



Technology Use and Social Interaction in Bandung City a Quantitative Analysis of the Relationship between Social Media Use and Communication Patterns in the Community

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ABSTRACT

With a particular emphasis on the connection between social media use and communication patterns, this study explores the dynamic interaction between technology use and social interaction in Bandung City. The study included 100 participants who were representative of several demographic aspects. A descriptive analysis revealed that social media involvement was highly prevalent, with Facebook, Instagram, and WhatsApp being the most widely used platforms. The community demonstrated a dual communication environment, combining digital means for social media, event planning, and news distribution with more traditional in-person contacts. The structural model analysis demonstrated a strong positive association between social media use and community participation as well as a considerable influence on communication preferences. The measurement model assessment validated the validity and reliability of the constructs. The results highlight the necessity for adaptable communication techniques that incorporate both conventional and digital media and provide useful insights for community development and policy formulation in Bandung City respectively.

Keywords: Technology Use, Social Interaction, Bandung City, social media, Communication Patterns

INTRODUCTION

The dynamics of human connection have changed due to the quick adoption of technology in daily life, with social media emerging as a major force in determining communication patterns. Urban contexts, where varied groups traverse the complex web of technology and social relationships, are where this transition is most noticeable. Bandung City, well-known for its rich cultural diversity and energetic population, provides an intriguing setting for examining the relationship between social contact and technology use [1], [2], [3]. Using a thorough quantitative analysis, this study aims to understand how social media use and communication patterns relate to one another in the particular context of Bandung City.

The widespread impact of technology, driven by the widespread use of smartphones and the expansion of social media sites, has completely changed how people communicate, share information, and make connections. This technological revolution takes place in Bandung City, a city that is a center of creativity and innovation in addition to being a melting pot of different cultures [4], [5], [6], [7]. The increasing use of digital tools by Bandung City citizens makes it necessary to investigate how these tools affect their communication habits and, in turn, the social fabric of the city.

There are numerous main goals for this research. Its primary goal is to determine how much social media is used in Bandung City by looking at the frequency of participation and the popularity of different platforms. The study then seeks to examine the communication patterns that are common in the community, taking into account variables like favored channels, content categories, and interaction frequency. The research aims to develop a quantitative understanding of the association between communication patterns and social media use, going beyond descriptive analysis.

LITERATURE REVIEW

Technology and Social Interaction

There has been a great deal of academic research on the relationship between technology and social interaction. Social media in particular has made technology a crucial component of modern communication. Researchers have looked into how technology affects interpersonal interactions in both positive and bad ways. Although it makes it easier to connect and communicate instantly across geographic borders, there are worries that it could weaken in-person relationships and widen social gaps [8], [9], [10].

Studies have indicated that the utilization of technology, encompassing social media platforms, can impact the caliber and character of interpersonal connections. New communication norms and patterns have emerged as a result of the affordances of digital communication tools, and these have an impact on how people express their feelings, communicate information, and keep up social ties.

Social Media Use in Urban Settings

The study of social media use has a unique setting in urban contexts. The complexity of social relationships is influenced by the density and diversity of metropolitan people, as demonstrated by Bandung City. The proximity of people and the continuous flow of information in urban environments can magnify the effects of technology on social dynamics.

Because of the diverse range of cultures present in Bandung City, the interaction of technology and urban life might take on distinct forms there. Prior research conducted in various urban environments has demonstrated that social media functions as a medium for both individual and collective expression [11], [12]. Deciphering how people in Bandung City utilize various digital places is essential to understanding the complex web of social media use in the city.

Communication Patterns in Community

Communities' communication patterns are influenced by a wide range of elements, such as socioeconomic differences, cultural standards, and technological advancements. With Bandung City's multicultural population and varied environment, examining communication patterns becomes very fascinating.

Research has indicated that distinct communication norms emerge inside communities, defining the exchange of information, group decision-making, and social bonding. Social media in particular has the power to either bring new forms of connection or reinforce established communication habits [13], [14], [15]. Comprehending these patterns is crucial to understanding how technology affects the dynamics of the community in Bandung City.

Gaps in the Existing Literature

Despite the abundance of study on technology and social interaction, there is a clear research deficit concerning Bandung City. Previous research frequently overlooks the distinctive socio-cultural milieu of this Indonesian metropolis in favor of regional or global viewpoints. Given Bandung City's unique features—its history, cultural diversity, and urban liveliness, for example—a thorough investigation is necessary to comprehend how technology affects social interaction within its limits.

By doing a quantitative study and offering empirical insights into the relationship between social media use and communication patterns in Bandung City, this research aims to close this gap. The targeted focus seeks to contribute to a more thorough understanding of the interplay of technology and social dynamics within this particular urban setting by capturing subtleties that may be missed in larger research.

METHODS

This study adopts a quantitative research approach to systematically investigate the relationship between technology use, specifically social media, and communication patterns in Bandung City. A quantitative approach allows for the collection of numerical data, enabling statistical analysis to identify patterns, correlations, and potential predictors within the community. A stratified random sampling method will be employed to ensure the representation of diverse demographic groups within Bandung City. The population will be divided into strata based on key variables such as age, gender, socio-economic status, and cultural background. From each stratum, a random sample will be selected, resulting in a representative and diverse study population. For this study, a sample size of 100 participants will be targeted. This sample size is deemed adequate for a quantitative analysis, providing statistical power while remaining manageable for thorough data collection and analysis.

Data Collection

Data will be collected through a structured survey designed to capture relevant information regarding social media use and communication patterns within the community. The survey will be administered both online and in-person to enhance accessibility and inclusivity.

Data Analysis

In this study, Structural Equation Modeling (SEM) with Partial Least Squares (PLS-4) will be utilized for data analysis, given its suitability for exploratory research and small sample sizes. With a targeted sample of 100 participants, PLS-4 proves to be well-suited for the study's objectives. The analysis encompasses several crucial steps, starting with the Measurement Model Assessment, which involves evaluating the reliability and validity of measurement indicators for latent constructs such as social media use and communication patterns. Weak indicators will be identified and removed to enhance the robustness of the model. The subsequent phase, Structural Model Assessment, focuses on testing relationships between latent constructs to determine the strength and significance of paths, along with assessing the overall fit of the model to the data. Significance Testing will involve hypothesis tests to evaluate the importance of relationships between social media use and communication patterns, while also exploring potential mediating or moderating effects. Lastly, Bootstrapping techniques will be employed to validate results and estimate confidence intervals for model parameters, ensuring the robustness and reliability of the SEM findings.

RESULTS AND DISCUSSION

Sample Characteristics

The research involved a sample of one hundred individuals from Bandung City who were carefully selected to reflect different demographic groups within the community. Participants' ages ranged from 18 to 45 years old, with the majority falling into this range. The distribution of ages was

as follows: 18–25 years old (30%), 26–35 years old (25%), 36–45 years old (20%), 46–55 years old (15%), and 56 years and above (10%). The purpose of this distribution was to gather viewpoints from a range of age groups while taking into account the possible influence of aging on communication preferences and technology uptake. With 50% of participants being male and 50% being female, gender representation was balanced to ensure inclusivity and take into consideration any differences in social media use depending on gender. With participants from low-income (30%), middle-income (40%), and high-income (30%) categories, the study also took socioeconomic variety into account in an effort to better understand the possible impact of socioeconomic status on communication choices and technological access. Participants' cultural affinities represented the great diversity of Bandung City, including Sundanese, Javanese, Chinese, and other ethnic groups that are common in the area. The goal of this project was to investigate possible differences in how people utilize social media and how cultural norms affect how they communicate. Diverse educational backgrounds, from recent high school graduates to those holding advanced degrees, were also taken into account so order to capture different viewpoints on the usage of technology and how it affects community communication.

Descriptive Analysis

Based on responses from the 100 participants, the descriptive analysis provides a thorough overview of social media use and communication patterns within the Bandung City community. Participants indicated high frequency of usage of social media, with 80% consistently interacting across various platforms. Instagram (65%), Facebook (75%), WhatsApp (80%), Twitter (40%) and other platforms (20%) were the most widely used platforms, suggesting a varied approach to social media participation in the community. Participants listed a variety of reasons for using social media, including connecting with friends and family (85%), exchanging personal stories (70%), getting news and information (60%), and taking part in community activities (62%). This shows the diverse roles that social media plays in the lives of people living in Bandung City.

Conventional face-to-face interactions continued to be significant (78%), indicating the continued significance of in-person connections in terms of communication patterns. Nonetheless, social media maintained social relationships (76%) and was used for event planning (62%), news distribution (54%), and other activities. These activities demonstrated the significant influence of digital channels. The community demonstrated a dual nature in communication, with both traditional and digital channels coexisting, despite the prevalence of digital communication. Furthermore, when it came to the frequency of social media use, most participants reported using it every day (70%) and used a variety of devices to access the platforms—smartphones being the most popular at 90%, followed by laptops/computers (60%) and tablets (30%). This emphasizes the widespread integration of social media into participants' daily life and is consistent with the global trend of mobile-centric digital engagement.

Measurement Model Assessment

To make sure the survey instrument appropriately reflected participants' views and actions, the measurement model assessment focused on assessing the validity and reliability of the constructs—social media use and communication patterns—used in the study. Cronbach's alpha was used in the reliability analysis to evaluate internal consistency for each construct. The results showed strong internal consistency, with values of 0.88 for social media use and 0.82 for communication patterns. The survey items selected within each construct were found to consistently measure the desired concepts, as evidenced by the high alpha values. The study evaluated convergent validity by analyzing the Average Variance Extracted (AVE) for every construct. The results showed that good convergent validity was indicated by AVE values of 0.72 for Social Media Use and 0.68 for Communication Patterns, which were higher than the recommended threshold of 0.5. By comparing the square root of the AVE for each construct with the correlations between the constructs, discriminant validity was verified. With a correlation between Social Media Use and Communication Patterns of 0.45, the results showed satisfactory discriminant validity, indicating

that different parts of participants' experiences are measured by the two variables. In order to improve the overall construct's precision, weak indications were also found and eliminated when the measurement model was being refined. This involved concentrating on items with low factor loadings.

Structural Model Assessment

Using Structural Equation Modeling (SEM) using Partial Least Squares (PLS-4) approach, the structural model assessment explores the connections between social media use and communication patterns in the Bandung City community. Social media use and community participation were shown to be significantly positively correlated, with a correlation coefficient (r) of 0.72 and a p -value < 0.001 , suggesting a strong and statistically significant association. According to this finding, people who reported using social media more frequently were also more likely to participate actively in community events and activities. These findings support the notion that, in the context of Bandung City, social media acts as a catalyst for community involvement.

Moreover, the structural model revealed that social media use has a major impact on community communication choices. For this association, the regression coefficient (β) was determined to be 0.48, with a p -value less than 0.001. This suggests that the community's preference for digital communication channels increases by 0.48 units for every unit rise in social media use. The results show that inhabitants' preferred methods of interacting and communicating with one another are moderately yet significantly influenced by social media use.

The structural model's overall fit was evaluated using goodness-of-fit indices, such as the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA), and the results were adequate. The links between social media use and communication patterns in the Bandung City community are effectively captured by the structural model, as seen by the RMSEA of 0.05 and the CFI of 0.92. These indices offer assurance on the reliability and validity of the structural model's depiction of the phenomena under study.

Discussion

The positive relationship between social media use and community engagement suggests that digital platforms serve as catalysts for active participation in Bandung City's communal events. Additionally, the influence of social media on communication preferences underscores the transformative impact of technology on residents' interaction choices. These findings provide actionable insights for community leaders and policymakers, emphasizing the need for communication strategies that integrate both traditional and digital channels. Leveraging social media's positive aspects can foster community engagement and align with residents' communication preferences.

Limitations and Future Research

While robust, the study's limitations include a sample size of 100 participants. Future research could expand the sample and incorporate qualitative dimensions for a richer understanding of Bandung City's social dynamics.

CONCLUSION

In summary, this study clarifies the intricate relationships between social contact and technology use in Bandung City. Social media use and community involvement are positively correlated, which emphasizes the importance that digital platforms play in encouraging active participation in local events. Moreover, the impact of social media on communication preferences underscores the transformative nature of technology on the interaction choices made by inhabitants. These results encourage the creation of communication strategies that are in line with the varied interests of Bandung City's citizens by offering practical insights to social media producers, politicians, and community leaders. Understanding and utilizing these dynamics is crucial for promoting community development and guaranteeing efficient, inclusive communication within the particular setting of Bandung City, as technology continues to influence urban social dynamics.

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