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Exploring key factors influencing generation Z's intentions to use TikTok : A cross-country comparative study by grey relational analysis

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Abstract

TikTok has emerged as the fastest-growing social media among Generation Z. Despite its widespread popularity, TikTok remains empirically understudied, with most research to date focusing on China. As TikTok's user base expands globally, this study addresses this gap by collecting data across three countries. Given the variability and inconsistency in responses, Grey Relational Analysis (GRA) was employed. Notably, this study is among the first to examine the adoption of a social media using GRA. This study not only highlights the effectiveness of GRA in analyzing complex data but also deepens our understanding of social media usage across diverse cultural contexts.

Subject Classification: *90B50.*

Keywords: *TikTok, Uses and gratification, Social media, Grey relational analysis, Motivations, Social influences, Generation z.*

1. Introduction

TikTok has become a global sensation, engaging millions with its dynamic mix of short-form videos and interactive elements [1]. Unlike other popular social media platforms, TikTok operates primarily as a user-generated content (UGC) application focused on individual creativity and

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the sharing of short videos ranging from 3 seconds to a maximum of 3 minutes. In contrast, Facebook and Instagram are mainly used for connecting with friends, family members, and acquaintances through content sharing, while YouTube serves as a user-generated video platform with a diverse range of mainstream media content. TikTok, however, centers on personal video creation and rapid content sharing. This distinctive approach contributed to TikTok generating an estimated $14.3 billion in revenue in 2023, marking a 52% year-on-year increase [2]. Despite the global rise of numerous social media platforms, TikTok remains one of the largest, particularly among teenagers [3].

Despite TikTok's immense popularity, prior research suggests that it is an empirically understudied platform [4]. Most existing studies have focused on China, where TikTok (DouDin) attracts over 750 million daily users [2]. However, with the number of TikTok users outside China growing rapidly, there is a pressing need for research that includes participants from other countries [5]. To address this gap, the current study focuses on three countries: Indonesia, Vietnam, and Taiwan. As of January 2024, Indonesia ranks as the second-largest TikTok audience outside China, with 126 million users, while Vietnam ranks fifth with 67 million users. Although Taiwan has relatively fewer TikTok users, with about 5 million, the user base is expanding rapidly [6]. Given TikTok's significant impact on the younger generation [3, 7, 8], it is crucial to examine its role as a medium of popular culture and trendsetter while comparing behavior patterns across different countries.

Many studies have applied the Uses and Gratifications (U&G) theory to understand TikTok, as it explores why and how individuals actively seek out specific media to fulfill their needs [5, 9]. This approach effectively analyzes the motivations behind TikTok usage and the gratifications users derive from the platform [10]. Following this line of inquiry, the present study also employs the U&G theory as a foundation to explore the factors driving individuals to adopt TikTok, with a particular focus on two major categories: user motivations and social influences. The primary goal of this research is to gain a contextual understanding of the younger generation's perceptions of TikTok usage based on their subjective responses. Prior studies have shown that different social media platforms attract different age groups [11]. For instance, the average age of Twitter and Facebook users tends to be people in their 40s, Instagram users are typically in their 30s, while TikTok's user base is predominantly in their 20s. TikTok's users are mainly Generation Z (Gen Z), born between 1997 and 2012 [12]. A defining characteristic of Gen Z is that they were born and raised in the era of the social web and are digital natives. As Gen Z is

expected to soon constitute more than one-third of the global population, it is concerning that research on their characteristics, needs, attributes, and work styles remains limited [13, 14]. This generation has grown up in a digital environment markedly different from that of older generations [15], with distinct requirements and motivational factors that merit greater attention [14]. The findings of this research should help bridge the gap for both researchers and practitioners by shedding light on Gen Z's perceptions of TikTok.

To achieve the research goal, samples were purposely collected from three different countries—Vietnam, Taiwan, and Indonesia—which were also selected by [16] for similar research. This study aims to identify the most influential factors impacting individuals' intentions to use TikTok. However, given the highly inconsistent responses across items and dimensions among participants from the three nations, conventional statistical methods may not be appropriate for analyzing the data. Traditional methods may struggle to effectively handle the variability and inconsistency of the data. Therefore, Grey Relational Analysis (GRA), a well-established Multiple Criteria Decision Making (MCDM) technique, was chosen as the analytical method for this research. GRA is particularly suited for scenarios involving subjective judgments by respondents, where the goal is to rank and prioritize preferences or importance based on specific scenarios [17, 18, 19]. As one of the five models within grey system theory [20], GRA has been widely applied in decision sciences, especially when dealing with uncertainty, discrete data, and incomplete information [21, 22, 23]. Notably, this research will be among the first to examine consumer intentions regarding the adoption of a social media platform like TikTok, demonstrating the capabilities of GRA to address the complexities of subjective and inconsistent survey data across different cultural contexts. Additionally, the study will provide valuable insights into the varying influential factors preferred by users in different countries, taking into account their unique cultural contexts and generational characteristics. This analysis not only highlights the versatility of GRA but also deepens our understanding of how cultural and generational factors shape social media adoption across diverse regions.

2. Theoretical Background

2.1 *Uses and gratifications theory*

The Uses and Gratifications (U&G) theory is frequently applied to understand what drives individuals to engage with specific media, based on the premise that users are active, goal-driven, and intentional in their

media choices to fulfill their needs. [24]. Prior research shows that individuals are motivated by psychological, social, and sociocultural influences to "use" mass media to accomplish some ends of "gratifications" [25]. Earlier research has applied U&G on traditional communication media, such as television and radio [26, 27], while recent research has shifted the research focus to the Internet [28, 29], particularly on the social media platforms such as Facebook and Instagram [30, 31] and TikTok [10, 32, 33]. Based on the foundation of U&G, this research identifies motivations and social influences as two essential categories that may influence consumers' intention to use TikTok.

2.1.1 Motivations

Much prior research has investigated consumers' motivations on social media [34]. This research borrows the motivations proposed by [35] for YouTube and validates them on TikTok. The five motivations are information seeking [36, 37], information giving [30, 35], self-status seeking [37], social interaction [30, 37] and relaxing entertainment [38, 39]. Since social interaction is a kind of social influence, it will be discussed in the next section with the social influence-related factors.

First, the pursuit of information seeking stems from individuals' desire to expand their understanding of themselves, others, and the world around them [40]. Social media are generally used to stay informed about news and events [41, 42], and receive product and content recommendations [43, 44], seek health advice, and even obtain online diagnoses [45]. As a kind of social media, TikTok users may use TikTok to seek information or learn new skills and trends by viewing videos instead of reading texts. Prior research has proven that information seeking is one of the salient motivations for TikTok users [5]. Second, the use of social media for information sharing is widespread and well-supported by numerous studies [46, 47, 48]. TikTok is a short-form video-sharing social media app where people share videos to socialize and exchange ideas [49]. Third, self-status seeking is to feel important and make oneself look significant [50]. TikTok offers a platform for people to show who they are and what they like. Such video-sharing activities may allow people to create their identities and obtain peer acceptance in the online community. Fourth, relaxing entertainment is to feel entertained, enjoy, play, and relax [50]. TikTok is meant to make online networking total fun and offers different kinds of functionalities for users to make and share their video easily. Based on a TikTok survey result conducted by [51], the majority of

respondents describes TikTok users as funny and entertaining and think TikTok is addictive and time consuming. Prior research shows that consumers' motivation is significantly associated with TikTok's usage behavior [33]. However, up to this point, no research has identified which factor is the most critical or which is more important than the others.

2.1.2 Social Influence

The core of social media is the interaction and mutual communication of users, which is a great demonstration of the effect of social influence [52]. Social influence arises from interpersonal interactions and reflects the impact others have on an individual's thoughts, attitudes, and behaviors [53]. Extensive past research has examined how social influence can alter individuals' perceptions, intentions, or behaviors following interactions with others [54, 55, 56]. Many theories are built based on the concept of social influence such as the Theory of Reasoned Action (TRA) [57], the Theory of Planned Behavior (TPB) [58], the Technology Acceptance Model (TAM) [59], and the Unified Theory of Acceptance and Use of Technology [56]. Nowadays, more social influence-related research derived from social media as its mechanism is based on social interactions [60, 61]. While different types of social influence may evoke different kinds of effects, this research will focus on three types of social influence – social interaction, subjective norms, and critical mass.

First, social interaction is an engagement behavior in social media to fulfill the need to communicate and interact with others [62]. As a form of user-generated media, TikTok encourages users to like, comment, and share the videos they watch, together with sending private messages to other users; all of which facilitate social interactions and broaden friend connections [33]. Second, Subjective norms reflect an individual's perception of social pressure to engage in a specific behavior. An individual's subjective norm is shaped by the perceived likelihood that significant others will approve or disapprove of a behavior, along with the importance placed on gaining their approval [58]. The TRA highlights that subjective norms could predict an individual's behavioral intentions and actual behavior [63]. Much research has investigated the influence of subjective norms on the intention to use social media and have proved a positive relationship [64, 65]. However, some studies have argued that subjective norms do not significantly influence the intention to use social media [66, 67]. Third, critical mass refers to "the degree to which a person believes that most of his or her peers are using the system" [68]. In the

context of social media, it represents the users on the site. When enough users have joined the site, it may cause an acceleration of more users to join [69]. Much research has been dedicated to examining the effect of critical mass on social media and discovered a positive relationship between critical mass and intention to use social media [70, 71].

3. Methodology

3.1 *Data Collection and Participants*

This research aimed to conduct cross-country comparative research to examine critical factors impacting individuals' TikTok usage. Data was collected using Google Forms. All the respondents were required to first sign a research consent form before answering the survey. Surveys were conducted in four languages, Chinese, Vietnamese, Indonesian, and English. Respondents could choose the language in which they feel most comfortable to respond to the survey. Reverse translations have been made to ensure the accuracy and quality of the survey in the four different languages.

A total of 878 responses were collected from three countries (365 responses from Taiwan, 265 from Vietnam, and 248 from Indonesia). After filtering out the non-TikTok user responses and removing low quality responses that had the same answers from the beginning to the end, a total of 469 valid responses remained, including 131 responses from Taiwan, 179 responses from Vietnam, and 159 responses from Indonesia. Among all the responses, males and females accounted for 25% and 74%, respectively. The largest portion of participants were those whose ages were from 18 to 22 (n = 307; 65%). The highest degree received by participants is a bachelor's degree (N = 260; 56%), followed by those who already received a high school diploma (n = 133; 28%). The majority of respondents are frequent TikTok users who use it every day (n = 250; 53%).

3.2 *Measures*

Survey questions were adapted from prior research and revised to fit the current research context. The main survey questions were divided into two major parts: 1) Questions for user motivations were adopted from [35]. The scale has 21 items on 5 factors: seeking information, giving information, self-status seeking, social interaction, and relaxing entertainment. 2) Questions for social influence were adopted from [71]. The scale has 7 items on 2 factors: subjective norms and critical mass. All

the question items were measured using a 5-point Likert scale ranging from 1 = absolutely disagree to 5 = strongly agree. One thing to note is that social interaction has been reclassified from the category of user motivations to social influence for a better conceptual fit, as it represents a form of social influence

3.3 *Grey Relational Analysis*

Instead of employing the traditional multivariate method for statistics analysis, this research adopts grey relational analysis (GRA) to identify and prioritize critical factors on TikTok adoptions. GRA is best used for decision-making and evaluating contextually specific alternatives under investigation [72, 73, 74]. The following steps were taken to prioritize the key factors influencing consumers' intentions to use TikTok.

Step 1: Normalizing the decision matrix

Since the magnitude of each comparison index varies to some extent, directly comparing them on the same scale would be inappropriate. Therefore, normalization is required. This study adopted a method proposed by Hsia [75] to process each element of the evaluation index.

(1) The higher the better

$$x_i^*(k) = \frac{x_{i(k)}^* - \min x_i^0 x_i^0(k)}{\max x_{i(k)}^* - \min x_i^0(k)}$$

(2) The lower the better

$$x_i^*(k) = \frac{\max x_{i(k)}^* - x_i^0(k)}{\max x_i^*(k) - \min x_i^0(k)}$$

Step 2: Determining the deviation sequence using the equation below:

$$x_i^*(k) = 1 - \frac{l x_{i(k)}^* - x_i^0 l}{\max x_i^*(k) - x_i^0}$$

Step 3: Estimating the Grey relational coefficient (GRC) by the following equation:

The coefficient of determination ranges from 0 to 1. In most cases, researchers use a GRC value of 0.5 for the GRA to reduce the influence when the deviation sequence (Delta max) becomes too large.

$$\xi_i(k) = \frac{\Delta_{\min} - \xi.\Delta_{\max}}{\Delta_{o1}(k) + \xi.\Delta_{\max}}$$

$$\Delta_{o1}(k) = \left| x_o^*(k) - X_i^*(k) \right|$$

Where $\Delta_{max} = 1.0000,\ \Delta_{min} = 0.0000$

Step 4: Calculating the GRA using the equation below:

$$Yi = \frac{1}{n}\sum_{k=1}^{n} k\xi_i(k)$$

4. Results and Discussion

The results of GRA calculations and the ranking of each factor across three countries, Vietnam, Taiwan, and Indonesia, are presented in Table 1. The findings reveal that the ranking of importance by Vietnamese TikTok users is 1) *seeking information*, 2) *subjective norm*, 3) *relaxing entertainment, 4) critical mass*, 5) *social interaction*, 6) *giving information*, and 7) *self-status*. The ranking of importance by Taiwanese users is 1) *self-status*, 2) *critical mass*, 3) *subjective norm*, 4) *relaxing entertainment*, 5) *giving information*, 6) *social interaction*, and 7) *seeking information*. And the ranking of importance by Indonesian is 1) *social interaction*, 2) *critical mass*, 3) *giving information*, 4) *subjective norm*, 5) *seeking information, and* 6) *self-status, and* 7) *relaxing entertainment*.

The results suggest that seeking information is the most important factor for Vietnamese users, while self-status is most important for Taiwanese users, and social interaction is most important for Indonesian users. Interestingly, relaxing entertainment ranks third for Vietnamese users but is rated last for Indonesians. Although all three countries are geographically close in Asia and share a collectivist culture, it is noteworthy to observe how the younger generation in these countries emphasizes different influential factors despite their broad cultural similarities. Prior research has shown that cultural dimensions, such as individualism versus collectivism, significantly impact social behaviors [76, 77]. A key similarity across these countries is that social-related factors have a more significant impact than non-social factors. Vietnamese users rank subjective norms, critical mass, and social interaction as the 2nd, 3rd, and 4th most important

factors, respectively. Taiwanese users rank critical mass, subjective norms, and social interaction as 2nd, 3rd, and 5th. Indonesian users rank social interaction, critical mass, and subjective norms as 1st, 2nd, and 4th, respectively.

Compared to Taiwan and Indonesia, Vietnam has a centralized government that controls social media through content censorship and restrictions on certain discussion topics. The government seeks to shape public discourse on social issues while suppressing opposing viewpoints [78]. This control limits the diversity of viewpoints and the coverage of sensitive social issues, prompting many, particularly the younger generation, to seek alternative platforms, such as TikTok, that offer a broader range of perspectives. Although the Vietnamese government has initiated a comprehensive inspection of TikTok's activities due to alleged continuous and regular violations [79], this has not diminished the platform's rapid growth, with nearly 50 million users in Vietnam by early 2023 [80]. This likely explains why seeking information is the most influential factor for Vietnamese users in adopting TikTok, as they view it as a vital source for gathering information.

In Taiwan, self-status is the most influential factor for adopting TikTok. Historically, Taiwanese culture has been characterized by high power distance, indicating a significant perceived degree of inequality among people, and a collectivist culture, where group concerns outweigh individual interests [81]. However, research by [82] suggests that Taiwanese culture is shifting towards lower power distance and increased individualism. The younger generation in Taiwan today appears to place greater emphasis on self-status, a trend influenced by various factors including social media, materialism, and fashion consciousness [83]. Fashion consciousness is closely linked to materialism, with individuals often using fashion to enhance their social identity and perceived status [83]. This trend is observed not only in Taiwan but globally in many countries. Our research further demonstrates that Taiwanese Gen Z is becoming more individualistic, with self-status emerging as the most important factor for TikTok usage. The shift toward greater individualism in Taiwanese culture can be attributed to several interconnected social, economic, and educational factors [16, 84]. Taiwan's rapid economic development since the mid-20th century, transitioning from an agrarian society to an industrialized and high-tech economy, has led to increased urbanization, higher living standards, and greater economic independence. Higher education levels have also encouraged individuals to seek personal fulfillment and self-actualization, exposing them to diverse ideas and

Table 1

The GRA ranking of the factors impacting consumers' intention to use TikTok

	Vietnam		Taiwan		Indonesia	
	GRA	**RANK**	**GRA**	**RANK**	**GRA**	**RANK**
Seeking Information	0.472417	1	0.282526	7	0.4383197	5
Giving Information	0.307783	6	0.283076	5	0.4820664	3
Self-Status	0.304906	7	0.601619	1	0.4330993	6
Social Interaction	0.358649	5	0.282869	6	0.5548617	1
Critical Mass	0.408339	4	0.444493	2	0.4868514	2
Subjective Norm	0.451076	2	0.393407	3	0.4425554	4
Relaxing Entertainment	0.450676	3	0.390181	4	0.3157924	7

ways of thinking. Additionally, legal reforms promoting gender equality and the rise of the internet and social media have played a significant role in fostering individualism by providing platforms for self-expression and the pursuit of personal interests and careers.

In contrast, Indonesian youth place significant emphasis on social interaction, ranking it as the most influential factor for adopting TikTok. Research by [85] in Indonesia reveals that adolescents use TikTok to communicate, maintain relationships, and reconnect with various people. They perceive that TikTok helps them sustain and establish social connections, strengthening existing relationships and broadening their social networks with more online friends [85].

5. Conclusions, Limitations, and Future Research

The number of TikTok users is growing rapidly, yet there remains a significant gap in research examining the platform's adoption [1]. Investigating this trend is crucial for understanding the factors influencing the behavioral intentions of younger generations, particularly Gen Z. This research addresses this gap by using GRA to prioritize and rank the factors impacting Gen Z's intention to adopt TikTok. Notably, this is the first study to apply GRA to analyze social media platform use, demonstrating the method's capabilities in handling complex and inconsistent data across different cultural contexts.

Data for this research were collected from participants in three countries—Vietnam, Taiwan, and Indonesia—revealing both similarities and differences in the factors influencing TikTok adoption. Vietnamese users prioritize TikTok as an essential source of information, likely due to the government's strict control over public information. In contrast, Taiwanese users value TikTok for expressing self-status, while Indonesian users view it as a key platform for social interaction.

Although this study does not primarily focus on a shift from collectivism to individualism, the findings, particularly for Taiwan, indirectly suggest such a shift. This issue merits further exploration, especially through cross-country comparisons. The research also highlights that countries with similar cultural values, such as collectivism, can still exhibit diverse responses to factors influencing social media usage. This indicates that international platforms should avoid a "one size fits all" strategy. Even countries with similar cultural backgrounds require tailored marketing approaches based on their unique consumer behaviors. A strategy that succeeds in one country may not necessarily work in another due to various factors.

This study has some limitations that should be acknowledged. The sample size in each country was relatively small, which may limit the generalizability of the findings. However, GRA was chosen to effectively address small samples with missing values. While caution is needed in generalizing the results, the study still provides valuable insights for researchers and practitioners into how Gen Z's values have evolved regarding TikTok usage across different countries. Since all the countries studied share a predominantly collectivist culture, future research could benefit from examining the underlying differences among these collectivist countries or including individualist cultures for contrast. Such comparative studies would offer interesting perspectives and a deeper understanding of consumer behavior across different cultural contexts.

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