The Relationship Between Electronic Device Usage and Relationship Satisfaction

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Abstract: This study explores the impact of electronic device usage on interpersonal relationships, analyzing both positive and negative consequences across diverse social dynamics. It highlights that while devices like smartphones facilitate communication and social connection, especially for isolated groups like the elderly and teenagers, they often negatively affect the quality of professional, intimate, and familial interactions. The concept of 'phubbing,' where attention is diverted to phones during social interactions, is critically examined for its role in reducing relationship satisfaction and emotional commitment. There are also some other concepts used with electronic devices that are discussed. Key mediating and moderating variables encompass individual characteristics and interpersonal perceptions. Practical insights for mitigating adverse effects and enhancing communication quality are provided. The study underscores the need for longitudinal research and varied measurement methods to capture the complex interplay between technology use and interpersonal relationship dynamics, aiming to guide future research toward a more profound understanding of these phenomena.

Keywords: Technology, Relationship Satisfaction, Phubbing, Mobile Phones, Electronic Devices

1. Introduction

Technology has become an integral part of our social lives, with over 5 billion people worldwide owning smartphones, encompassing approximately 68% of the global population. A growing trend over the past two decades demonstrates the profound influence of electronic devices, such as computers, cell phones, and tablets, on social behaviors. While existing research acknowledges that electronic devices can significantly impact various aspects of interpersonal relationships, the specific effects across different types of relationships remain less understood.

The impact of technology on interpersonal relationships has been a subject of extensive scholarly debate. Some researchers argue for the positive effects of electronic products on social connections. For instance, these devices facilitate long-distance communication and offer individuals more opportunities to establish and maintain social networks, particularly those who find it challenging to do so in real-life settings. Studies indicate that social technology can enhance the elderly's sense of participation in life, contributing to successful aging [1]. Among teenagers, interactive technology appears to ease communication with their romantic partners and overcome potential barriers like geographical separation, parental interference, and shyness [2].

Conversely, other researchers emphasize the adverse effects of electronic products on interpersonal relationships. In the context of professional relationships, computer-mediated communication tends to negatively influence team dynamics, including positive emotions and emotional commitment among team members [3]. Within intimate relationships, the use of a partner's mobile phone is associated with a deterioration in relationship quality and trust [4].

In contemporary society, there is a growing trend of using electronic devices for social interaction. Take the mobile phone, for instance. It serves as an integrated new media technology, functioning not only as a two-way communication tool but also as a innovative one-to-many information source. Its distinct characteristics, characterized by real-time communication and cross-border accessibility, facilitate the establishment and sustenance of relationships. Consequently, this study serves as a valuable resource to enhance our comprehension of the impact of technology on human mental well-being and happiness, while also offering practical guidance on how to effectively navigate the intersection of technology and interpersonal relationships.

2.   Literature Review

Some studies have focused on the positive impact of electronic products on interpersonal relationships. The earliest research in this area appeared in 2006, suggesting that mobile phones can strengthen users' family ties and expand their psychological neighborhood, thus facilitating the maintenance of interpersonal relationships [5]. Other studies have found that the use of social software has a positive effect on the physical and mental health of the elderly, particularly in reducing loneliness [6]. However, the majority of studies have predominantly concentrated on the adverse effects of electronic devices on interpersonal relationships. For instance, some investigations have delved into their influence on family and parent- child relationships. Several studies have posited that parents' utilization of mobile phones may detrimentally affect the parent-child relationship [7]. Furthermore, there is evidence to suggest that parental "phubbing" behavior can lead to mobile phone addiction in children, consequently diminishing satisfaction levels within the parent-child relationship [8].

Moreover, a substantial body of research has concentrated on the repercussions of electronic devices on romantic relationships. Several studies have illuminated that the mere presence of mobile phones can impede the development of interpersonal intimacy and trust, diminishing the levels of empathy and understanding between partners [9]. Furthermore, a notable negative correlation has been identified between mobile phone intrusions among partners and their relationship satisfaction and personal happiness [4]. In recent years, the term "phubbing," derived from the amalgamation of "phone" and "snubbing," has gained prominence within research circles. It characterizes the act of diverting attention to one's phone in social settings, rather than engaging in direct conversation with others [10]. Studies have elucidated that the smartphones are adept at diverting individuals' focus, leading to partners feeling neglected, and these dynamics can translate into feelings of loneliness, anxiety, and depression in the physical world [1]. Furthermore, phubbing has been recognized as a detrimental factor that negatively impacts social interaction. It contributes to the decline in long-term relationship quality, a weakening of interpersonal connections, and lower levels of relationship satisfaction [11]. It is also noted that a partner's phubbing behavior can erode the satisfaction within a romantic relationship [12]. It's noteworthy that some studies have even developed instruments to measure phubbing behavior, including the Phubbing Scale and the Partner Phubbing Scale [13].

Furthermore, subsequent studies have delved into the repercussions of electronic device usage on colleague relationships. Some studies have discerned that the use of computers for communication can exert a notably adverse influence on the emotions and attitudes of team members [3] Moreover, it has been established that a supervisor's phubbing behavior can impede the quality of interactions between employees and their superiors [14]. Additional research has revealed that surface-level emotional conduct can detrimentally affect employee well-being and job satisfaction. This is

particularly pronounced in virtual work environments, where it may lead to heightened employee fatigue and an increased intention to seek alternate employment opportunities [15].

Lastly, there is a body of research that concentrates on the effects of electronic devices on friendships and social interactions. The mere presence of mobile devices has been shown to have a detrimental impact on face-to-face social interactions. This includes a reduction in the quality of interpersonal communication and a decrease in emotional resonance [16]. The usage of smartphones during social interactions is linked to a significant decrease in the frequency of smiling, which may negatively affect the quality of these interpersonal relationships [17].

To delve deeper into understanding the mechanisms by which electronic products influence interpersonal relationships, scholars have undertaken further investigation into potential mediating and moderating variables. A comprehensive review of the existing literature reveals that beyond communication media variables, mediating and moderating variables can largely be categorized into two primary groups: individual factors and interpersonal perception.

Primarily, various studies have focused on individual factors as mediating and moderating variables. Among the mediating variables commonly employed to study the impact of electronic products on interpersonal relationships, two standout: positive emotions and negative emotions. For instance, researchers have conducted experiments wherein subjects were exposed to phubbing animations. The impact of this exposure was assessed by evaluating their relationship satisfaction and positive and negative emotions [10]. Additionally, other intermediary variables have been explored, such as depressive symptoms [4]. Furthermore, the research has also examined moderating variables, including shyness and individual attachment style. In a particular study, hierarchical regression analysis was employed to assess the moderating effect of attachment style on the relationship between partner phubbing and mobile phone-related conflicts [4].

Additionally, research has increasingly focused on variables pertaining to interpersonal perception, serving as both intermediary and moderating factors, surpassing individual factors in number. One of the frequently used mediating variables in the study of electronic products' influence on interpersonal relationships is the "sense of belonging." In a typical experimental setup, participants are first exposed to a "phubbing" operation animation. Following this exposure, participants complete measurements assessing perceived communication quality, relationship satisfaction, and intermediary variables such as the sense of belonging, perception of social norms, and rejection sensitivity. Researchers have employed Sobel tests to evaluate the significance of mediation effects, with the "sense of belonging" emerging as the sole variable to demonstrate a significant mediating effect [10]. Furthermore, various other intermediary variables have been explored, including relationship dynamics (encompassing emotions, interactions, and communication styles between partners) [1], perception of others' emotional authenticity [15], as well as the sense of exclusion, partner reactions, intimacy, and conflicts in mobile phone usage [12].

A common set of moderating variables includes shared mobile phone usage and mobile phone addiction behaviors. This study employed PROCESS software to analyze both mediating and moderating effects. Specifically, Model 4 within the PROCESS software framework was utilized. Here, the predictive variable was the partner's mobile phone addiction, while the outcome variable was the level of relationship satisfaction. Simultaneously, shared mobile phone use and participants' individual mobile phone addiction behaviors were considered as moderating variables [12]. Moreover, additional moderating variables were explored, including relationship types [10], team centrality, team size, team tenure, gender [3].

Evidently, since 2018, a growing body of research has delved into the mediating role of interpersonal perception variables such as the sense of belonging, relationship dynamics, and feelings of exclusion. In parallel, variables like attachment styles, shared mobile phone usage, and relationship types have been investigated as potential adjusting factors. It is well-established that the pervasive

influence of technology on interpersonal relationships cannot be ignored. Most studies indicate that electronic products exert their influence on interpersonal relationships via a complex interplay of individual factors and interpersonal perceptions.

3. Conclusion

This study offers a comprehensive overview of the evolving impact of science and technology on interpersonal interactions, dissecting these effects across various types of relationships and further scrutinizing the underlying mechanisms. In terms of theoretical contributions, this research builds upon established theories like self-determination theory, social demand theory, and social exchange theory, adapting them to the dynamic landscape of science and technology. It posits hypotheses concerning the potential consequences of technological advancements, thereby enhancing the understanding of the reasons behind the gradual erosion of relationship satisfaction following the advent of electronic products. These studies illustrate how electronic products can intricately affect interpersonal interactions by exerting influence on individual factors, including both positive and negative emotions, as well as interpersonal perceptual factors such as the sense of belonging. Consequently, these findings extend the boundaries of existing theories, providing a solid basis for future research in this field.

Moreover, from a practical perspective, these studies yield valuable insights to empower individuals to enhance their interpersonal interactions and bolster their relationship satisfaction. For instance, within intimate relationships, nurturing intimacy and partner responsiveness can mitigate the adverse effects of a partner's cell phone addiction on relationship satisfaction. This underscores the importance of individuals elevating the emotional connection and interaction quality within their partnerships. In professional contexts, organizations are encouraged to promote the use of direct communication methods like video conferencing to foster stronger emotional bonds among team members. These studies, collectively, serve as a compass, guiding individuals to navigate the complex interplay between science and technology and interpersonal interactions. By advocating for a renewed focus on face-to-face interpersonal engagement, they chart a course for the betterment of interpersonal relationships in the digital age.

4. Limitation & Future Direction

After a thorough review of the existing literature, it becomes evident that the research on the influence of electronic products on relationship satisfaction is still in its early stages and requires further exploration. Several limitations within current research warrant attention, primarily stemming from methodological constraints and variable selection. In the subsequent discussion, the following part will delve into these limitations and outline potential directions for future research.

Regarding research methods, many of the reviewed studies lack longitudinal research, providing only cross-sectional snapshots of the current situation. This limitation is especially conspicuous in the context of intimate relationships, where longitudinal studies are notably scarce. Furthermore, a prevalent methodological approach in the literature is the use of self-report questionnaires, which, while simple, may lack the diversity and depth needed for comprehensive analysis.

In terms of variable selection, intermediary variables in these studies predominantly focus on individual-related factors, often lacking objective and interactive indicators. Result variables typically revolve around relationship satisfaction and personal happiness, gauged through relatively straightforward measurement indicators.

Additional research limitations encompass issues such as incomplete citation of referenced documents, reliance on dated theoretical frameworks in many instances, the limited incorporation of

new theoretical assumptions, and regional disparities in subjects' test results, which may affect the universality of the findings.

To address these limitations, this study proposes the following future research directions:

Longitudinal Research: Future research should consider assessing changes in subjects' relationship satisfaction over more extended time frames, potentially over the course of a year or longer. Employing longitudinal research designs will provide insights into the long-term impact of electronic products on relationship satisfaction.

Diverse Measurement Indicators: Beyond traditional self-report questionnaires, future research should explore alternative methods for measuring relationship satisfaction and personal happiness. For instance, the use of advanced technologies like near-infrared devices to monitor brain activity or physiological indicators to measure participants' actual behaviors, such as nonverbal reactions and eye movements, can offer more nuanced assessments of relationship satisfaction.

Expanded Variables: Future studies should incorporate a wider range of intermediary and result variables to delve deeper into the intricacies of the influence mechanism, enhancing the depth and richness of research findings.

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