and information technology.

Keywords: new media technologies, social technical network

1. Introduction

The world has been characterized by determining phases that marks the development of human societies over time, such as feudalism, industrialism, capitalism, socialism, etc. These phases have served as important diagnostic apparatuses to identify typical societies in the historical process as well as means to understand the elements of these societies. They were characterized by specific nature of social relationships and dominant ideologies that governed social life. Correspondingly, in a society dominated

by the information communication technologies and facing radical changes in its social sphere, the social scientists today are struggling for the coinage of an appropriate terminology to describe this post-modern society. Today, Information has become a defining feature of our society and has come to be regarded as the icon of post-modern society. The spread of technology and their convergence into the telecommunications has led to the rise of new ways and means of work, new types of organizations and new patterns of social relations. As a result of this work is undergoing radical transformation, education is focused with new direction, corporate structures are revitalized and even the very democratic structure is being reassessed. Drawn by these changes, much attention is devoted to the understanding of information of social life. With the contributions of scholarly research made in this regard from different perspectives, new expressions are being brought to the fore front of social science discourse and a systematic body of knowledge is being developed with new outlooks. An assessment of this literature exposes that the sole focus is on technological characteristics and their socio-economic repercussions. What this approach tends to overlook is the vital rudiments like the societal and structural frameworks of technology and the humans using them. The obvious underlying assumption of this approach is that technological applications have same meaning to all users and have similar consequences for all. Conversely, the users construe and encounter these technical applications in their own manner. Here it would not be out of place to mention that social contexts have a substantial influence on ICT applications, which in turn has varied stimuli for working environment, the organization and social relationships making Information Communication technologies not merely tools but a new social and technical system. This paper proposes to analyse ICT's as new form of social technical systems taking into account the social impact and approaches for social shaping embedded within it.

2. Understanding the Network System: Social and Technical

Much research on Information Technology began in 1970's through the 1980's with a specific focus on the role of computerization in work places and organizations. The main aim of such research was to explore the relationship between *computer and its impacts on various issues related to society.* On one hand where research on computer usage and social sciences gave weight age to issues concerning privacy, on the other hand, business schools focused on behavioural information system, for instance, impact of information system on decision-making, organizational structure and strategies for designing information system. It was particularly in the 1980's that a range of research topics in this sphere opened up in these areas of IT and its use within an organization.

During this span of time, questions relating to IT and its usage were considered deterministic especially within the framework of a given organization and expected behaviour, social life and superiority of work. Though these questions were simple and direct, but the impacts were complex and varied. These ideas were mostly circulated through the popular culture rather than in the dominant culture. In 1990's with the widespread use of IT in education through distance mode, managing knowledge, online support formation, development of business process outsourcing (BPO) and e-commerce, it was realized that the association linking technologies and social change are not simple and direct. This social impact perspective focuses only on technological characteristics and their effects, in isolation from social and organizational contexts. This is called technological determinism and this perspective makes faulty assumption that all IT applications have similar connotation with universal implications. Social informatics has been developed as a separate sphere of knowledge with a distinctive perspective to overcome the limitations of the deterministic approach.

3. Social Informatics

A layman notion on "social informatics" may be with the intention of its concern as a discipline that interests itself in understanding the impact of IT on social aspects. Kling (1999) has provided a comprehensive definition by stating that "*Social informatics is the interdisciplinary study of the design, uses and consequences of information technologies that take into account their interaction with institutional and cultural contexts*." Therefore as per the classification provided by Kling it can safely be stated that "social informatics" is concerned with exploring the impact of media associated technologies and the manner that Information and communication technologies influence organizational behaviour and societal relationships or the influence of social forces on the usage as well as design age of such technology. It is important to understand that designing human interface and internal structure is the essential element of social informatics as it provides the change in emphasis from standard tool model to socio-technical model. This perspective views Information Technology as socio-technical network and its implementation as an on-going social process. As the present societies are so well networked and interweaved, the technology being used and the society cannot be viewed in isolation to each other, thereby leading us to realize that the developers of these technologies never aimed neither the design nor its usage to be isolation. The ICT applications, within the framework of socio-technical network embrace several dimensions such as technological dimensions, people in a system, social relationships and other system elements as interactive elements. Social informatics as socio-technical

model is distinguished from that of standard tool model as presented by Kling. R. (2000).

4. ICT: Socio-Technical Network

ICT applications are customizable and they represent complex combination of standard and customized elements. Even if same technology and equipment's are provided to different organizations, effects and consequences are varied, as each organization develops its own socio-technical system that differs substantially from others. The usage and consequences of an information system or ICT applications are profoundly influenced by the particular character of an organization. There are many sectors that have been impacted and benefitted from information technology. Though only a few years old, ICT has affected essential and large sectors as communications, retail business and has also penetrated into areas of education, health, management and social life. This clearly suggests the all-in-one application of ICT within the perspective of socio-technical network.

One of the most significant prospective for the ICT lies in redefining the education system. Innovations in ICT have only complemented the craft of traditional teaching rather than disregarding it. Indeed with the ICT being introduced in educational institutions the responsibilities of the teacher has increased. In one role the teacher is that of a service supplier for the students, who in turn are regarded as the consumers. Teachers now have the provision for e-classrooms and sending over the lessons for printing on student's e-mails, during the course of the academic year. In the initial and introductory stages of ICT in educational institutions, teachers did not use e-mail for two reasons (a) they wanted to take the print out and read carefully before they went into the class but there was no printing facility, and (b) with the upgradation of the software, they became discouraged as they were forced to learn new software procedures with each upgrade. Only after the teachers became technically sound themselves and more facilities like printing options were added, they became more comfortable to use Internet extensively.

In a study conducted in United States of America by Davidson, Schofield and Stocks (2001) it was believed that Internet use would improve the quality of public education and hence the USA government gave new computer laboratories and Internet connections to all the schools. But due to the lack of appropriate support services and training, teachers in many schools did not incorporate Internet services in teaching. But it was found that wherever the support services were well organised, introduction of Internet yielded good result in terms of innovation in teaching. Similarly, in the use of Internet Applications, teachers differed from students. Teachers felt that computer

laboratories with Internet access were the means of scientific inquiry, whereas students viewed it as chatting rooms and means of multi-players games. In Indiana University, web boards were used to support classroom discussions. Proper usage of web boards came into existence when certain social relationships were inscribed on web boards regarding access controls as who can write and who can read, and with supporting protocols about legitimate content.

In the above mentioned instances, the institutions and applications were initially viewed as social forms, whereas the provision for Internet and web boards were treated as technologies. Only when they had taken them together as constituent parts of socio-technical networks, desired results were yielded. Therefore the reference to technologies, entities and institutions are largely analytical and opportune knitting together of the essential ICT elements the technical and the social.

5. ICT and Electronic Resources

In the present day, another impact of ICT can be seen of e-resources. For our understanding, it is important to define electronic resources (or e-resources). In a very simple language e-resources refer to such materials that are available in digital format and are accessible electronically, such as "e-journals, e-books, online databases" available in different digital formats, like pdf or htm, html, etc. Today these e-resources are accessible in and from all libraries. Due the digitization of the print media, the availability of books and journals in electronic format has increased for many. One of the most unique features of e-resources is that it has the ability to incorporate multi resources in one gadget. As the published content is also available on open access, this helps the poor and underprivileged in getting the required information cost free. As this information is available to them cost free, these e-resources facilitate and encourage e-learning, assisted by the use of new media technologies.

Contrastingly, sturdy harmonies are that technological design alone cannot ensure the good quality and content of the journal. Therefore, in order to in determine the quality of any journal peer review has a vital role. This process of peer review is a significant process with a meaningful social implication. The importance of social technical approach can be understood by creation of a distinction between the "*design and functioning"* of e-journals as e-journals have several common features but one or more may be more viable than the other.

Many e-resources provider review submitted articles in two phases. In the first phase, submitted articles are open to discussion, on-line on their website. On the basis of theses discussion online, the articles are revised by the authors and submitted for

review. In the second phase, on the basis of peer group review and quality measures conducted confidentially, the articles are then accepted for publication.

In the case of other e-resource providers, instead of confidentiality bound review system, a voting practice is adopted where comments and suggestions are invited and offered. Two-tier acceptance with automatic review system in followed. All are allowed to paste letters and authors are expected to answer them. The readers evaluate the paper under review status adopting a weight-age system provided to control the range of score given by a category of reader. Hereafter, these ranges of scores are converted to databases that are averaged at month end deciding the ultimate position of the submission consequently. Those submissions receiving score up to the defined average score or higher are accepted for publication.

Though the acceptance of articles/content in case of both category of e-resource provider may vary, the variation in their accomplishment is to an extent reliant on individual social-technical interactive network designing. The designing is not just a manufactured article or an object but the relationships that are reflected in the very designing characteristics. Author's participation in discussion with other researchers in public forums is an important social element as it provides a forum to develop discussions with readers and support as well as encouraging socio-technical system. It is the designing that should not be technologically focused with mere provision of automatic script and voting procedures, rather than allowing scholarly participation and contribution.

6. ICT and Orgnizational Social-Technical Networking

An appropriate exploration of the ICT in our life can be validated with the help of another instance related to the use of "computerized documentary system" in a multinational company, Price Waterhouse which is a known international consulting organization with thousands of operatives' globally and at least a few thousand employed at USA, itself. Though, many of them work in similar projects, they hardly shared their information. So, the vice-president of the information systems had decided to introduce "*Lotus Notes, the documentary support system, which is analogous to Internet-like system with bulletin boards, posting mechanisms, discussion groups and electronic mail of the organization.*"

The IT staff showed keen interest in it and used it assertively intended to share data/information pertaining to their respective ventures, as they were technophiles. They did not hesitate to invest their time in new applications because it was useful to them for sharing information, documentary work and for communicating, as they had common projects. Similarly, the Price Water consultants in Washington DC, according

to Mahler (1992) extensively used this technology and broadcasted to their tax advisories. They observed the behaviour of the concerned Revenue officer and accordingly advised their other offices in the country concerning tax modification and changes in taxation legislation affecting their clients. Thus the tax consultants had significant incentives to use the technology. As the use and importance has appropriately been highlighted by Kirkpatrick (1993) that they wanted to be noticeable and valued by their establishment and "Lotus Notes" provide them with the opportunity to issue electronically, tax advisories quickly.

However, Orlikowski (1993) is of the observation that the seniors in the company were the modest users of this technology. He points out that these consultants at this job level had ample security hence were in a locus of experimentation with the new technology and were enthusiastic to capitalise their time for exploring usage of e-mails and sending memos. On the other hand, the junior level consultants who were called associates did not show much interest and gave up after initial frustration. These associates were assessed once in two years for promotion and 50% of them are fired out at each review. They had billable hours and those who desired using "Notes" needed to have an account from which they would be charged, for which no provision was made. Otherwise, they had to spend about $3000 to $4500 @ rate of $150 per hour. They could not justify their amount of expenditure on it and hence they hardly used the "Notes".

7. Conclusion

Countless instances can be provided that are helpful to draw our interest to the use and value of the IT and its significance in providing new means of communications to support an abundance of human activities in every profession and organization. Globally, the tools of New Media technologies have been accepted to be functional not only for inter-personal communication but with the administrative organization. The new media technologies are equally useful/helpful in shopping, investment purposes, entertainment etc for all age groups. Similarly, Kahin and Keller, (1995) state many other instances where the tools facilitate the public to better access to important information.

The above analysis with the help of few examples is an attempt to provide a framework for the emerging ICT based socio-technical network where elements such as human resource in their different capacities and their inter personal relationships as well as the system, the software, the Hardware, the support resources, information structures, network, network content, etc. become the constituent parts.

These elements are interconnected, especially with their socio-technical dependencies within the matrix. A system designer who is technical, with a social

orientation is in a better position to identify and incorporate features and trade-offs which appeal most to the end-users. As Simonsey and Kensing (1997) have observed workplace ethnography is another discovery process in this field of study. Similarly Bolsstrom and Heinen (1997) and Carmel, et al (1993) have suggested the use of focus groups user participation in designing teams and Schuler and Namioka (1993) and Eckehard et al (1997) prefer learning about people's preferences through participatory design strategies. The socio-technical orientation has the potential to prevent conventional misuse and dispel lost optimism. Correspondingly, it is interesting and equally noteworthy that the various available perspectives of this discipline have important implications for policy making, practicing professionalism and information centres.

These applications of new media are designed by outside vendors and tend go according to their best practices. Those organizations which have incorporated the usage of new media applications in order to work with designs will either have to adopt newer practices or will have to do away with their current/older practices. These designers should appreciate the work, work process, system, system elements and working conditions of the end users. Any kind of alienation from the design process will lead to failure in the applications. User-oriented perspective is absolutely essential for effective application and to design right technology. The social–informatics attempts to address all these issues with idiosyncratic perspectives of socio-technical network system.

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