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## Analyzing Trends and Technological Developments in Parasocial Interaction: A Bibliometric Perspective on Communication Systems



**Abstract:** - Purpose: This study aims to systematically review Parasocial Interaction theory (PSI), understanding its developments and changes from its beginnings to the present. The study identifies the major authors, countries, organizations, publications, and research trends in PSI, offering a comprehensive overview of theory evolution and application.

**Methodology:** This study adopts a bibliometric analysis of 606 articles selected from Scopus database. VOSviewer and CiteSpace are adopted to conduct data visualization and analysis. The methodology includes bibliographic coupling and keyword burst analysis, which help to illustrate the PSI research focus and the developments of research trends over time.

**Findings:** The analysis reveals four distinct clusters in PSI research: 1) Traditional Media and Psychological Analysis, focusing on television and radio; 2) Digital Interaction and Technological Influence, reflecting shifts towards digital media; 3) Consumer Behavior and Social Media Marketing, exploring PSI's impact on consumer engagement and marketing strategies; and 4) Emerging Trends and Applications, highlighting PSI applications in new media contexts like social media.

**Originality:** This study contributes to the literature by offering the first comprehensive bibliometric review of PSI. The paper emphasizes its theoretical transformation from traditional to digital media and underscores its application and challenges in the digital media context. The outlined keyword clusters and identified gaps suggest new insights for future academic research in PSI.

**Practical implications:** The findings can provide marketers with insights into the consumer-media relationships in the digital age. The growing importance of parasocial interaction in social media marketing and digital consumer engagement strategies has been highlighted.

**Research limitations:** While the study provides a detailed description of PSI's development and current research state, this paper only uses the Scopus database articles in English language. Future research could expand the bibliometric analysis to include more diverse databases and multilingual publications.

**Keywords:** Parasocial Interaction, bibliometric analysis, consumer behavior, VOSviewer, CiteSpace.

### 1. INTRODUCTION

Parasocial interaction (PSI) was first proposed by Donald Horton and Richard Wohl in 1956. They defined parasocial interaction as the illusion of a face-to-face relationship between media viewers and personas (Horton

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and Richard Wohl, 1956). Such relationship is featured by one-sided nature and was mostly influenced by the behavior of the media persona. Thus, such parasocial interaction is inherently asymmetric. This new type of interaction is different from real-life interaction which is featured by two-sided and reciprocity (T. Hartmann and Goldhoorn, 2011). These characteristics have caught research's interest as a new mechanism to understand consumer relationship (Penttinen, 2023). In recent years, the concept of parasocial interaction has received widespread attention, leading to diverse applications such as digital marketing (Sabina Lissitsa and Kushnirovich, 2021), influencer endorsements (Chung and Cho, 2017), and virtual reality (Park and Kim, 2023).

Previous research mainly focused on investigating PSI in traditional mass-media environment like TV or radio (Penttinen, Ciuchita and Čaić, 2022a). Research usually conducted between a media character and viewers where the interaction are limited (Liebers and Schramm, 2022). The rise of internet technology and artificial intelligence has led to new development of PSI. In a web-mediated environment, consumers are more inclined to develop a strong feeling of real-life interaction and feeling connected with the media personae (Chittaro *et al.*, 2018). This expanding body of research has also driven methodological innovations, notably in the development of refined scales for measuring PSI (Tilo Hartmann and Goldhoorn, 2011; Slater, Ewoldsen and Woods, 2018; Tukachinsky, Walter and Saucier, 2020).

PSI provides a new research perspective into unilateral relationship marketing, it has been applied to understand the interaction between a mediated persona (e.g. influencer or brand) and a viewer in different media environment (Penttinen, Ciuchita and Čaić, 2022). Therefore, it is critical to assess its foundational premises, track its evolution, and investigate cross-discipline applications. This paper aims to give directions for future research by identifying gaps in the current literature. Snyder (2019) emphasizes the strategic value of literature reviews in contextualizing theoretical developments, recommending the selection of a review method that aligns directly with the specific objectives of the research. Abdullah (2023) suggests bibliometric analysis is more appropriate for situations where the review scope is broad and includes a large data set. A number of recent studies (Srivastava and Saini, 2022; Legendre, Ding and Back, 2024) have conducted such reviews using bibliometric analysis. Therefore, this study adopts a bibliometric approach to summarize the contribution of researchers in this domain, assess the temporal evolution, and examine the knowledge structure associated with the application of the PSI theory in different fields. Overall, this paper aims to address the following two research questions:

RQ1. Who or what authors, articles, journals, organizations and countries are most influential in parasocial interaction research?

RQ2. What are the key research themes or the development trends in parasocial interaction research?

The paper consists of five different sections. Section two provides an overview of theoretical background of PSI theory, the various phases of research on parasocial interaction, and its applications. Section 3 outlines the methodology process. Section 4 provides the results of the paper, which reports the descriptive analysis of the articles, the obtained clusters and keyword burst analysis are also discussed. Conclusion are presented in section 5.

## 2. THEORETICAL BACKGROUND

Parasocial interaction theory was developed to understand the one-sided illusory experience with media personae as if they were engaged in a reciprocal relationship (Horton and Richard Wohl, 1956). This friend-like relationship is defined by mutual comprehension, attention, and adjustment (Tilo Hartmann and Goldhoorn, 2011). This theory has been expanded upon in subsequent studies, for example, Cohen (1999) points out that this type of interaction is usually developed with the characters that the audience regards as beloved or favorites. However, viewers may also become interested in characters who are neutral or even dislike (Giles, 2002). Dibble et al.(2016) further defined parasocial interactions as situations when media performers recognize the audience presence, adopting a conversational and informal style similar to face-to-face interactions, and addressing their users through verbal and body language.

The concept of parasocial interaction was introduced in an era where social media channels did not yet exist. They described the interaction between a media actor and audience as one-sided and nondialectical (Horton and Richard Wohl, 1956). The performer largely controls it; thus, the interaction is mutually. Despite this, Horton and Richard Wohl (1956) also mentioned that the audience can express their emotions to the performers and to the technicians who design the programs, but these emotions lie external to the parasocial interaction itself. The advantage of studying PSI in a traditional media environment like television has certain fixed factors. For instance, performers are clearly not able to observe or address any viewers directly, and no viewer is able to respond to performer in such context. In this case, the viewer may feel he or she is socially connected with the performer, which is non-intuitive. Therefore, viewers found such interaction to be interesting and informative.

Past studies mainly focus on traditional mass media such as television or radio. Early studies on such kind of interaction mainly focused on interaction with news programs or news broadcasters (Rubin, Perse and Powell, 1985) and characters from soap opera (Perse and Rubin, 1989). Subsequent research examined parasocial interaction with television and radio talk shows providers (Tian and Hoffner, 2010; Shin, 2016), computer games (Jin & Park, 2009), comedians (Auter, 1992), and studies on the interactions with television show character in a reality show (Nabi *et al.*, 2006). In recent years, researchers have shifted focus towards online media context, for example, parasocial interaction with social media content producers such as online celebrities or influencers (Yilmazdoğan, Doğan and Altıntaş, 2021), YouTube videos (Penttinen, Ciuchita and Čaić, 2022a), and media characters on Twitter (Kim and Song, 2016) have attracted the attention of researchers. Hartmann (2023) propose that the conceptual of PSI has meet some challenges in social media or computer-mediated situation.

In recent years, the construct of parasocial interaction has evolved considerably due to modern technology. Fazli-Salehi et al. (2022) pointed out that social media and online channels are different from traditional mass media, it is challenging for scholars to assess interaction on social networking sites. Due to the fact that social networking sites allow vloggers and content producers to interact directly with viewers, and viewers can also respond to their posting by following and commenting. This two-way interaction has challenged the theoretical premise of the one-way interaction defined by Horton and Richard Wohl (Hartman, 2022). The reciprocal nature

of modern digital interactions between online performers (like streamers and influencers) and their followers, questions the ongoing applicability and unique explanatory power of PSI. Interaction is not one-sided or illusory, making its use in these contexts potentially unnecessary. In response, Lou (2022) introduces the concept of trans-parasocial relationships, characterized by collective reciprocity and asynchronous interactivity. Such relationships include a responsive relationship with the community and individualized attention in principle. Unlike traditional one-sided parasocial relationships, trans-PSRs involve more interactive, bidirectional, co-constructed, and intimate connections, facilitating content co-creation based on followers' input.

### 3. METHODOLOGY

#### 3.1 Bibliometric analysis

Researchers use Bibliometrics to analyze how relevant literature change over time based on their social, conceptual and intellectual structures (Zupic and Čater, 2015). It analyzes and categorizes bibliographic information using existing literature (Donthu *et al.*, 2021). Future studies by new researchers may be influenced by bibliometric analysis (Abdullah, 2023a). Researchers use such analysis to map the evolution trends of journal, knowledge structure, research characteristics and exploring deeper into the collaboration patterns of a specific field of current literature (Abhishek and Srivastava, 2021a; Legendre, Ding and Back, 2024).

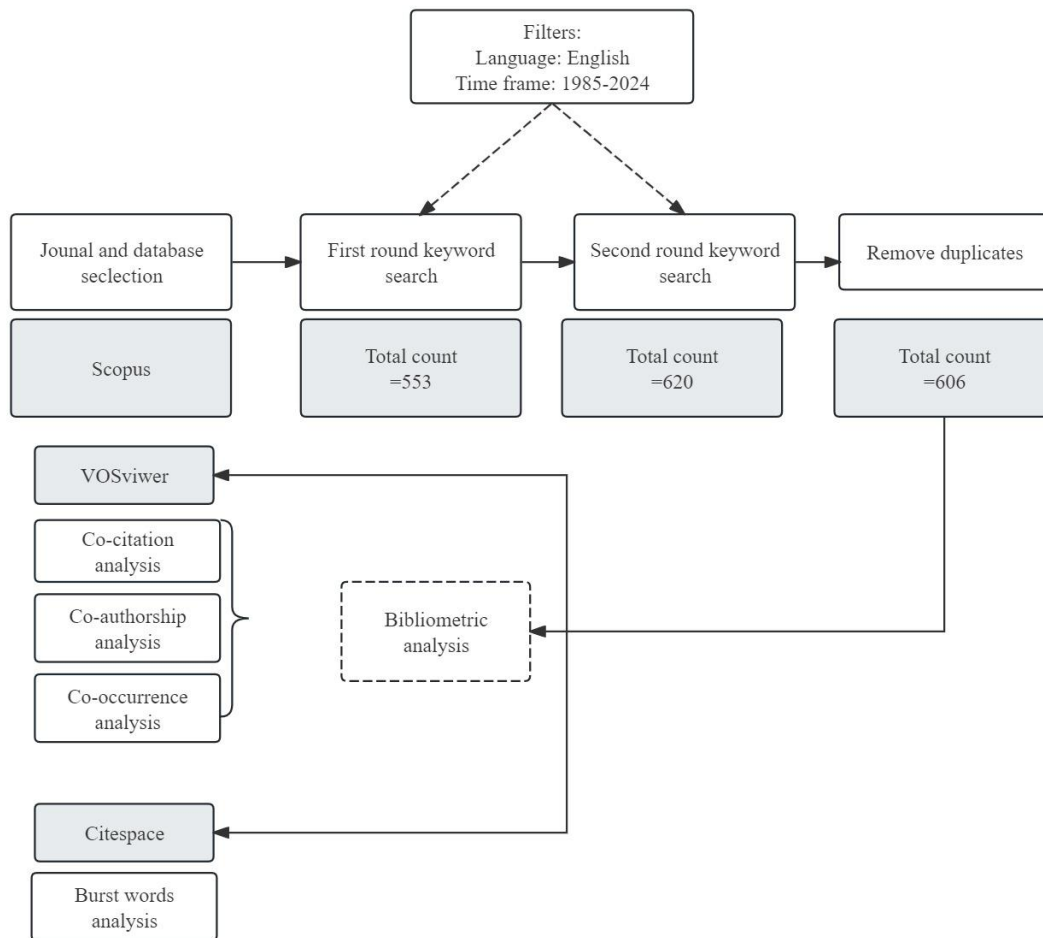
The steps of the review process are detailed in Figure 1. This process has generated different research topics and trends in PSI research and provides guidance for future researchers.

#### 3.2 Database Selection

There are a variety of databases that can be used to conduct bibliometric analysis. PubMed, Scopus and Web of Science (WoS) are the most popular database (Abdullah, 2023). Scopus and WoS database cover a wide range of disciplines, while PubMed mainly focused on life sciences and biomedical study (AlRyalat *et al.*, 2019). In terms of coverage, Scopus offers more coverage than WoS (Raminta Pranckutė, 2021). Scopus is the largest, most structured and well-organized database. It is also considerably used for quantitative research (Johnson and Samakovlis, 2019; Donthu *et al.*, 2021).

#### 3.3 Search strategy

The initial search query used keyword “parasocial interaction” OR “PSI”. The “TITLE-ABS-KEY” search generated a primary set of 620 papers, spanning the years 1956 to 2024 (Figure 1). The searches of documents on Scopus were restricted to the English language. Consequently, 606 articles were collected for data analysis after removing duplications.



**Fig. 1. Informatics framework adopted in this study**

### 3.4 Data analysis plan

The statistical tools VOSviewer and CiteSpace were used to analyze 606 articles on PSI. This analysis presents the evolution of research in the field, its current status, and future research perspective. Using VOSviewer, the analysis identified the ten most influential authors, journals, organizations, countries and articles. It was also used for bibliographic coupling. Previous research often use this analysis to show research themes and clusters in the field (Abhishek and Srivastava, 2021). Later, we used CiteSpace to conduct burst key word analysis of each article using to give suggestions for future research.

## 4. FINDINGS

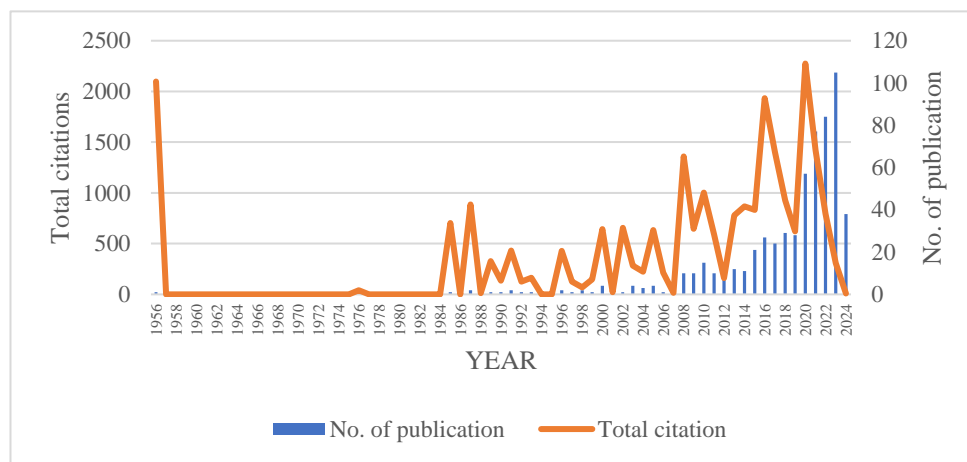
### 4.1 Descriptive statistics of publications

The first research questions is answered in this part, i.e. Who are the most influential authors, articles, journals and countries for parasocial interaction studies?

We reviewed publication trends from 1956 to 2024. Figure 2 shows the trend in the publication for articles on parasocial interaction during this period. It indicates that only 6.44% of the articles were published between 1956 and 2007 (39 out of 606). After 2007, there has been a clear increasing trend in the number of publications.

This upward trend suggests that these topics are attracting scholarly attention, particularly in the latest years. Furthermore, 81% of the publications (490 out of 606) were published in the last decade (2015–2024), and the most recent five years (2020-2024) accounted for 60% of all articles (361 out of 606). This demonstrates the novelty of study on parasocial interaction. Over time, there has been an overall increase in the number of publications on parasocial interactions, indicating that researchers start to recognize the importance of the field of parasocial interactions. Academic interest is continuing to be strong. Figure 2 indicates the number of parasocial interaction articles from 2019 to 2024 has a significant growth.

An article-wise analysis identified 387 documents with at least 3 citations. Table 2 outlined the top 10 most influential articles in the field. The paper by Labrecque (2002) has the highest citation number of 497. The analysis of the authors shows that 12 authors have at least 80 citations with more than two papers.



**Figure 2: Total number of publications and total citations from 1956 to 2024**

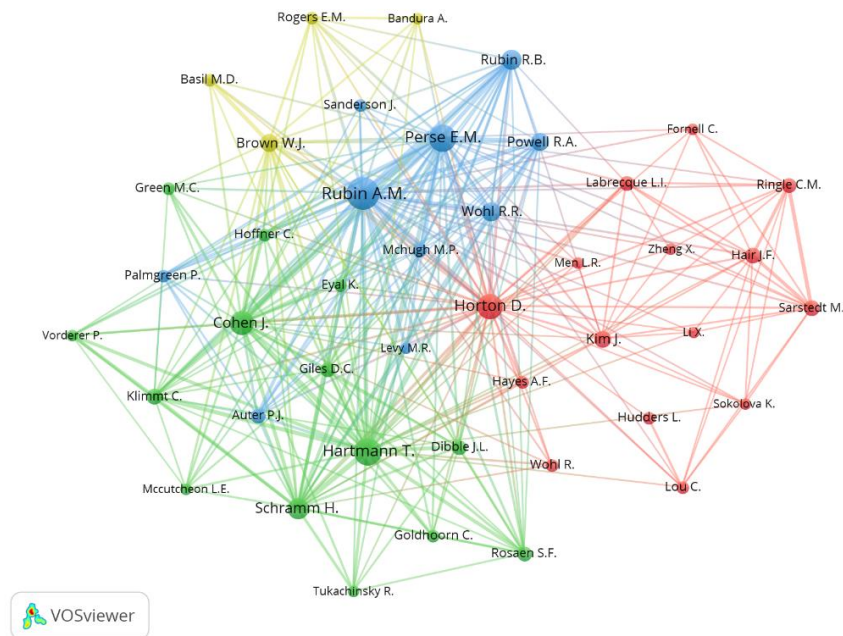
The purpose of this section is to adopt co-authorship analysis to present how highly productive authors and the collaboration between them. Through the analysis of author’s collaborative network, the leading researchers in PSI domain can be identified. Table 1 displayed the top five authors in parasocial interaction studies. It can be found that most of the top five authors are from United States. With 497 citations and three documents, Chen C.-P. is the most influential author.

Figure 2 displayed four clusters that consists of 43 authors in total. Among the top ten co-cited authors, Rubin A.M. is the foremost (741 citations, 13283 link strength), followed by Perse E.M. (541 citations and 10510 links), Hartmann T. (536 citations and 10738 strength links), Horton D. (479citation, 7441 links), Cohen J. (410), Schramm H. (330), Rubin R.B. (291), Wohl R.R. (267), Brown W.J. (244) and Powell R.A. (234). Fig. 2 shows the visualization of the citation map (Table 1).

**Table 1 Most Influential Authors in Parasocial Interaction Research Field**

Rank	Label	Documents	Citations	country
1	Chen C.-P.	3	497	United States
2	Hartmann T.	3	267	Netherlands

3	Kim H.	3	216	Australia
4	Men L.R.	3	173	United States
5	Sanderson J.	3	128	United States



**Fig 2. Most cited authors**

Table 2 shows the top 10 most influential documents in parasocial interaction research. The most influential article published by Moyer-Gusé (2008) with 871 citations. Rubin et al (1985)’s work is the second most cited document with 703 citations. This followed by Giles (2002), with a citation of 657. Moyer-Gusé also contribute another influential work in 2010 with 505 citations. Besides, a recent paper by Sokolova and Kefi (2020) is ranked the fifth with a citation of 501, their study offers a modern perspective on consumer behavior in the digital media context.

**Table 2 Top-10 most influential documents**

No.	Author	Document	Citation	Link strength
1	Moyer-Gusé (2008)	Toward a Theory of Entertainment Persuasion: Explaining the Persuasive Effects of Entertainment-Education Messages	871	89
2	Rubin; Perse; Powell (1985)	Loneliness, Parasocial Interaction, and Local Television News Viewing	703	56
3	Giles (2002)	Parasocial Interaction: A Review of the Literature and a Model for Future Research	657	112
4	Moyer-Gusé.; Nabi (2010)	Explaining the Effects of Narrative in an Entertainment Television Program: Overcoming Resistance to Persuasion	505	98

5	Sokolova and Kefi (2020)	Instagram and YouTube bloggers promote it, why should I buy? How credibility and parasocial interaction influence purchase intention	501	12
6	Labrecque (2014)	Fostering Consumer–Brand Relationships in Social Media Environments: The Role of Parasocial Interaction	497	24
7	Schiappa; Gregg; Hewes (2005)	The Parasocial Contact Hypothesis	492	59
8	Rubin and Mchugh(1987)	Development of parasocial interaction relationships	478	83
9	Lee and Watkins (2016)	YouTube vloggers' influence on consumer luxury brand perceptions and intentions	460	9
10	Rubin and Perse (1987)	Audience Activity and Soap Opera Involvement: A Uses and Effects Investigation	407	82

Table 3 presents the distribution of research documents by journal. With 17 documents and 1,274 citations, *Computers in Human Behavior* is the most influential Journal (Table 3). Maximum number of articles are published in *Computers in Human Behavior* (17 documents) and *Communication Research* (10 documents) due to high citation, followed by *Journal of Retailing and Consumer Services* (910 citations) and *Journal of Broadcasting and Electronic Media* (738 citations).

**Table 3 TOP-10 most influential journals**

Rank	Source	Document	Citations	Avg. citations
1	Computers in Human Behavior	17	1274	74.9412
2	Communication Research	10	1243	124.3
3	Journal of Retailing and Consumer Services	9	910	101.1111
4	Journal of Broadcasting and Electronic Media	11	738	67.0909
5	Journal of Health Communication	8	404	50.5
6	Journal of Research in Interactive Marketing	7	339	48.4286
7	Communication Research Reports	7	231	33
8	International Journal of Advertising	7	145	20.7143
9	Frontiers in Psychology	12	122	10.1667
10	Lecture Notes in Computer Science	10	51	5.1

In this study, we analyzed the number of publications contribution of 53 countries, and visualized the countries with more than 4 publications through VOSviewer. Figure 4 presents these results. The larger the circle nodes in the picture, the more documents published; the node connecting lines indicates the strength of connection, the thicker the connecting lines indicates the more papers published by the two countries in collaboration. The color of the nodes represents different clusters. From figure 4, it can be seen that the distribution of papers in this field is not balanced, the top effect is more obvious, and most of the papers are authored by scholars from a few countries. The United States emerged as the leading country with 247 publications and 13,974 citations (Figure 4, Table 3). It was followed by China (993 publications, 2,096 citations)

and South Korea (44 publications, 1,271 citations).



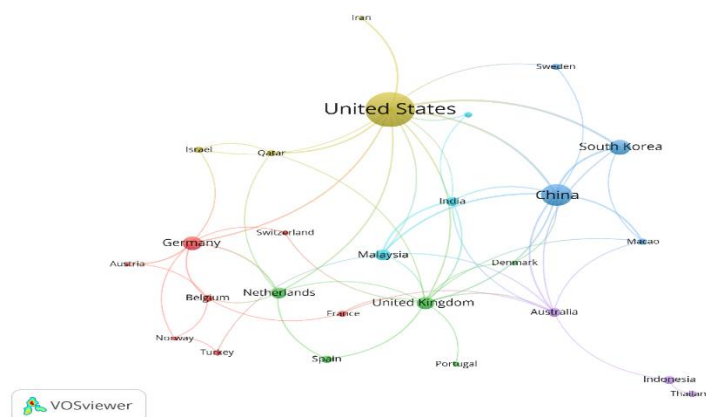
**FIG 4 Geographic spread of the top five countries**

In order to further analyzing the high-productivity countries in this field, Table 4 shows the top 5 most influential countries in parasocial interaction research in this domain. United States is the most influential country with 274 publications and 13974 citations in this field (Table4), which accounted for 45% of the total number of publications in this field, with more citations in the literature. The second is China, with a total of 93 papers and 2096 citations, which has more papers but fewer citations. The second most cited paper is the United Kingdom, with 29 papers cited as many as 46.21 times.

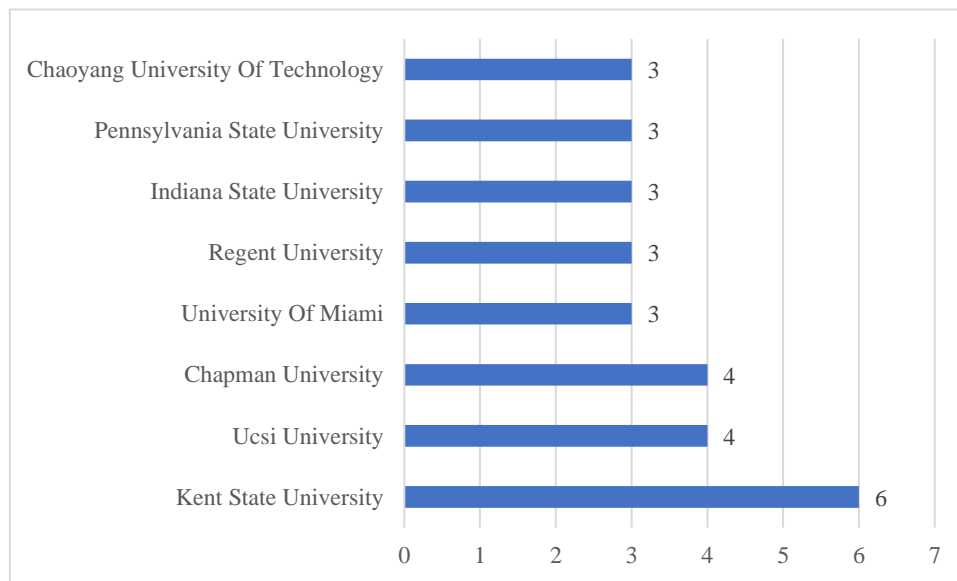
**Table 4 Top five most influential countries**

Rank	Country	Publications	Citations	Average citation	Total Link Strength
1	United States	247	13974	56.47	27
2	China	93	2096	22.54	29
3	South Korea	44	1271	28.89	20
4	Germany	39	862	22.1	3
5	United Kingdom	29	1340	46.21	6

Next, we will discuss the next research question, What are the key research themes or the development trends in parasocial interaction research?



**Fig.4 Co-occurrence of countries**



**Fig 5 Organization of authors**

#### 4.2 Keyword co-occurrence Analysis

The keyword co-occurrence map is generated in this section as shown in Figure 6. Such analysis can highlight major focus of the research. By examining the high-frequency keywords in a field, we can rapidly identify the key subjects and innovative trends in this field (Chen et al., 2010). This analysis was conducted with VOSviewer which uses the color of different nodes to differentiate between different clusters, the larger the node, the more frequently the keyword appears, and the closer the distance, the higher the relevance of the keyword. VOSviewer also features the ability to draw overlay visualization to show the research focus at different period. Therefore, a keyword cooccurrence map was created by using VOSviewer to visualize the keywords clusters (Fig. 6). Four main clusters are exacted (Table 5). Figure 6 and Figure 7 shows the main clusters of PSI research, that is, “mass-media parasocial interaction, “digital media interaction”, “consumer behavior” and “marketing strategies”, as displayed in red, green, blue and yellow.

##### Cluster 1: Traditional Media and Psychological Analysis

Historically, initial studies focus on PSI with traditional mass media contexts, emphasizing how audience develop parasocial interaction with television newscasters and performers in TV series, reflecting the media's role in forming one-sided relationships where viewers develop feelings of friendship or closeness with media figures without actual interaction. The key studies mainly focus on how media content, such as the presence of dominant or frequently appearing media characters, facilitate these parasocial interactions. For example, Cohen (1999) highlighted that television programs featuring prominent characters particularly encourage viewers to engage in PSI, forming perceived relationships with these characters as if they were part of the viewers' social circles. Over time, research has expanded to include various mass media platforms, reflecting broader applications of PSI theory. Vonderohe (2016) and others have extended this analysis to additional mass media formats, examining how diverse media types continue to shape and influence viewer relationships in similar ways.

## Cluster 2: Digital Interaction and Technological Influence

With new technology development, the landscape of Parasocial Interactions (PSI) has evolved (Jin & Park, 2009). Studies start to focus on the interfaces between humans and innovative technologies including virtual reality (VR), artificial intelligence (AI), and human-robot interaction. Researchers like Jin & Park (2009) initially noted that interactions with virtual actors in interactive media represent a new form of PSI. These interactions have since expanded into realms such as human-computer and human-robot interactions, where the social, task-related, and physical attributes traditionally associated with media characters are now applied to human-like interfaces. This includes entities ranging from robots to applications enabled by virtual reality (Han and Yang, 2018; Noor, Rao Hill and Troshani, 2022; Yuan *et al.*, 2022).

An interesting development with the new technology is the use of VR platforms in e-commerce, such as the research by Kang *et al.* (2021), which demonstrates how immersive interactions with Celebrity Endorsements (CEs) in virtual environments can form favorable consumer attitudes toward these mediated celebrities. This indicates a significant shift from traditional e-commerce to more engaging and interactive platforms. Furthermore, developments in machine learning are enhancing the ability to mine information in social media (Starbird, Palen and Muzny, 2012), it becomes realistic that it will become progressively difficult to distinguish machine from human response. As AI chatbots are now increasingly capable to understand human language and evolve to mimic human-like interactions, they significantly promote parasocial interactions. This development positively influences consumer behavior, including increased satisfaction, a greater willingness to continue using the AI agents, improved customer engagement, and enhanced subjective well-being (Han and Yang, 2018; Gursoy *et al.*, 2019; Noor, Rao Hill and Troshani, 2022).

## Cluster 3: Social Media marketing

Digital media includes online newspapers, news networks, and social media platforms such as Facebook and Twitter. These media provide rich sources of information, especially for events that attracts many attentions. As Aytulun and Sunal (2020) noted, ongoing digital and technological developments are expected to influence the features and functions of PSI, giving them new dimensions. In the digital environment, the introduction of PSI into social commerce can effectively increase consumer purchase intention (Kim *et al.*, 2020). According to Lissitsa and Kushnirovich (2021), the widespread use of mobile devices has enabled continuous connectivity and expanded access to online news. This has profound influence over younger generations who prefer to consume information at hand and at their convenience. The cluster analysis also identified social media platform such as the most medium. Research on the influence of Instagram on behavioral intentions have found positive effects. This cluster prominently used structural equation modeling (SEM) to analyze data using a quantitative method.

On the other hand, the rise of the Internet has challenged traditional media by enhancing user power and self-awareness. Consumers are no longer passive message receivers (Najjar, 2010). The two-way interactive feature of digital media has blurred the traditional boundaries between 'real' and 'imaginary' interactions, known as parasocial interactions (PSI). Although Stever and Lawson (2013) confirmed that while followers may develop a strong sense of familiarity with celebrities, the feeling is not often not reciprocated. Celebrities tend to





view their followers as a whole instead of separate element. Thus, online communication does not conflict with the traditional parasocial interaction, instead, it is simply a new social connection that can enhance PSI enjoyment.

#### Cluster 4: Consumer Behavior

Previous research on PSI has consistently shown that these unilateral relationships formed between viewers and media personae play an important role in media consumption. Ballantine & Martin (2005) and Xiang et al. (2016) have demonstrated that PSI is a crucial factor in explaining users behavior such as consumer engagement and media usage, which in turn affects consumer attitudes and behaviors towards media content and associated products. In recent years, more studies continue to validate these findings, confirming that PSI has a significant impact on both the attitudes and behavioral intentions of consumers, as well as on their actual behaviors. Rubin (2000) and Yılmazdoğan et al (2021) have also affirmed that the powerful effects of PSI, underscoring its relevance in shaping consumer interactions and transactions in digital and e-commerce settings. This ongoing research emphasizes how PSI not only impacts media consumption patterns but also translates into tangible consumer actions, particularly in the context of online shopping and digital marketplaces where live streaming and other interactive media play a significant role (Rubin, 2000; Tilo Hartmann, 2015; Yılmazdoğan, Doğan and Altıntaş, 2021).

In summary, these clusters indicate a broadening of the PSI theory from traditional media contexts to digital and interactive environments, showcasing the theory's adaptability and relevance in understanding contemporary media landscapes. Each cluster contributes uniquely to the overall understanding of how parasocial relationships impact human behavior in both psychological and economic contexts.

**Table 5. Details of keywords in clusters**

Cluster	Color	Keywords
1		Television, social behavior, human, attitude, behavior, controlled study, intention, middle aged, psychology, young adult, article
2		Artificial intelligence, behavior research, virtual reality, human computer interaction, social presence, celebrity, identification
3		Parasocial interaction, parasocial relationships, trust, marketing, social media influencer, Instagram, authenticity
4		Purchase intention, consumer behavior, impulse buying, live streaming, electronic commerce, economic and social effects

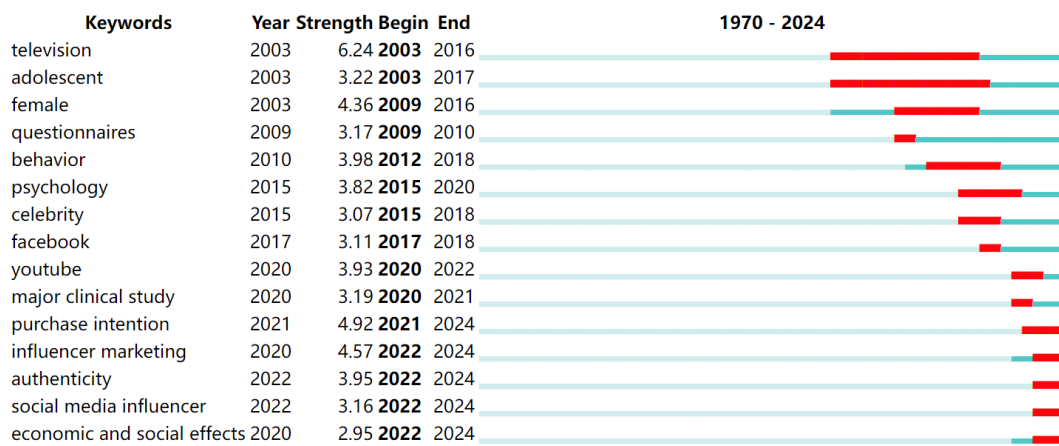


### 4.3 Citation Burst Analysis

Although VOSviewer-generated key word cooccurrence cluster density map can display the research focus in PSI. However, such map dose not include time dimension, the lates frontier hotspots cannot be seen in the map. Therefore, we combine with the keyword burstiness function of CiteSpace to explore the research frontier trend in this field by studying the intensity and duration of keyword bursts (Kleinberg, 2003).

This section provides an analysis of keyword trends between 1970 and 2024, highlighting keywords that shows significant bursts in a period. Burst keywords are identified by their frequency of occurrence over specific time and are indicators of emerging trends(Jian Mou, Yi Cui and Kurcz, 2019). Via CiteSpace, we observe the evolution of burst keywords across time. The data reveals that "television" (2003–2016) and "adolescent" (2003–2017) have the most extended burst periods, lasting 13 and 14 years, respectively, suggesting that their impact on parasocial interaction domains has been long-lasting. Next, the keywords “television” and “phases intention” have the highest citation frequency of 6.24 and 4.92 respectively, highlighting them as the most popular topics in the field. This suggest that understanding PSI in the context of consumer behavior is crucial for devising sustainable strategies. This intersection of consumer engagement and strategic management underlines the potential for PSI research to influence broader market dynamics and inform strategic business decision-making. Last, it is worth noting that economic and social effects is the breakout word for 2022–2024, and although it has only appeared recently for one year, this indicates its critical importance in forthcoming research explorations.

### Top 15 Keywords with the Strongest Citation Bursts



**Fig 8 Top 15 citation burst of keywords**

Figure 8 reveals that after 2015, keywords of “celebrity”, “Facebook”, “Youtube” became a hot topic in the study of parasocial interaction. The research focus has shifted from traditional mass media context (e.g., television, radio) to digital media context. Research now emphasizes parasocial interaction with social media influencers (Daniel, Crawford Jackson and Westerman, 2018), Youtube content (Chen, 2016), and celebrities (Chung and Cho, 2017). Unlike traditional unidirectional PSI, Sokolova and Kefi (2020) argue that social media enables bidirectional interactions where followers can engage directly with influencers, who may respond personally. This two-way interaction suggests a need for rethinking the theoretical conditional to apply PSI

theories in two-way communications environments.

The keyword "economic and social effects"(2022-2024) appears in the citation burst analysis with a strength of 2.95. During this time, research trend is reflected of the societal shifts driven by events such as the global pandemic (Setiawan *et al.*, 2022; Handarkho, Sulistyanningtyas and Rismayanti, 2024), technological advancements (Zheng *et al.*, 2020), and the rise of digital platforms influencing both the economy and social structures (Kim, 2023). From an economic perspective, researchers have verified that PSI serve as an effective marketing strategy to influence consumer behavior such as word-of-mouth, consumer loyalty, purchase intention and etc. (Kim & Kim, 2021; Sokolova and Kefi, 2020).

It can be seen that studies are increasingly impacted by the change of social environment, policy, and even in human health and well-being. It has been proved that AI technology can be used as a form of treatment to form parasocial interaction with patients, offering a form of companionship and support for individuals to manage depression (Polat *et al.*, 2024). Sanz-Blas *et al.* (2019) also pointed that this connections can foster deep emotional bonds in online communities, opening up new frontiers for digital healthcare solutions (Sanz-Blas, Bigne and Buzova, 2019). This indicates the broader application of PSI not only in marketing outcomes, but also in human well-being.

## 5. CONCLUSION

The study contributes to a better understanding of the current state of parasocial interaction research. The study was conducted over years (from 1956 to April 01, 2024) and covers the entire period of publication in this field, providing a comprehensive overview. There are no bibliometric studies on parasocial interaction research before; therefore, this is an essential contribution of the article. Our search in the Scopus database found valid scholarly publications to this issue in recent time. from 1956 to the date, the first article with related with PSI was published in 1956 by Horton and Richard Wohl. From 1956 to 2000, the number of studies was relatively low. It is worth-noting that scholars in the 1970s and 1980s were not interested with studying parasocial interactions as a unique form of social interaction. They focus more on how such interaction or parasocial relationship as a type of social engagement or media gratification (e.g., Babrow, 1987; Levy & Windahl, 1984). From 2000s, this theory began to draw academic attention, publications related to PSI have seen a steady growth. Since 2010, the number of publications increase significantly, evidenced by 15 papers. There were 21 papers in 2015 and slightly rose to 24 by 2017. From 2019 onwards, we noticed a clear rise with the number growing rapidly each year- 28 in 2019, 57 in 2020,77 in 2021, and reaching 84 in 2022. In 2013, the number has reached 105 publications.

Although PSI papers have been published in many countries, this subject has not received global attention equally. As mentioned in the findings, the country with the most publications is the United States with 247 papers, and then followed by China, South Korea and Germany. We also identified four papers with over 500 "Scopus" citation. The document (Moyer-Gusé, 2008) with a citation of 871 is the most influential one based on Scopus database. From 1956 to 2024, 578 authors published papers relate to PSI theory, with Chen being the top-cited authors in this field (497 citations). "Computers in Human Behavior, Communication Research, Journal of Retailing and Consumer Services, Journal of Broadcasting and Electronic Media and Journal of

Health Communication” are among the top five journals, each of them has over 400 citations. Researchers from Kent State University published 6 papers each, followed by UCSI University and Chapman University with 4 articles each, University of Miami and Regent University with 3 publications each. The findings suggest many future research directions. Parasocial interaction research is likely to develop as more scholars from prestigious universities around the world publish their studies in top-tier journals. The current study in PSI is very specialized.

Ever since the introduction of PSI, it has been widely adopted and applied within different research contexts. Horton and Richard Wohl (1956) illustrated how PSI fosters “real-life “relationships between the audience and media character, creating a similar sense of dependency. They also mentioned that audience “know” these media characters as much as they know about their real friends. Scholars have shown that PSI has a strong vitality, and many scholars consider this kind of interaction as the underlying mechanism to explore relationship marketing (Penttinen, Ciuchita and Čaić, 2022). This dynamic is essential for understanding consumer behavior in various context, including celebrity effect (Chung and Cho, 2017), online shopping (Penttinen, Ciuchita and Čaić, 2022), brand identity and purchase intention (Zhang *et al.*, 2022), video vlogs and brand evaluation (Buvár *et al.*, 2022).

This paper also shows the evolution of PSI theory and the challenge facing PSI under new circumstance. With the development of technology, researchers have been applied PSI into digital media context. Recent PSI research has shifted from focusing only on traditional mass media such as TV and radio to new digital media platforms such as YouTube (Jin, 2018), Twitter, Instagram (Jin & Ryu, 2020), and Facebook (Kyewski, Szczuka and Krämer, 2018). Many researchers (e.g. Ballantine and Martin, 2005; Labrecque, 2014) view PSI as a fundamental mechanism for understanding consumer psychological mechanism in social media context. One major characteristic in digital age of applying PSI is highlighted by the shift towards more reciprocal interactions on platforms like Instagram and YouTube, where influencers engage directly with their followers (Sokolova & Kefi, 2020). Thus, PSI is now facing challenges of applying it into more interactive settings in web-mediated environment (Hartmann, 2023).

The development of interactive media platforms in recent decades has questioned the concept of the original one-sided interaction premises. The fundamental theoretical challenge is whether the concept of PSI can be used in real interactive context and whether it can effectively explain audience perceived interactions. Although Click *et al* (2013) propose that interactions between online celebrities and customers usually are not bilateral, the dynamic is still changing. This two-way connection challenges the traditional notion of PSI as a one-sided interaction and has far-reaching implications for marketing. Since followers feel a personal connection with media personae, and such intimacy feeling can translate into more effective branding and purchasing behavior. Accordingly, future studies on PSI in typical interaction environments should pay attention to differentiate between those who actually engage in reciprocal interactions and those who are experiencing PSI. A productive approach would be to address interactivity cues during research. Examine whether users perceive themselves in a reciprocal, personal, and intimate social interaction with an online persona, while in fact this interaction is non-reciprocal, personal, and intimate than it looks like. This shift not only reflects the

evolution of media consumption behaviors, but have also transformed research methodologies from traditional interviews and questionnaires to innovative approaches utilizing big data and machine learning (Ma *et al.*, 2023).

The study also shows that demographic significance should not be neglected when it comes to PSI. A more comprehensive understanding of the perspectives and behaviors of the younger generation as indicators of future market trends can be developed (Aytulun and Sunal, 2020), providing strategic insights for businesses to enhance their market competitiveness. For example, understanding young people's perspectives needs more attention, as the future of media consumption is largely relies upon younger generations (Potter and Goldsmith, 2017).

### 5.1 Theoretical implications

In terms of academic contributions, the bibliometric analysis conducted helps to answer some of the key questions that academics should on parasocial interaction. This paper is the first study to employ a bibliometric approach to address the knowledge gap in PSI. We identify the top authors, journals, countries, organizations, publications and research trend in PSI field. More importantly, we explore the future research directions and applications of the theory. The present study will help the researchers to identify and understand the emerging trends in PSI domain. This research has provided guidance for future research in fields like psychology, social media marketing and relationship management. Scholars can use this theory to explore various issues raised in this study.

Second, this study identified the evolving change of PSI, while it was initially rooted in traditional media settings like television and radio, now it has expanded into digital and interactive media (Polat *et al.*, 2024). This change suggests that PSI theory need to adapt to new context that are not only more reciprocal, but also to a computer-mediated environments. The theoretical frameworks for PSI studies need to be updated to reflect these changes. Besides, the application of this theory also need to take into account of the prerequisites of one-sided and non-reciprocal, and should not be used arbitrarily or in a way that deviates from its theoretical connotations.

Third, as PSI phenomena become more complex with the interactive media, new methodology approaches are needed to examine the specific elements of PSI in different media contexts (Hartmann, 2023). Future theoretical work should focus on distinguishing between different types of parasocial interactions—those that are truly one-sided versus those that involve some level of reciprocity due to the interactive capabilities of modern digital platforms. This can include experimental designs that can distinguish between genuine social interactions and those perceived due to the media format.

### 5.2 Managerial implications

Reviewing the concept of parasocial interactions (PSI) offers significant managerial implications, especially in the contexts of social media marketing, communication strategy, and digital content strategy. By understanding PSI, managers can utilize strategies that mimic reciprocal interactions even in one-sided media settings. For instance, media personae or representatives can use direct addresses, personalized content, and interactive posts to create a sense of intimacy. Makers can create more engaging marketing strategies through designed content that encourages viewers to participate through comments, shares, and other forms of

interaction. Furthermore, managers can customize content and interaction strategies to increase customer loyalty and develop an intimate relationship with them. In customer service, managers use personalized communication to tackle customer needs, and thus create a more satisfying customer experience. Moreover, managers can incorporate artificial intelligence technologies, such as chatbots that allow for easy feedback and interaction to help create an illusory feeling of being heard and responded to.

With the development of information technology, parasocial interaction research has been gradually shifted from traditional mediums to digital media such as social media platform. This transformation reflects the changing patterns of media usage and underpins the need to study social media's impact on consumer behavior. Moreover, this shift illuminates the essential role of marketing strategy in adapting to media transformation.

### 5.3 Limitations

Although this study provides some insights and contributions, there are still some limitations. For example, this study only uses one database. Future research could explore multiple databases to give a more thorough view of the research subject. Besides, we only include the English publications. Last, the analysis conducted only with VOSviewer and CiteSpace, future study could adopt other tools like Bibexcel.

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