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Social Transformation in Modern Society: A Literature Review on the Role of Technology in Social Interaction

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ABSTRACT

This article examines the transformative influence of technology on social interaction in contemporary culture. The structure of contemporary society has been considerably altered by technological advancements, particularly in the digital domain. This study used a literature review methodology to investigate the impact of technology on social dynamics, encompassing aspects such as connectivity, communication, and the establishment of social networks. This article concludes that technology has significantly influenced the rise of social connection but has also presented issues such as the depersonalization of interactions and heightened dependence on data. These findings emphasize the necessity for a more extensive comprehension of digital transition and its influence on social life.

INTRODUCTION

Technology has had a revolutionary impact on social interaction, substantially altering the structure of contemporary society. The swift advancement of technology, particularly in the digital domain, has required a reassessment of social theories to include "socio-technological" dynamics, as the technical landscape changes multiple times within a human lifespan (Shestakova, 2022). The digital transformation framework emphasizes significant changes in both business and society that are driven by digital technology. It underscores the importance of comprehensively understanding these transformations in an integrated manner (Van Veldhoven & Vanthienen, 2022). Incorporating data technology, such as algorithms and artificial intelligence, into daily life has resulted in a society that relies heavily on data. Data interfaces, circulation, and abstraction are significant factors in structuring social connections (Lee & Cook,

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2020). The technical revolution mentioned also impacts political power structures, potentially resulting in decentralization and the establishment of new class formations in the information society (Gutorovich & Gutorovich, 2019). The swift advancement of technology has significantly impacted human lifestyles, leading to a greater emphasis on practicality and efficiency. However, it has also brought about beneficial and harmful socio-cultural consequences (Rahman, 2020).

Technology has significantly transformed social relationships, particularly among older individuals. It provides novel methods for staying connected but poses the danger of depersonalizing interactions (Antonucci et al., 2017). The current meta paradigm of societal modernization centers on converting information facilitated by digital technology, which allows for unparalleled data storage and automation (Hilbert, 2020). Technological advancements in medicine have fundamentally transformed the doctor-patient dynamic and have given rise to ethical dilemmas, particularly in organ donation (Mailenova, 2018). Alternative energy technologies demonstrate how technical innovation can reshape the social and economic landscape, impacting labor markets and social behavior (Kapitonov, 2020). The literature generally emphasizes technology's significant and varied influence on social relationships, necessitating continuous research and adjustment to manage these changes effectively (Starr, 2004).

The advent of technology has profoundly altered the dynamics of social engagement, exerting a substantial influence on multiple facets of human existence. The swift advancement of digital technology has resulted in the formation of a digital society, altering human behavior to prioritize practicality and efficiency and giving rise to both beneficial and detrimental impacts on social life (Rahman, 2020). Technology provides older persons with innovative methods to sustain social connections and surmount obstacles, including geographical separation and limited mobility. However, discrepancies in accessibility persist (Hülür & Macdonald, 2020). Social networking techniques have significantly transformed communications by facilitating instantaneous data sharing and worldwide connectivity, as seen by their pivotal role in events like the Arab Spring (Doarn & Merrell, 2012). Nevertheless, the transition to virtual contacts, such as video conferencing, has decreased conversational turn-taking and collaboration, suggesting possible deficiencies in social engagement (Balters et al., 2023). The process of reducing social encounters to useful digital information has also arisen, demonstrating a highly logical approach to social life that aligns with the contemporary economy (Schwarz, 2012).

Despite these alterations, technology can enhance social connectivity and facilitate the interchange of assistance, but it also has the potential drawback of depersonalizing encounters by producing a sense of detachment (Antonucci et al., 2017). Technology in educational settings enables social learning and collaboration, overcoming geographical limitations and promoting creative problem-solving through interconnected efforts (Trust, 2017). In addition, the advancement of electronic networks has fundamentally transformed the economic and political environment, illustrating digital connectedness's wide-ranging effects on financial elites and social activists (Sassen, 2012). The complex interactions between technology and social structures are further emphasized by ethical considerations in scientific review and the changing workforce dynamics resulting from technological integration (Martínez,

2018; Vardi, 2011). In general, technology has unquestionably altered the way people engage socially. However, it brings both advantages and disadvantages when it comes to human connection and the way societies are organized.

The influence of technology on social interaction in contemporary settings is multifaceted, embracing both advantageous and detrimental aspects. Technology has significantly transformed communication by enhancing its speed and accessibility. As a result, social connectivity has increased, and new forms of socialization have emerged through virtual communities and adaptable identities (Cáceres Zapatero et al., 2017; Chayko, 2014). For instance, using social interactive technologies (SIT) in modern dating has transformed how young adults in Poland and the United States participate in relationships, emphasizing cultural subtleties in digital interactions (Marganski & Fauth, 2013). Similarly, interventions that utilize technology, such as tablet computers and social robots, have demonstrated the potential to enhance social connections and communication quality for individuals with dementia. This, in turn, can alleviate the burden on caregivers and enhance relationships (Hoel et al., 2021). Nevertheless, the swift advancement of technology also presents difficulties, such as the possibility of dehumanization and insensitivity caused by the detachment brought about by digital interactions (Antonucci et al., 2017). Furthermore, incorporating technology into social processes has resulted in unforeseeable alterations in the socio-economic landscape, necessitating a socio-technological perspective to comprehend these shifts (Shestakova, 2022).

The adoption of new technology is greatly influenced by social factors and interactions, as seen in bike sharing during public transit strikes. In this scenario, actual social interactions had a more significant impact on individual decisions than hypothetical situations (Manca et al., 2019). Although there have been significant advancements, there is a tendency to get disconnected from social subtleties and cultural principles. This is evident in traditional practices like tea drinking in Taiwan, which highlight the significance of cultural context in social exchanges (Huang & Deng, 2008). Moreover, although technology has expedited company operations, it has also adversely affected the financial well-being of individuals both within and beyond the professional environment (Borgmann, 2000). The rapid pace of technological advancements presents society with additional challenges in upholding moral values, hence complicating the ethical consequences of these advancements (Luppicini, 2012). In general, whereas technology has the potential to improve social connections, it also necessitates careful evaluation of its broader social and ethical consequences.

Examining the existing body of research on the influence of technology on social relations in the contemporary setting is crucial for comprehending the diverse alterations resulting from technological advancements. The swift advancement of technology has profoundly altered how humans live, resulting in more practical and effective relationships. However, it also has the potential for heightened indifference and hostility due to the dehumanizing consequences of physical separation (Antonucci et al., 2017; Rahman, 2020). Studies have demonstrated that using technology, such as tablet computers, social robots, and computer systems, can enhance social connections for specific populations, such as individuals with dementia, by facilitating initial contact, promoting engagement, and alleviating the burden on caregivers (Hoel et al., 2021). Nevertheless, the impact of technology is ambivalent, as

it can both promote and impede social connections depending on how it is utilized and made available, potentially worsening disparities in health outcomes (Weiss et al., 2018). Technology in educational contexts has been demonstrated to catalyze social change by impacting student behavior and attitudes. However, further study is necessary to record the long-term effects and examine how technology facilitates perspective-taking (Antoniou & Ioannou, 2018).

The impact of technology on face-to-face encounters also emphasizes its capacity to facilitate, invite, and promote social involvement. At the same time, the most effective design solutions have yet to be investigated (Olsson et al., 2020). Moreover, the widespread use of digital communication tools such as email, social media, and video conferencing has transformed conventional literacy and communication practices, requiring a reassessment of how information is created, disseminated, and understood (Saldaña Sagredo, 2012). To comprehend these processes, one must have a historical viewpoint on social interactions and the impact of advancing technologies on preserving or interrupting these bonds (Antonucci et al., 2017; Mulia & Saputra, 2020). Longitudinal studies highlight the significance of social effects in molding attitudes and behavior toward new technology, emphasizing the necessity for continuous research to comprehend these processes comprehensively (Burkhardt, 1994). Therefore, a thorough literature analysis is crucial to understanding and negotiating technology's intricate effects on social relationships. This review will offer valuable insights to inform future research and practical implementations.

LITERATURE REVIEW

Definition of social interaction and social transformation

Social interaction encompasses the diverse spectrum of behavior and communication that individuals engage in while interacting with others in different social circumstances. Social interaction is a crucial element of human existence, facilitating the establishment of connections and the operation of communities. Social transformation refers to substantial modifications in the organization and operation of society, impacting not just people but entire communities. A multitude of causes, such as technological advancements, economic fluctuations, political reforms, and cultural upheavals, can influence this metamorphosis. The emergence of social media platforms has fundamentally transformed social interaction by establishing novel digital networks that enable the exchange of information and active participation, thereby altering the public and civic landscape (Housley et al., 2018; Sahlin, 2015).

Social transformations encompass a spectrum of changes, ranging from little modifications in how organizations are managed to significant shifts caused by globalization. These changes have far-reaching effects on global economic, social, and political institutions (Paliy et al., 2017). These shifts frequently occur in an organized and ever-changing manner, encompassing deliberate interventions by government authorities and collaborative efforts of individuals (Gritskevich et al., 2017). In the digital era, the concept of participation has changed, necessitating novel methods for comprehending social communication and interaction in distributed networks (Leontyeva et al., 2020). Furthermore, the arrangement of physical surroundings can have an impact on social exchanges, fostering unity and interaction among various socioeconomic

factions, particularly in places undergoing urban redevelopment (Uslu & Gökçe, 2010). Theoretical frameworks, such as the coordinate transformation framework, elucidate the manner in which cerebral computation facilitates social behavior, thereby emphasizing the intricate nature of social interactions and transformations (Chang, 2013). In general, social dynamics and transformation are continuous processes that influence the growth and rejuvenation of societal structures, propelled by both internal and external causes (Ismunandar, 2020).

Technology and Society

The relationship between technology and society is multifaceted and ever-changing, influenced by and influencing various social, economic, and cultural aspects. Technological advancements have played a crucial role in substantial social transformations, ranging from the industrial revolution to the digital age. These advancements have profoundly impacted various aspects of society, including the economy, governance, and interpersonal communication (Ede, 2019; Harrington, 2009). The advancement and application of technologies are intricately connected to societal values and ethical issues. Decisions regarding which technologies to pursue entail cost-benefit analyses and value-based assessments (Johnson & Wetmore, 2021). The use of technology to resolve social problems is demonstrated in the Dutch Ministry of Economics initiative, which uses technology scanning to uncover innovative solutions for societal issues (Bongers et al., 2000). The swift rate of technical advancement, expedited by occurrences like war, has significant consequences for the organization of society, frequently breaking established conventions and necessitating adjustment (Jones, 1942).

Education systems, specifically in Science, Technology, Society, and the Environment (STSE), have developed to acknowledge the significance of comprehending the connection between science, technology, and social consequences. This promotes a more unified and socially accountable approach to science education (Alsop & Pedretti, 2013). The field of computer science and its impact on society, which gained traction after World War II, has underscored the profound influence of information and communications technology (ICT) on different facets of life, such as democracy, community, and the economy. It has also emphasized information and technology accessibility (Dutton, 2004). Furthermore, the significance of technology as a potent catalyst for transformation emphasizes the necessity for well-informed and unbiased conversations concerning its moral and ethical consequences, particularly about environmental sustainability and resource management (Mccloy, 2014). In summary, the multidisciplinary examination of the relationship between technology and society, exemplified by programs like Science, Technology, and Society (STS), offers a thorough structure for comprehending these intricate connections and equips students to navigate and impact the technological environment (Bridgstock, 1998; Cronjé, 2018).

RESEARCH METHODS

This research is designed as a literature review. A literature review is a systematic approach to gathering data or materials pertaining to a specific topic, which can be sourced from various outlets, including journals, books, the Internet, and other libraries.

This Literature Review was compiled utilizing a narrative approach, where similar extracted data was grouped based on the measured outcomes to address the objectives. To enhance the comprehension of the abstract and full text of the article, it is recommended to read and carefully scrutinize it. After that, the journal

summary is scrutinized concerning the information encompassed in the research objectives and research results/findings. The investigation uses journal content analysis to identify similarities and differences, which are further examined and analyzed to derive conclusions.

RESULTS

Technology Changes Social Interaction

The advent of technology fundamentally alters social interactions through its impact on communication, connectivity, and the formation of social networks. Social media and digital platforms have facilitated immediate worldwide connectivity, transforming public conversation and political participation by allowing individuals to exchange information rapidly and access it (Katz, 2019). This transition has resulted in a "social technology" era in which digital resources impact citizen engagement in public decision-making and promote novel forms of interaction and social significance (Sofradžija, 2020). The COVID-19 epidemic has expedited these developments, as technology enables the spread of crucial health information and enhances social connections at the local level, such as Neighborhood Associations, despite worldwide limitations on face-to-face encounters (Wijayanto, 2021). Nevertheless, this process of digitization is not devoid of obstacles. The accessibility of information and the growth of social networks might contribute to mental and psychological issues, emphasizing the importance of using technology responsibly (Satata, 2023). In addition, the advent of the digital age has created conflicts between liberal attitudes toward technology usage and more regulatory-oriented beliefs. This is because people now strive for validation and social recognition through their online contacts (Lucey & Noctor, 2022).

Advanced technologies in retail environments are replacing conventional face-to-face contacts in the realm of commerce, which impacts consumer-to-consumer and consumer-to-vendor connections (Pantano & Verteramo, 2017). Furthermore, technology is playing an increasingly significant role in education. Biologically inspired robots and virtual avatars improve learning experiences and foster social ties in educational environments (Kuhl et al., 2019). Although there have been significant advancements, there is a potential for dehumanization and heightened negativity due to the detachment caused by digital connections, despite the potential of technology to overcome conventional obstacles to social interaction and facilitate trade (Antonucci et al., 2017). Technology has many advantages in terms of increasing social contacts and providing access to knowledge. However, it is essential to analyze the psychological and social effects it may have carefully.

Technology Influences Face-to-Face Communication

The advent of technology has profoundly influenced in-person communication, yielding both advantageous and detrimental effects. Technology-enabled conversation facilitators, such as humanoid robots and computer screens, can generate meaningful face-to-face conversations between strangers, increasing satisfaction and connection (Zhang et al., 2023). Moreover, technology-based interventions can overcome obstacles associated with transportation and availability, offering efficient instruction and assistance remotely. This has been observed in the case of behavioral interventions for children diagnosed with autism spectrum disorders (Shire et al., 2020). Nevertheless, the incorporation of technology into daily existence also presents difficulties. Technoference, which refers to the

intrusion of technology gadgets during face-to-face encounters, is linked to relationship challenges such as reduced closeness and lower happiness in communication between partners (Mushquash et al., 2022). In addition, individuals frequently experience increased feelings of isolation and decreased levels of support following less realistic contacts, such as those facilitated through text or phone, compared to face-to-face interactions (Petrova & Schulz, 2022).

When people feel their reputation is at risk, they avoid face-to-face communication and instead choose more efficient communication methods. This preference adds another layer of complexity to face-to-face encounters. Although digital communications have become prevalent, face-to-face connection continues to be crucial for sustaining social ties, although its significance in human-computer interaction research has declined (Fischer et al., 2018). The communication interdependence perspective emphasizes that technological mediation has become a regular aspect of social interactions, affecting the dynamics of modern relationships (Sharabi & Dorrance Hall, 2021). Although technology has the potential to enhance social presence and enjoyment in communication, it also carries the risk of disrupting and diminishing the quality of face-to-face encounters (Jaafar et al., 2014; McDaniel et al., 2021). Although technology provides tools to aid and improve communication, it also poses substantial problems that might weaken the quality and closeness of in-person encounters.

Digital technology is changing patterns of social interaction in modern society

The advent of digital technology is fundamentally reshaping how people interact with one another in contemporary society. This is achieved by creating novel modes of social connection and modifying established social patterns. The notion of virtual sociability emphasizes how the extensive interconnection and digital platforms enable the creation of new social connections and adaptable identities, establishing virtual communities (Cáceres Zapatero et al., 2017). This shift is a component of a more extensive meta paradigm that centers on converting information, in which algorithms translate data into practical knowledge, substantially influencing social interactions (Hilbert, 2020). The digital society functions as a separate entity from the real world, documenting all actions as data. This data-driven process significantly changes economics, politics, and culture. Additionally, it brings attention to significant concerns like the digital divide (Aaronson & Leblond, 2018). The Internet, mobile communication, and social media convergence have merged virtual and physical environments, bolstered social bonds and enriched in-person engagements (Chayko, 2014).

The COVID-19 pandemic has expedited this pattern, rendering digital platforms indispensable for social interaction amid physical seclusion (Krakower, 2022). Data technologies, such as algorithms and artificial intelligence, are intricately integrated into social relationships, shaping how individuals engage with digital environments and one another (Lee & Cook, 2020). The fast rate of technological advancement requires a socio-technical framework to comprehend these changes (Shestakova, 2022). Online dating illustrates how digital platforms generate novel social norms and regulations for communication, mirroring broader transformations in social conduct (Hardey, 2008). The widespread utilization of digital technology significantly influences cultural values and public interactions, necessitating the implementation of frameworks such as cultural computing to safeguard cultural identities (Edirisinghe et al., 2011). The

impact of social networks on human behavior highlights the critical role of digital platforms in changing social interactions, frequently surpassing the effectiveness of traditional mass-media efforts (Kleineberg & Boguná, 2014). Hence, digital technology is altering how individuals establish connections and fundamentally reshaping the essence of social interaction in modern society.

Factors influencing social transformation through technology

Various elements, such as the swift advancement of technology, the incorporation of digital platforms, and the changing socio-economic environment, shape the process of social transformation through technology. To comprehend the significant societal changes taking place, it is imperative for social theories to adopt a socio-technology perspective, given the rapid pace of technical breakthroughs, especially in the digital domain (Shestakova, 2022). The effectiveness of digital transformation (DT) in businesses depends on deliberate behavioral elements and innovative qualities, which favorably impact the accepting attitudes towards DT and, as a result, DT's personal and social acceptance (Oh et al., 2022). Furthermore, the effectiveness of digital psychosocial therapy emphasizes the significance of technology in tackling mental health problems and enhancing accessibility and cost-efficiency of interventions (Putra et al., 2022). The historical backdrop of technological revolutions, ranging from the alteration of materials to the present emphasis on information, highlights the continuous progression of human socio-economic activities propelled by digital technology (Hilbert, 2020). The interaction between complex systems and society frequently results in social exclusion and dehumanization, raising concerns about the societal ramifications of technological advancement (Kile, 2013).

Alternative energy technologies demonstrate how technological progress may transform social and economic landscapes, impacting job markets and societal habits (Kapitonov, 2020). Integrating technology in education is essential for equipping individuals to navigate and contribute to a fast-evolving environment. This highlights the importance of technology education adapting to societal changes and promoting critical thinking and social responsibility among students (Pavlova, 2005). Innovation networks, which involve informal and collaborative information exchanges, are crucial for responding to the challenges of global competition and promoting the development of new knowledge and technology applications (Bender, 1999). Understanding the intricacies of energy transformations and adopting intelligent technologies is crucial, and this can be achieved by considering the notion of sociotechnical systems. This concept emphasizes the interaction of technical and social processes (Büscher, 2022). Ultimately, the influence of technology on fundamental human values like truth and trust demonstrates how technical advancements can modify societal norms and perspectives, exerting a significant impact on social transformation (Danaher & Saetra, 2022).

DISCUSSION

The Impact of Technology on Social Interaction

The advent of digital technology has had a tremendous impact on social connections. Social media and digital platforms, such as Facebook, Twitter, and Instagram, enable individuals to communicate immediately and establish connections with others worldwide. These modifications have broadened individuals' social networks and enhanced the availability of information, altering the manner in which people engage in social

and political life. During the Arab Spring, social media was crucial for coordinating protests and rapidly disseminating information.

Social Transformation Through Technology

The societal metamorphosis triggered by technology extends beyond mere communication. Advancements in medical technology have significantly altered the dynamics of the doctor-patient interaction and have given rise to ethical quandaries, particularly in organ donation within the health sector. Technology in education facilitates collaborative and remote learning, surmounts geographical limitations, and brings novel teaching approaches like social robots and virtual avatars.

Negative Impact of Technology

Nevertheless, technology also entails substantial adverse effects. The depersonalization of social relationships is a highly noticeable consequence. Although technology enables more convenient and influential connections, it frequently diminishes the depth and caliber of in-person conversations. Research indicates that using technology, such as text messaging or social media, frequently diminishes emotional assistance and amplifies sentiments of seclusion compared to in-person relationships.

The Influence of Technology on Social Structure

Technology exerts a significant impact on the power dynamics within society. ICT has empowered individuals and groups who previously lacked access to information resources. Nevertheless, this phenomenon has also transformed the social hierarchy, as it has given rise to novel social strata within a decentralized information society. This phenomenon is evident in how financial elites and social activists employ technology to accomplish their objectives.

Ethical and Social Challenges

Technological advancements give rise to intricate ethical dilemmas. Within the realm of employment, technology has significantly transformed how tasks are carried out, resulting in the implementation of automated processes and a decrease in the necessity for the human workforce. This gives rise to inquiries on the welfare of workers and the societal consequences of unemployment. Furthermore, the swift distribution of information via digital technology frequently raises concerns regarding privacy and data security, necessitating stringent regulation and ethical utilization of technology.

Technology Education and Awareness

To address these difficulties, technological education should prioritize the enhancement of social and ethical consciousness. Education should encompass a comprehensive comprehension of the responsible utilization of technology and strategies to mitigate its adverse effects. This entails instructing students in the art of critical thinking on using technology and its consequences on society while fostering sustainable and inclusive technological solutions.

CONCLUSION

Technology has a diverse impact on social connections, providing advantages and difficulties. Technology enhances the velocity and availability of communication, facilitating novel modes of social interaction via virtual communities. However, it can also result in dehumanization and a deterioration in the calibers of social connections. Hence, it is crucial to balance technology's advantages and the ethical and social factors to mitigate its adverse impact on human interactions.

In general, technology has a significant and intricate influence on social

interactions. Although technology offers numerous advantages, such as enhanced connectivity and information accessibility, it is crucial to evaluate and control its adverse effects conscientiously. To foster a fair and inclusive society, it is vital to thoroughly comprehend the profound effects of technical advancements on social existence. Continued research and continuous teaching will be crucial in attaining this objective.

LIMITATION

There are various constraints associated with this research. Initially, it is essential to note that the conclusions of this literature review mainly depend on previously published studies, which may introduce bias in the selection of sources. Furthermore, this analysis fails to consider cultural nuances and specific regional circumstances that can impact the adoption and utilization of technology in diverse societies. Furthermore, this study did not investigate the enduring effects of technology on social connections, which would necessitate longitudinal research to gain a more comprehensive comprehension.

IMPLICATION

The findings of this research suggest that a profound comprehension of technology's impact on social relationships is crucial for successfully handling the resulting transformations. This research can assist policymakers and practitioners in formulating policies that consider technology's societal and moral consequences. Furthermore, technology education should prioritize the significance of social responsibility and critical thinking to effectively address the difficulties that arise from using technology. Future studies should prioritize the in-depth investigation of the ethical integration of technology into social life and the societal adjustments required to cope with swift technological advancements.

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