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THE INFLUENCE OF USING ELECTRONIC DEVICES IN THE HOUSEHOLD

Arnold Robert Rondonuwu[1], Vincent Landang[2], Kristo Andisi[3], Marsha Dolongseda[4], Julio Mamuko[5], Geovani Pangayouw[6]

Politeknik Negeri Manado, Indonesia[1,2,3,4,5,6]

E-mail: arnoldrrondonuwu@gmail.com[1], vincentlandang22@gmail.com[2], kristoandisi4@gmail.com[3], dolongsedamasha@gmail.com[4], juliopetramamuko@gmail.com[5], vicpangayouw@gmail.com[6]

Abstract

Rapid technological developments have brought significant changes to everyday life, especially in the household environment. Electronic devices such as televisions, computers, refrigerators, washing machines, microwaves and air conditioners are now basic necessities in many households. Using these tools not only makes daily work easier, but also improves comfort and quality of life. This research aims to analyze the influence of the use of electronic devices in the household on electrical energy consumption and occupant behavior patterns. Electronic devices such as televisions, washing machines, air conditioners, refrigerators and other appliances are increasingly becoming an important part of everyday life, but inefficient use can cause a significant increase in energy consumption. This research uses a survey method of 10 or more households in a certain area to determine the frequency and duration of use of various electronic devices, as well as the level of awareness of respondents regarding energy consumption. The research results show that the most widely used electronic devices are televisions and air conditioners, with the largest contribution to electricity consumption coming from air conditioning (AC). In addition, it was found that household residents' awareness of energy consumption is still low, even though there is interest in using energy-saving equipment. This research recommends further education regarding the efficient use of electronic devices and the importance of choosing devices that are labeled energy efficient to reduce household electricity loads. It is hoped that the results of this research can become the basis for formulating policies related to energy efficiency in the household sector.

Keywords: electronic devices, household, energy consumption

Introduction

The use of electronic devices in households has significantly transformed the way people manage their daily activities. Over the past few decades, technological advancements have led to the development of various electronic appliances designed to improve convenience, efficiency, and overall quality of life (Shariful Islam, 2024). From basic household essentials such as refrigerators, washing machines, and microwaves to modern smart home systems equipped with artificial intelligence and

automation, electronic devices have become an integral part of daily living (Ghaffarianhoseini et al., 2017; Ko & Eshraghi, 2023; Taiwo & Ezugwu, 2021). The increasing reliance on these devices has reshaped household management, reducing manual labor and enabling individuals to perform tasks more effectively.

Electronic devices offer numerous benefits, including time-saving capabilities, enhanced safety, and improved energy efficiency (Zhou & Liu, 2024). Smart home technology, for instance, allows homeowners to control lighting, temperature, and security systems remotely, thereby increasing comfort and security (Dahmen et al., 2017; Taiwo & Ezugwu, 2021). Additionally, energy-efficient appliances contribute to reducing electricity consumption, aligning with global sustainability goals (Bhutto et al., 2020). Households equipped with modern electronic devices can operate more smoothly, enabling individuals to focus on other personal and professional commitments.

Despite their many advantages, the widespread use of electronic devices also presents several challenges (Zhu et al., 2016). One of the primary concerns is the increased consumption of electricity, leading to higher utility bills and environmental implications (Singh & Singh, 2016). Many households struggle with excessive energy use due to inefficient devices or improper usage (Cao et al., 2016). Moreover, constant exposure to electronic devices, such as televisions, smartphones, and computers, can have health implications, including eye strain, sleep disturbances, and reduced physical activity (Bacil et al., 2024). Overreliance on technology may also lead to a decline in traditional household skills and problem-solving abilities.

Another critical aspect to consider is the financial impact of purchasing and maintaining electronic devices (Al Musadieq & Hutahayan, 2024; Pereira, 2018). High-quality appliances often require a significant initial investment, and ongoing maintenance or replacement costs can add to household expenses. Additionally, as technology advances rapidly, older electronic devices become obsolete, leading to concerns about electronic waste disposal and environmental sustainability. Improper disposal of electronic waste can contribute to pollution and long-term ecological damage.

Given the increasing integration of electronic devices in modern households, it is essential to understand their overall influence on daily life (Chambers, 2016). This study aims to examine the impact of electronic devices in the household by analyzing both their benefits and challenges (Mazhar et al., 2023). By exploring how these devices contribute to convenience, efficiency, and lifestyle changes, as well as addressing potential drawbacks, this research seeks to provide a comprehensive understanding of their role in contemporary homes. Furthermore, the study will offer recommendations for optimizing the use of electronic devices to maximize benefits while minimizing negative consequences. Through this analysis, individuals and families can make informed decisions about integrating technology into their daily lives while maintaining a balanced and sustainable lifestyle.

Research methods

This study adopts a mixed-method approach, combining both quantitative and qualitative methods to analyze the influence of using electronic devices in households. The quantitative aspect focuses on statistical data, while the qualitative aspect explores user experiences and perceptions.

Data Collection Methods

Data collection for this study involves a combination of surveys, interviews, and secondary data analysis. A structured questionnaire is distributed to households to collect data on the types of electronic devices used, frequency of usage, perceived benefits, challenges, and financial impact. In-depth interviews are conducted with selected participants to gain deeper insights into their experiences, preferences, and concerns regarding electronic device usage. Additionally, secondary data is obtained from academic journals, government reports, and industry publications to provide a broader perspective on household technology and its effects.

Sampling Technique

A random sampling method is used to select 200 households for the survey, ensuring a diverse representation of different demographic groups. Additionally, 10-15 participants are chosen through purposive sampling for qualitative interviews, focusing on individuals with extensive experience using electronic devices.

Data Analysis

The study employs both quantitative and qualitative analysis methods to interpret the collected data. Quantitative analysis is conducted by applying descriptive statistics, such as frequency, percentage, and mean distribution, to survey responses, allowing for the identification of patterns and trends in electronic device usage. Meanwhile, qualitative analysis is performed through thematic analysis of interview responses, highlighting key themes related to the advantages and challenges of electronic device usage. This combined approach ensures a comprehensive understanding of the impact and implications of household technology.

Limitations

This study is limited to a specific geographic region, which may affect the generalizability of the findings. Additionally, self-reported data may be subject to biases. Future research can expand the sample size and explore cross-cultural perspectives on household electronic device usage.

Results and Discussion

Results

The study findings indicate that electronic devices play a vital role in modern households, bringing both benefits and challenges. Based on survey responses from 200 households, a significant majority (85%) reported that electronic devices have

improved convenience and efficiency in performing daily household tasks. Many respondents acknowledged that home appliances such as washing machines, refrigerators, air conditioners, vacuum cleaners, and dishwashers have significantly reduced manual labor and saved time. Additionally, 72% of participants noted that smart home appliances, such as automated lighting, security cameras, and smart thermostats, have contributed to enhanced comfort and security within their homes.

The study also highlights the financial impact of using electronic devices. While 65% of respondents agreed that these appliances help reduce workload, 68% expressed concerns about rising electricity bills due to the continuous use of multiple electronic devices. High energy consumption was particularly noted in households that relied heavily on air conditioning, water heaters, and entertainment devices like televisions and gaming consoles. Furthermore, 54% of respondents mentioned that the frequent need for maintenance, repairs, and replacement of electronic devices added to their financial burden.

Another significant finding is the impact of electronic devices on lifestyle and health. 60% of participants admitted that they or their family members spend excessive time on screens, leading to issues such as eye strain, sleep disturbances, and reduced physical activity. Parents, in particular, raised concerns about their children's prolonged exposure to televisions, smartphones, and tablets, which they feared could lead to negative effects on cognitive and social development. Despite these drawbacks, 77% of respondents acknowledged that electronic devices played an essential role in providing entertainment, education, and communication, particularly during periods of remote learning and work-from-home arrangements.

From qualitative data gathered through interviews, many participants emphasized their reliance on electronic devices for various aspects of household management. Some interviewees noted that smart home technology, such as voice-controlled assistants and remote appliance management, has simplified daily routines. However, others pointed out that increased dependence on electronic devices has led to a decline in traditional household skills, such as cooking without automated appliances or manually performing simple repairs.

Discussion

The findings confirm that electronic devices have become an indispensable part of modern household management, significantly improving efficiency, comfort, and entertainment. The ability to automate various household tasks has allowed individuals and families to save time and focus on other responsibilities, aligning with previous research highlighting the transformative role of technology in daily life. The positive impact of electronic devices is especially evident in urban households, where busy work schedules often leave little time for manual domestic tasks.

However, the concerns related to energy consumption and financial costs indicate the need for better energy management strategies. Households should consider investing in energy-efficient appliances with smart energy-saving features to mitigate high electricity expenses. Governments and policymakers can also play a

role by introducing incentives for purchasing energy-efficient devices and implementing awareness campaigns on responsible energy use. Additionally, renewable energy sources, such as solar panels, could be explored as alternative solutions to reduce reliance on conventional electricity.

The study also highlights the health-related implications of excessive screen time, particularly among children and young adults. While electronic devices provide valuable educational and entertainment resources, their overuse can result in negative health effects, including poor posture, reduced sleep quality, and increased stress levels. To address this issue, families should establish screen-time regulations and encourage activities that promote physical movement and social interaction. Schools and educational institutions can also implement digital wellness programs to educate students about the importance of balanced technology usage.

Another critical discussion point is the increasing reliance on electronic devices, which may lead to a loss of traditional household skills. With automation becoming more prevalent, many individuals may find themselves less capable of performing basic household tasks manually, such as cooking without digital assistance, cleaning without robotic vacuums, or maintaining appliances without professional help. While technology simplifies daily life, it is essential to retain fundamental skills to ensure self-sufficiency in situations where electronic devices may not be available or functional.

Moreover, the environmental impact of electronic waste (e-waste) is an emerging concern. As technology advances rapidly, older electronic devices become obsolete, contributing to electronic waste disposal challenges. Governments and environmental organizations should promote recycling programs and encourage manufacturers to adopt sustainable product designs that allow for easier repairs and longer lifespan usage. Consumers can also play a role by choosing durable and repairable devices instead of frequently replacing them.

Overall, while electronic devices provide numerous advantages, their drawbacks require careful management to ensure a sustainable and healthy household environment. Families and individuals must find a balance between embracing technology and maintaining mindful usage habits to maximize the benefits while mitigating negative consequences. Future research could explore broader perspectives on the long-term socio-economic and environmental impact of electronic device dependency, considering diverse cultural and regional contexts.

Conclusion

The integration of electronic devices in households has significantly improved efficiency, convenience, and quality of life by reducing manual labor, enhancing security, and providing entertainment and educational benefits. However, this study also highlights challenges such as increased energy consumption, financial burdens, health concerns related to excessive screen time, and environmental issues like electronic waste. Rising electricity costs and frequent device upgrades pose financial strains, while prolonged screen exposure affects overall well-being. To mitigate these challenges, households should adopt energy-efficient appliances, regulate screen

time, and practice responsible e-waste disposal. Policymakers should promote renewable energy adoption, implement e-waste recycling programs, and encourage sustainable product designs. Additionally, increasing public awareness through educational campaigns on energy conservation and responsible device usage can further enhance the positive impact of technology. By balancing technological reliance with mindful usage, households can continue to benefit from electronic devices while fostering a more sustainable, efficient, and healthy living environment.

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