Analytical Factors Influencing Parasocial Interaction and Engagement of V-Tuber Fan Communities: A Decision-Oriented Perspective

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ARTICLE INFO	ABSTRACT
	This research investigates the factors influencing the longevity of parasocial interaction and engagement within V-Tuber fan communities from a decision-making perspective. Employing a quantitative methodology, data were collected through a structured questionnaire administered to 4,000 active V-Tuber enthusiasts participating in virtual communities. Both descriptive and inferential statistical techniques were applied to identify the behavioural and demographic variables that significantly affect levels of parasocial interaction and engagement. Findings reveal that being female, belonging to the Generation Z cohort (aged 12–27), and being a university student are the primary demographic determinants of interaction intensity. Concerning media consumption, YouTube emerged as the predominant platform, with users typically spending one to two hours daily and engaging five to six times per week. Direct interpersonal attraction—manifested through straightforward communication, emotional expressiveness, and human-like visual design—was identified as a crucial factor in shaping parasocial interactions. These interactions subsequently foster relationship formation, loyalty, and active participation in community discussions. From a managerial and technical perspective, the results highlight that well-designed digital communication strategies and user-interface initiatives can markedly enhance engagement and retention within fan-based ecosystems. The study contributes to decision-making literature by offering a data-driven framework for optimizing virtual engagement strategies in contexts such as entertainment, digital marketing, and community management.

1. Introduction

In the contemporary digital era, technology and online media are integral to everyday life, with shifts in media consumption patterns arising as direct consequences of technological progress and social factors that prioritise digital communication as the primary mode of interpersonal exchange [11]. The COVID-19 pandemic significantly accelerated this shift, compelling individuals worldwide

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to rely on the internet for nearly all aspects of daily life, including work, education, and leisure [12]. This transformation has led to a move away from traditional media, such as television, radio, and print, toward extensive engagement with electronic devices and online platforms [8]. According to the Office of the National Board for Digital Economy and Society, the average daily internet use among Thais is approximately seven hours and twenty-five minutes, with social media forming a major component for both interpersonal interaction and entertainment?

Media engagement today spans multiple platforms, including Facebook, TikTok, X (Twitter), and YouTube, offering diverse content formats that cater to a wide range of user preferences. YouTube, in particular, ranks among the most widely used platforms in Thailand. The Global Digital Report (2022) indicated that 94.2% of Thai internet users accessed YouTube for content consumption, and by 2023, this number had exceeded 43.9 million users [17]. This popularity is attributable to YouTube's versatility in accommodating various user behaviours, such as viewing short videos, participating in livestreams, expressing opinions, and supporting content creators via membership systems [29]. These features not only enhance user interaction but also foster the formation of online communities, increasing participation and engagement [4].

Livestreaming represents a notable trend on YouTube, enabling content creators to engage with viewers in real time [6]. Tools such as Super Chat allow viewers to share opinions and make financial contributions, while membership systems grant access to exclusive content and community recognition. These mechanisms cultivate a sense of closeness and active participation, which are vital in establishing engagement between content creators and their audiences [14]. Beyond promoting familiarity, livestream interactions and membership systems facilitate the creation of social networks within virtual communities. These communities emerge as viewers with shared interests or preferences for specific content form connections Chinchilla and Kim [2], reflecting innate human needs for social connection. Communication within these groups is interactive rather than one-directional Tang [32], allowing members to express emotions and opinions while actively contributing to community dynamics.

V-Tubers (Virtual YouTubers) represent a novel phenomenon on YouTube, employing virtual avatars to represent their creators' identities. These avatars, typically 2D or 3D cartoon-like characters, utilise motion capture technology to simulate realistic and engaging expressions [23]. V-Tuber models lower traditional beauty constraints, enabling creators with innovative ideas to establish distinct online identities. Since 2016, V-Tubers have expanded rapidly, initially in Japan and subsequently in regions such as Thailand. Their popularity is driven by diverse content, including gaming, musical performances, variety shows, and interactive livestreams [31]. Such interactions allow viewers to experience closeness to V-Tubers and develop parasocial interactions (PSI), where a sense of connection exists despite being acknowledged by only one party [28].

Parasocial interaction describes the perceived relationship between viewers and V-Tubers, fostering feelings of connection and attachment to digital personalities. These interactions often evolve into highly committed fan communities [27]. This study is important because it explores the factors that underpin PSI and participation in V-Tuber fan communities. In addition to promoting the sustainability of online communities, the findings provide guidance for content creators seeking to develop communication strategies that meet viewer expectations. Furthermore, the research examines elements such as livestream interaction models, communication frequency, and special features like Super Chat and memberships, all of which contribute to engagement within fan communities.

1.1 Research Question

What are the determinants that shape parasocial interactions and levels of engagement within

V-Tuber fan communities in virtual environments?

1.2 Research Objective

To investigate the determinants influencing parasocial interactions and engagement within V-Tuber fan communities in virtual environments.

2. Scope of the Study

This research adopted a quantitative approach, utilising close-ended questionnaires as the primary instrument for data collection. The study population was drawn from 213,000 members across two major virtual community platforms, specifically Facebook (44,000 members) and Reddit (169,000 members). The required sample size was calculated using Taro Yamane's formula, with a confidence level of 95% and a margin of error not exceeding 2%. Based on this calculation, a sample of 4,000 participants was deemed appropriate for the study. Questionnaires were distributed through the researcher's network to members of both platforms, with a particular focus on individuals demonstrating consistent engagement within these communities. This approach ensured the collection of data capable of accurately capturing the factors influencing parasocial interaction and engagement among V-Tuber fan clubs.

3. Research Methodology

This research adopted a quantitative design, employing close-ended questionnaires as the primary data collection method as detailed below:

3.1 Research Design

This research employed a quantitative design combined with a survey methodology, collecting data from V-Tuber fan communities through online close-ended questionnaires. The study specifically focused on examining the factors influencing parasocial interactions and engagement among participants within virtual communities on Facebook and Reddit, the primary platforms hosting V-Tuber fan clubs.

3.2 Population and the Sample

The study population comprised male, female, and LGBTQIA2S+ members of V-Tuber fan communities on Facebook and Reddit, selected to ensure representation of the population's diversity. The required sample size was determined using Taro Yamane's formula, with a confidence level of 95% and a margin of error not exceeding 2%. This calculation indicated that a sample of 4,000 participants was appropriate, who were purposively drawn from V-Tuber fan clubs within the virtual communities.

3.3 Research Instruments

The primary tool for data collection was an online questionnaire administered via Google Forms, structured into three key sections:

1. The screening section aimed to verify that respondents were members of V-Tuber fan communities and actively participated in virtual communities.

2. The demographic section collected information on respondents' characteristics, including gender, age, status, and occupation.

3. The section assessing factors influencing interactions and engagement employed a 5-point Likert scale to measure participants' perceptions regarding variables such as media exposure, language appeal, content attractiveness, and engagement within virtual communities.

3.4 Data Collection Methods

Data collection was conducted using the following procedure:

1. Questionnaires were disseminated through Facebook and Reddit, targeting V-Tuber fan communities with 44,000 and 169,000 members, respectively, amounting to a total population of 213,000 members.

2. The researcher utilised their personal network to purposively reach the intended participants within these communities.

3. Data were gathered from 4,000 respondents, with quality checks performed prior to analysis to ensure accuracy and reliability.

4. Data Analysis

The gathered data were examined using descriptive statistical methods alongside specialised software to synthesise the research findings. The analysis proceeded as follows:

1. Descriptive statistics, including mean, percentage, and standard deviation, were applied to the demographic data to present an overview of the sample's characteristics.

2. Responses to the Likert-scale items were analysed to evaluate participants' perceptions regarding the factors influencing interactions and engagement.

3. During synthesis, the analytical results were interpreted and discussed to identify the key factors that significantly impact parasocial interactions within virtual communities.

4.1 Concepts, Theories, and Conceptual Framework

This research aimed to examine and identify the determinants of parasocial interactions that shape engagement among V-Tuber fan communities within virtual environments. The conceptual framework was developed through a comprehensive literature review and a thorough examination of relevant data. The researcher incorporated insights from seven key concepts and one theoretical perspective to form the principal structure for analysing and understanding the factors influencing engagement and interactions among V-Tuber fan clubs in virtual communities. Details regarding the concepts and theory applied to support the study are presented as follows:

4.2 Media Exposure

The concept of media exposure relates to consumer behaviour concerning the degree and manner in which individuals engage with media, including the deliberate choice to access information, news, or content aligned with personal interests. This process functions as a filtering mechanism, whereby recipients selectively expose themselves to information that corresponds with their needs, preferences, and beliefs. Originally developed by Klapper, this concept encompasses three primary stages:

Selective Exposure: At this stage, individuals choose appropriate communication channels. Consumers are receptive to news or content from various sources that align with their personal interests, such as following news on Facebook or watching YouTube videos on topics of specific relevance. The objective of this exposure is to satisfy immediate informational or entertainment needs.

Selective Attention: In this stage, individuals focus on news or information that aligns with their existing attitudes, beliefs, or opinions, often giving priority to content that reinforces prior understandings while disregarding information that conflicts with them. This mechanism serves to enhance confidence and reduce uncertainty in the interpretation of received content.

Selective Perception and Interpretation: Here, recipients perceive and interpret information through the lens of their personal experiences, attitudes, and beliefs. Variations in individual

experiences and perspectives result in diverse interpretations of the same content. Consequently, message recipients often construe information in ways that are consistent with their pre-existing understandings, leading to perceptions that are highly influenced by personal factors [26].

The researcher employed the concept of media exposure as the conceptual framework for examining the factors influencing parasocial interaction and engagement within virtual communities among V-Tuber fan clubs. This framework facilitated a detailed analysis of the fan clubs' media consumption behaviours, including the frequency of social media use, the platforms most frequently accessed, and the appeal of media design and content to the fan communities. Applying this concept also guided the development of the data collection questionnaire to ensure comprehensive coverage. The questionnaire was designed to capture information on social media usage patterns, content preferences, and familiarity with digital platforms, thereby effectively reflecting how media exposure behaviours contribute to engagement and interactions within virtual communities.

4.3 Concepts about V-Tubers

In an era marked by advanced digital technologies capable of capturing human motion and translating it into virtual representations through computer graphics, coupled with changes in media consumption and income-generating behaviours due to the COVID-19 pandemic, one occupation that has experienced notable growth is that of the virtual YouTuber, or "V-Tuber." V-Tubers integrate virtual reality with online presentation on platforms such as YouTube, distinguishing them from conventional content creators. These characters are typically rendered as hypothetical figures designed in 2D or 3D Japanese anime-style formats, employing motion capture or real-time display technologies [25]. In this study, the concept of V-Tubers was applied as a framework for explanation and analysis, focusing on their role as creative and unique forms of online media that influence media exposure, social participation, and engagement within virtual communities. The study further connected the V-Tuber concept to interaction-building processes on digital platforms, using the activities and behaviours of V-Tuber fan clubs as central analytical variables. Beyond contextualising the research, this framework also informed the development of the questionnaire and provided a foundation for understanding how communication through V-Tubers uniquely facilitates parasocial interactions [22].

4.4 Interpersonal Attraction

Interpersonal attraction refers to the tendency of individuals to evaluate and assign positive or negative value to others, or to symbols associated with particular individuals, which may encompass emotions and behaviours aimed at approaching or avoiding others. In social contexts, interpersonal interactions serve as fundamental mechanisms for establishing relationships and facilitating communication among members of society. A critical factor influencing these interactions is the impressions formed during encounters. The process of interpersonal attraction plays a central role in shaping preferences and aversions toward others. When an individual creates a favourable impression, the probability of forming positive relationships in the future increases [21]. This study identifies seven components that influence interpersonal attraction [20].

1. Verbal Communication: The use of spoken communication reduces uncertainty within relationships, with greater communication associated with lower uncertainty.
2. Nonverbal Affiliation Expressiveness/Warmth: Expressing warmth and affiliative nonverbal cues also decreases relational uncertainty.
3. Information Seeking: Actively obtaining information about interaction partners helps mitigate uncertainty, with higher uncertainty prompting increased information-seeking behaviors.

4. Self-disclosure/Intimacy: Levels of intimacy rise as uncertainty diminishes, and conversely, intimacy declines when uncertainty is higher.
5. Reciprocity: In situations of high uncertainty, individuals are more likely to seek balanced exchanges of information.
6. Similarity: Shared interests or values contribute to reducing uncertainty in relationships.
7. Liking: Lower levels of uncertainty correspond to higher levels of mutual liking between interacting parties.

The researcher employed the concept of interpersonal attraction as a guiding framework for the study by incorporating its key components, including social attraction (evaluating the friendliness and openness of V-Tuber personalities and behaviors), physical attraction (assessing the visual characteristics and designs of V-Tuber avatars), and task attraction (examining the skills and abilities of V-Tubers across various activities) [19]. These components informed the construction of the conceptual framework, which was subsequently used to design the questionnaire for assessing factors influencing parasocial interactions and engagement among V-Tuber fan communities. In particular, the framework facilitated the analysis of the relationship between different forms of attraction and engagement within the context of online media and virtual communities.

4.5 "Fans" and "Fan Clubs"

The concept of fans and fan clubs provides a foundational framework for understanding the behaviours and characteristics of individuals who share a common interest or preference. A fan club is defined as a collective of individuals with shared interests who form social networks to engage in activities that satisfy the needs of their members [10]. This framework highlights fan clubs as communities with distinct social and cultural dynamics [15]. In studies of fan clubs, the term "fan" does not refer to general message recipients but rather to individuals who engage closely with their preferred content, person, or object, demonstrating emotional involvement and active participation beyond conventional consumption [13]. Such engagement reflects the development of emotional connections and sustained interaction with the object of interest. Fan culture has been explored across multiple dimensions, emphasising the social roles and cultural practices of fan communities [9]. In this study, fan clubs are conceptualised as elements of social identity and as mechanisms for constructing social models. Fan clubs not only generate discussion surrounding their objects of interest but also undertake activities directly linked to those content, individuals, or objects. At the same time, fan culture can be influenced by materialistic and consumerist tendencies, reflecting broader patterns observed in social groups [7].

Regarding the diversity of fan club behaviours in the digital era, research on fan culture in a borderless online environment must account for variations in participation. Some fan groups openly engage in fan club activities or publicly express admiration, while others support their preferred artists, stars, or content privately without revealing their identity [3]. Within the context of consumption culture, fan clubs represent a valuable target for producers seeking to monetise their popularity. Producers often develop products, services, or experiences tailored to fan interests, prompting fan club members to expend resources on items or services aligned with their preferences [1]. In this study, the concepts of "fan" and "fan club" were applied to categorise the characteristics of V-Tuber fan communities within virtual platforms, taking into account ethnic diversity and variations in activity patterns, which depend on members' interests and needs. These concepts enabled a detailed and effective analysis of the sample's characteristics, supporting the study's research objectives.

4.6 Virtual Community

Virtual communities are defined as smaller social groups established within online social media,

characterised by networks of individuals sharing interests or preferences on common topics, with online platforms serving as the primary channels for interaction and information exchange. Thai scholars have described social networks as systems that disseminate information among group members, differing from traditional communication channels in terms of the nature of connections and interpersonal interactions facilitated through digital platforms [24]. Communication networks within virtual communities play a crucial role in fostering engagement between individuals and groups. This occurs through the exchange of information and knowledge via these networks, forming communication structures or networks that are essential mechanisms for building connections and engagement within virtual communities.

Virtual communities are typically established with the purpose of promoting interaction, communication, and information exchange, including shared group activities. Members generally possess similar preferences, interests, or goals. Interactions within these communities occur through computer networks and information technology, which are key enablers for the existence and functioning of virtual communities. In the context of V-Tuber fan clubs, virtual communities on online platforms exhibit distinct characteristics compared with conventional virtual communities, as many members maintain anonymous identities, reflecting unique patterns of interaction and membership within these specific groups [16]. The concept of virtual communities was applied as a conceptual framework in this study to address its research objectives, specifically to explore the factors and processes that generate interactions among V-Tuber fan clubs. This framework informed the design of research methods, including the development of data collection instruments, such as questionnaires, and guided data analysis to ensure accurate, comprehensive findings that reflect the particular characteristics of V-Tuber fan clubs' virtual communities.

4.7 Strength of Social Network Ties (Tie Strength)

Social networks are systems composed of interconnected elements, where relationships link different components within the network. Each individual unit, referred to as a node, is connected to the broader system. Online social networks, often called social networking services (SNS), are digital platforms designed to facilitate the exchange of information, shared interests, activities, events, stories, or images, thereby establishing interpersonal social connections. These services allow individuals to create personal profiles, maintain lists of group members, and form online communities that interact and exchange information with one another. Common examples of SNS include Email, Google, Facebook, blogs, Twitter, LinkedIn, and Instagram, illustrating how contemporary society relies on technology to support social interactions and communication [5]. According to Granovetter's "Strength of Weak Ties" theory (1973), members of social networks often acquire new and valuable information from acquaintances with weak ties rather than from close contacts, such as family or friends. Strong ties typically provide emotional support and confidence but tend to circulate similar information and experiences. In contrast, weak ties connect individuals to less familiar or distant contacts, offering diverse perspectives and novel information, thereby creating opportunities to access new knowledge and link networks across different domains. The strength of social network ties can be evaluated through three primary dimensions:

1. Frequency of Communication: The regularity of interactions among network members, which influences tie strength.
2. Importance of Ties: The value and attachment individuals assign to relationships within the network, reflecting tie significance.
3. Closeness of Social Relationships: The degree of perceived intimacy and connectedness among members of the network.

When assessing tie strength, researchers must consider the context and objectives of the study,

ensuring alignment with the research instruments employed to measure these relatonships [33]. In this study, the concept of tie strength was applied as a conceptual framework for examining fan club engagement within virtual communities. The framework guided the analysis of communication frequency, the perceived importance of ties, and the closeness of social relationships, which are critical factors in fostering engagement and participation among V-Tuber fan clubs in online communities.

4.8 Parasocial Interaction

Parasocial interactions refer to relationships imagined by users of online social media, in which individuals develop a sense of connection or familiarity with media figures or content. Although these relationships do not involve direct interpersonal contact, users often experience the perception of knowing and understanding the individuals portrayed in media as if they were real-life acquaintances. Parasocial relationships are further characterised by the users' sense of being able to interact with media figures virtually, such as following celebrities, singers, or V-Tubers, and perceiving a personal connection akin to friendship or acquaintance [30].

With the rise of new media, user behaviour has shifted from passive message reception to more active interaction, making parasocial interactions a central element of contemporary media consumption culture. This is particularly evident among followers of public figures, including stars, singers, YouTubers, and V-Tubers. Parasocial interactions can be categorised into several stages: 1) message reception, including following posts or updates of admired individuals; 2) response, such as liking, commenting on, or sharing content; 3) engagement, through expressions of support, including merchandise purchases; and 4) relationship development, where users feel an increasing sense of closeness leading to the formation of parasocial bonds. These interactions are unique in that users often feel intimate connections with public figures despite the absence of direct contact, facilitated by content designed to foster closeness, such as speeches or expressive presentations on social media platforms [18].

In this study, the concepts of parasocial interaction and parasocial relationship were applied to examine V-Tuber behaviour in virtual communities. Interactions were analysed according to: 1) viewing patterns, frequency, and methods employed by fan clubs to follow V-Tuber content; 2) perceived closeness between fan clubs and V-Tubers; 3) engagement and expression of opinions or support; 4) direct support, including donations or participation in events; and 5) information sharing, involving the dissemination of V-Tuber-related content on users' own channels. Applying this framework enabled a comprehensive understanding of the mechanisms driving engagement within fan clubs and facilitated systematic analysis of the effects of parasocial interactions on fan club behaviours.

4.9 Symbolic Interaction Theory

This concept represents a core sociological perspective that explains social phenomena by emphasising the significance of individual actions and interactions. The theory posits that society and social structures emerge from human interactions, with "symbols" serving as central tools for communication and the creation of shared meaning. Key aspects of this theory include: 1) Symbols are human-made constructs that convey meaning in various contexts and are not fixed, adapting according to social and cultural circumstances; 2) Interactions occur as individuals use shared symbols to communicate, understand one another, and establish common goals; and 3) Change and flexibility, as the meanings of symbols evolve with social contexts and ongoing human interactions. This perspective demonstrates that interactions are not predetermined but arise from individual choices and decisions shaped by personal values, beliefs, and needs, resulting in a society

characterised by continual change and renewal [19].

In the context of V-Tuber culture and fan groups, symbols are employed to convey meaning and express V-Tuber identities. Oshi Marks serve as symbols that signify admiration or support for a particular V-Tuber. Typically, Oshi Marks consist of emojis or combinations of emojis reflecting the identity of each V-Tuber. Fan clubs often incorporate Oshi Marks into their social media profiles to indicate their affiliation as supporters. Thus, the use of Oshi Marks exemplifies the application of symbols within virtual communities. Symbolic Interaction Theory was applied in this study to explain how symbols are created and utilised within V-Tuber fan communities on virtual platforms. This framework facilitated analysis of the role of symbols, such as Oshi Marks, in fostering engagement and interaction within these communities. By expressing identity through emojis, fan clubs demonstrate their membership and actively participate in online interactions. These symbolic practices help establish connections and relationships among members, offering a clear and meaningful understanding of how V-Tuber fan clubs utilise symbols to build engagement and interaction in online social groups (Figure 1).
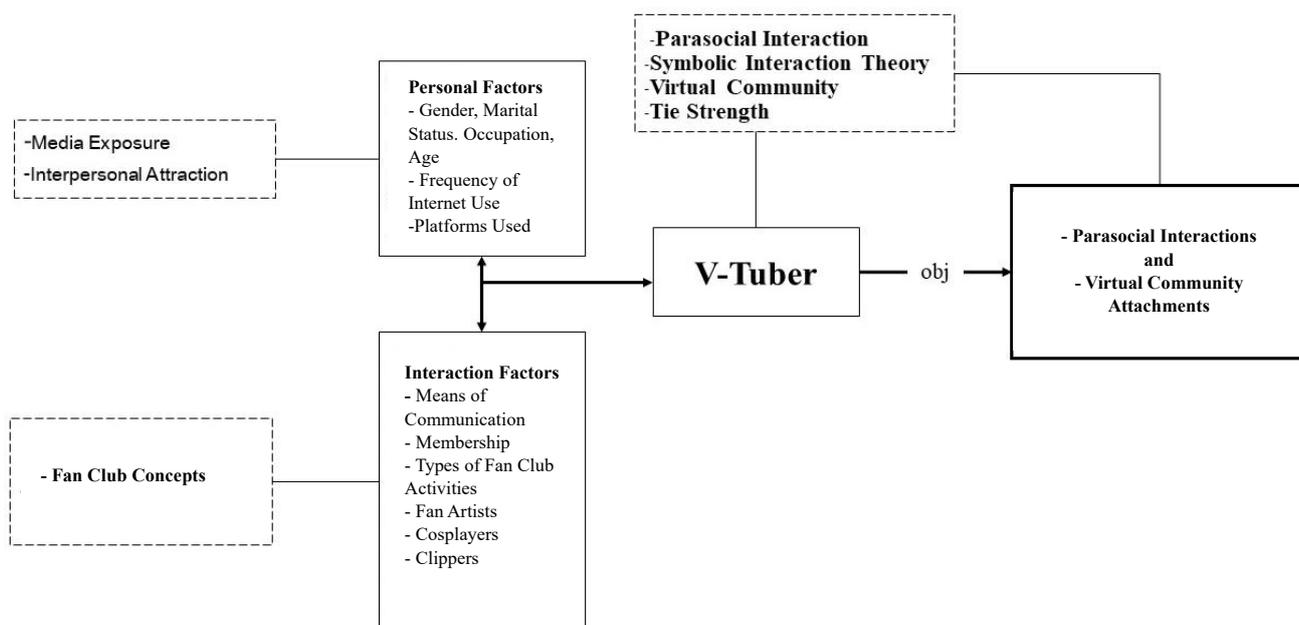

Fig.1: Conceptual Framework

5. Research Findings

Gender: The sample was predominantly female (50.2%), followed by male participants (25.0%) and LGBTQIA2S+ individuals (24.8%), indicating notable sexual diversity among V-Tuber fan clubs, with females representing the largest proportion within virtual communities.

Age: The majority of participants belonged to Generation Z (aged 12–27 years) (99.6%), reflecting that most members of V-Tuber fan clubs in virtual communities are from a digitally native generation with high familiarity with contemporary media technologies.

Marital Status: Married participants constituted the largest group (33.3%), suggesting that a significant portion of V-Tuber fan club members in virtual communities are individuals who have established families or are living in marital relationships.

Sample Diversity: The sample included both Thai and international fan clubs, demonstrating cultural diversity and a range of lifestyles among members of virtual communities.

The data indicate that V-Tuber fan clubs in virtual communities were largely composed of members from Generation Z, many of whom are of working age or beginning to establish families. Responses obtained from culturally diverse participants reflected common characteristics of V-

Tuber fan clubs and demonstrated widespread acceptance among members of virtual communities globally. The findings are considered reliable, as the sample encompassed diversity in gender, age, and cultural background, aligning with the study's objective of examining factors influencing interactions within virtual communities and capturing a broad range of engagement with V-Tubers (Figure 2).
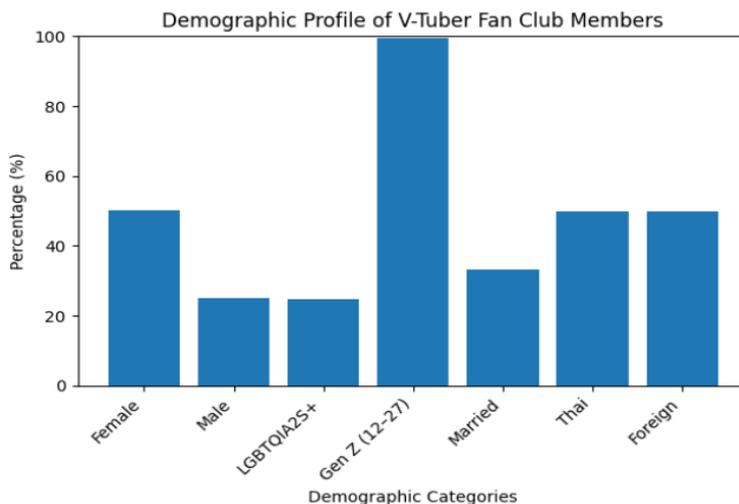
**Fig.2:** Demographic Profile of V-Tuber Fan Club Members

5.1 Media Exposure

Analysis of media exposure among V-Tuber fan clubs in virtual communities revealed several notable findings:

Frequency of Social Media Use: The majority of participants reported using social media for an average of 1–2 hours per day (24.9%) and accessing platforms 5–6 times per week (34.2%).

Preferred Platforms: YouTube emerged as the most frequently used platform in daily routines, with 12.6% of respondents indicating regular use. The platform's widespread adoption among V-Tuber fan clubs reflects its central role as the primary medium employed by V-Tubers for broadcasting and engaging in content-related activities.

Media Exposure Patterns: Overall, participants tended to engage with social media for 1–2 hours daily at a frequency of 5–6 times per week. These patterns align with the scheduling of V-Tuber livestreams, which are typically announced in advance, allowing fan club members to plan and allocate time for consistent viewing.
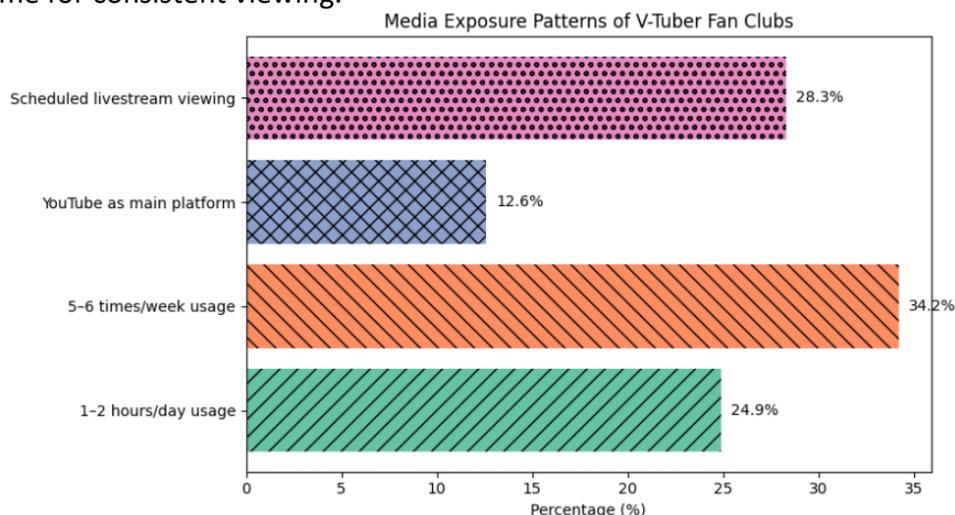
Fig.3: Media Exposure Patterns of V-Tuber Fan Clubs

Based on the data, YouTube was identified as the predominant platform among V-Tuber fan clubs in virtual communities, with members exhibiting media exposure behaviours that involved regularly following and viewing livestreams. The frequency of social media use among fan club members aligned closely with the scheduled livestreams of V-Tubers, facilitating ongoing interactions between viewers and content creators. This pattern underscores the pivotal role of YouTube in fostering engagement and sustaining participation within virtual communities.
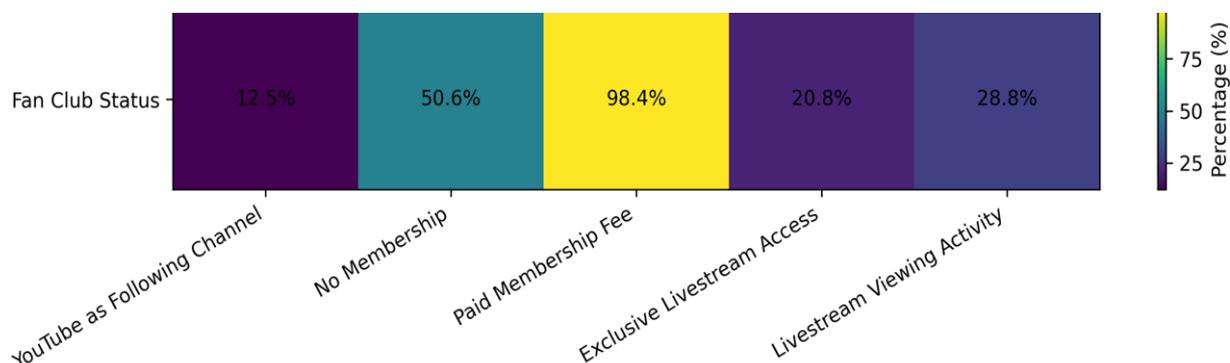
5.2 Fan Club Status

Analysis of fan club status among V-Tuber communities in virtual platforms revealed the following insights:

Following Channels: YouTube was the primary platform used by participants to follow V-Tuber activities, with 12.5% of respondents indicating regular use. This highlights YouTube as the principal channel for fan clubs to access V-Tuber content.

Membership: Despite close engagement with V-Tubers, the majority of participants did not subscribe to membership programs (50.6%). Among those who did, nearly all (98.4%) paid a nominal fee of 20 baht (approximately USD $0.99), which primarily granted access to member-exclusive livestreams (20.8%).

Participation in Activities: Viewing livestreams was the most common activity among participants (28.8%), reflecting the central mode of interaction between V-Tubers and their fan clubs within virtual communities.

Fig.4: Fan Club Status Characteristics of V-Tuber Fan Clubs in Virtual Communities

The data indicate that YouTube served as the primary platform through which V-Tuber fan clubs followed content. The majority of fan clubs did not enrol in membership programmes, which may be attributed to alternative forms of support, such as purchasing V-Tuber-related merchandise. Among the fan clubs that subscribed to memberships, participants paid the designated fees and received benefits that fulfilled their needs, including access to member-exclusive livestreams. Viewing livestreams emerged as the most frequently undertaken activity, highlighting its critical role as a mechanism for fostering engagement and sustained interaction between V-Tubers and their fan clubs (Figure 4).

5.3 Factors Creating Parasocial Interaction with Effects on Engagement among V-Tuber Fan Clubs in Virtual Communities

Analysis of interpersonal attraction and its influence on parasocial interaction and engagement among V-Tuber fan clubs in virtual communities revealed the following:

1. Verbal Communication: The highest-rated aspect was the use of clear and comprehensible language, which received a mean score of 3.03, indicating a moderate level of agreement among participants. Additionally, the use of props to support the expression of meaning was notable, with

a mean score of 3.04, also reflecting a medium level of perception.

2. Content: Among content-related factors, livestreamed singing achieved the highest rating, with a mean score of 3.06, corresponding to a moderate level of participant opinion.

3. Presentation: Presentation techniques, including ASMR and collaborative roleplaying, were rated highest in the presentation category, attaining a mean score of 3.03, indicating participants' moderate agreement regarding their effectiveness.

The findings indicated that V-Tubers who employed clear and easily comprehensible language, incorporated props to enhance meaning, and produced content such as singing or ASMR-style presentations were most effective in generating interpersonal attraction. This attraction, in turn, influenced parasocial interactions between V-Tubers and their fan clubs within virtual communities, highlighting the critical role of communication strategies and content design in fostering sustained engagement and interaction between V-Tubers and their audiences (Figure 5).
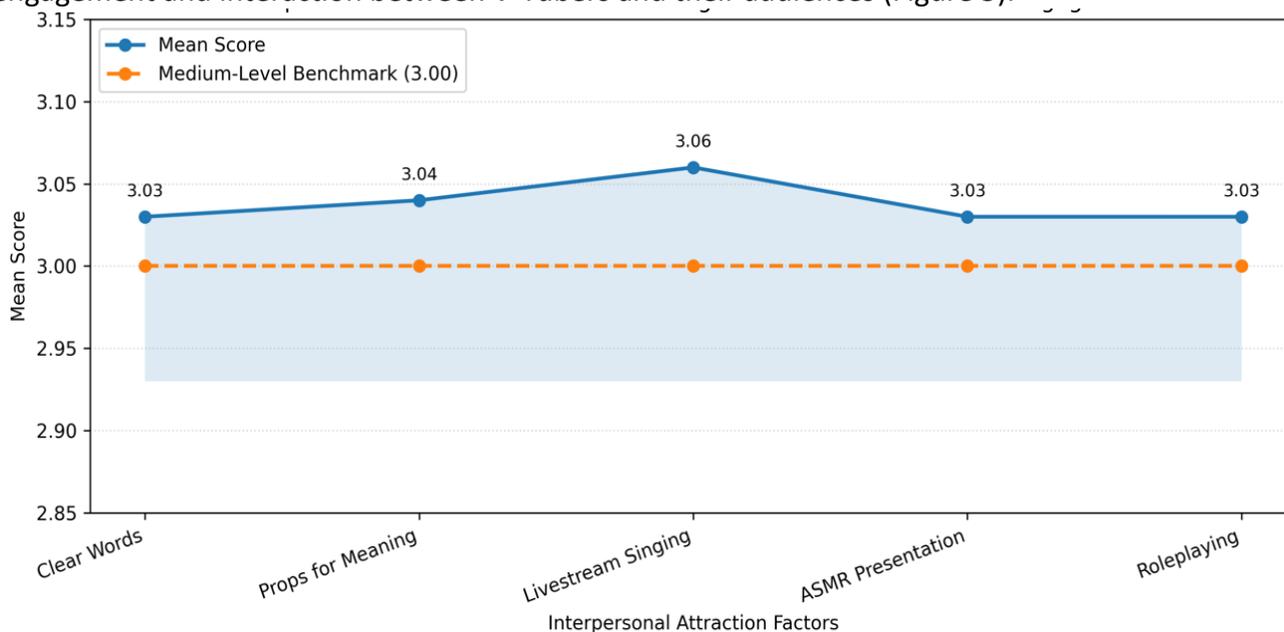
Fig.5: Interpersonal Attraction Factors Influencing Parasocial Interaction
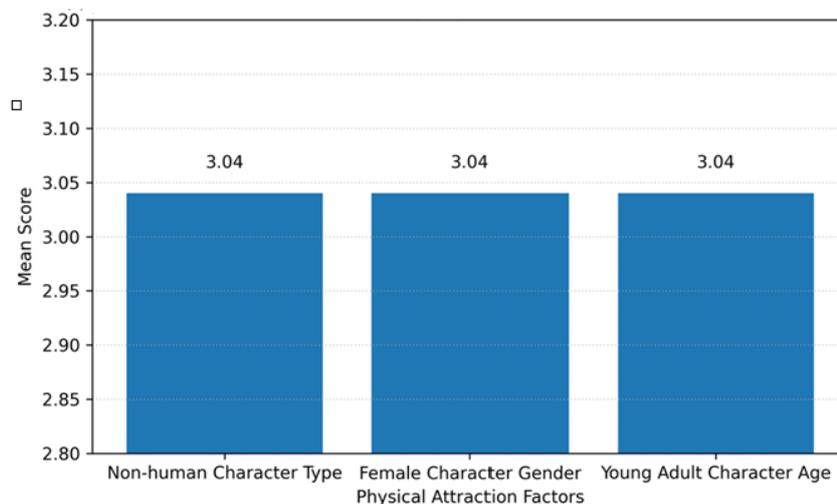
5.4 Physical Attraction

Analysis of the influence of physical attraction on parasocial interactions and engagement among V-Tuber fan clubs in virtual communities revealed the following findings:

1. Character Type Attraction: Non-human character types, including demons or spirits, were rated highest, with a mean score of 3.04, indicating a moderate level of participant agreement.

2. Character Gender Attraction: Female characters received the highest rating, also with a mean score of 3.04, reflecting a medium level of perception.

3. Character Age Attraction: Young adult characters were the most preferred, attaining a mean score of 3.04, corresponding to a moderate level of opinion among participants.

The findings indicated that V-Tuber characters exhibiting non-human traits, such as demons or spirits, alongside female gender and young adult age characteristics, were most effective in attracting fan clubs. These physical attributes played a crucial role in facilitating increased parasocial interactions between fan clubs and V-Tubers. Consequently, physical attraction emerged as a significant factor influencing engagement within virtual communities, underscoring the importance of designing V-Tuber characters that capture interest and align with fan club preferences (Figure 6).

Fig.6: Physical Attraction Factors Influencing Parasocial Interactions And Engagement

5.5 Parasocial Interactions

Analysis of the influence of parasocial interaction on engagement among V-Tubers in virtual communities revealed that the most prominent activity fostering parasocial interactions was the purchase of V-Tuber-related products, which received a mean score of 3.07, indicating a moderate level of agreement among participants. Product purchases emerged as a key mechanism for promoting engagement between fan clubs and V-Tubers within virtual communities. These purchases served as tangible demonstrations of affection and support; for instance, sharing photographs of V-Tuber merchandise or visiting locations associated with V-Tubers became additional ways for fan clubs to express genuine admiration. Such purchases extended beyond simple consumption, functioning as symbolic acts that reinforced the relationship between V-Tubers and their fan clubs. These behaviours contributed to the development of engagement and loyalty while also highlighting the role of cultural practices in strengthening connections and participatory dynamics within virtual communities (Figure 7).

5.6 Engagement and Ties in Virtual Communities

Analysis of engagement and social ties within virtual communities, and their effects on parasocial interactions among V-Tuber fan clubs, revealed that the most significant factor was the perception of communication between fan club members as important, with a mean score of 3.07, indicating a moderate level of engagement. The findings highlighted that V-Tuber fan clubs placed considerable value on intra-group communication. Such interactions were not limited to the exchange of information or shared interests but also served as a crucial mechanism for fostering engagement and strengthening community ties, particularly among fan clubs with common goals and preferences. These communications provided a foundational basis for establishing sustainable connections. Engagement and social ties within V-Tuber virtual communities were therefore essential for cultivating interactive relationships among members. The recognition of communication's importance underscored its role in promoting unity and closeness within fan clubs, which are pivotal factors driving engagement and long-term support for V-Tubers in virtual communities.

6. Discussion

This study aimed to examine the factors influencing parasocial interactions and engagement among V-Tuber fan clubs within virtual communities. The findings can be interpreted across several

dimensions as follows:

Media Exposure: The analysis revealed that V-Tuber fan clubs typically used social media for an average of 1–2 hours per day, with a frequency of 5–6 times per week. YouTube emerged as the most widely used platform, aligning with Klapper's (1960) concept of media exposure, which identifies three levels: 1) Selective Exposure; 2) Selective Attention; and 3) Selective Perception and Interpretation. The behaviour of selecting YouTube demonstrated that fan clubs preferred a platform capable of fulfilling their interests while facilitating convenient interaction. In addition, the platform's features, which allowed easy access to and participation in livestreaming activities, played a crucial role in promoting interactions between fan clubs and V-Tubers.

Interpersonal Attraction: Interpersonal attraction was identified as another key factor influencing engagement with V-Tubers. The findings indicated: 1) clear, easily comprehensible communication, often supported by props to convey meaning, was the most influential factor; and 2) non-human characters, female gender, and young adult age characteristics significantly enhanced attraction. These results are consistent with concepts in interpersonal relationship research, which highlight the roles of verbal communication, non-verbal expression, and similarity-based liking. Such forms of attraction contributed to developing closeness and facilitating engagement between fan clubs and V-Tubers.

Fan Status and Parasocial Interactions: V-Tuber fan clubs demonstrated engagement through activities such as attending YouTube livestreams, participating in live chat discussions, and supporting V-Tubers through membership programs. Most members paid a monthly fee of 20 baht, gaining privileges such as access to exclusive content. These behaviours reflected deeper engagement, indicating that fan clubs were not merely passive recipients of content but actively performed activities demonstrating emotional involvement. Additionally, purchasing V-Tuber-related products served as another mechanism for fostering engagement, revealing that fan clubs were willing to invest financially to support the creators they admired. Such purchases represented both tangible support and symbolic expressions of affection and commitment to V-Tubers.

Engagement in Virtual Communities: Communication among members of V-Tuber virtual communities was perceived as highly important. The findings showed that active engagement and relationship-building within these communities promoted parasocial interactions. This aligns with concepts of identity formation and social planning in fan clubs through shared activities and dialogues. Media exposure patterns demonstrated that fan clubs selectively engaged with content aligned with personal interests. When content matched these preferences, it encouraged participation in activities, membership enrolment, and product purchases, further strengthening engagement. Overall, engagement within virtual communities played a central role in facilitating interactions between fan clubs and V-Tubers. The study's results indicate that these factors collectively contributed to the development of parasocial interactions among V-Tuber fan clubs in virtual communities.

7. Conclusion

This research explored the factors that shape parasocial interactions and participation within V-tuber fan clubs in virtual communities. The results show that Physical attraction, particularly non-human character designs, females and youngers adults plays a major role in attracting fan clubs and encouraging parasocial relationships. Media patterns explore the effective preference for YouTube, which promotes interaction and individual participation. Parasocial relationships intensifies through symbolic actions such as V-Tuber merchandise that reflects both loyalty and emotional connection. YouTube becomes the key platform because of higher interaction and engagement, also signifies the media exposure patterns and reinforces emotional attachment and loyalty. Active participation

among members, and community interaction will collectively sustain engagement and long-term support for V-Tubers.

Recommendations

1. Integrated Concept Development: Future research could build on the findings of this study to construct comprehensive conceptual frameworks that link media exposure, interpersonal attraction, and engagement within virtual communities. Such frameworks would allow for analysis of the factors influencing interactions among V-Tuber fan clubs across varied contexts, including international fan clubs or culturally diverse communities.

2. Comparison in Different Cultural Contexts: Subsequent studies should extend to multiple countries or cultural settings to compare patterns of interaction and engagement among V-Tuber fan clubs. This approach would enable identification of similarities and differences across cultures, contributing to a deeper, globally informed understanding of fan club dynamics.

3. Studies of Economic Effects: Further investigation is recommended on the economic implications of parasocial interactions, including the market value of V-Tuber-related merchandise and the impact of membership programs on revenue generation through platforms such as YouTube.

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