



# Is there competition between WeChat and QQ? --Based on Niche Theory Exploration

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**Abstract.** Using niche theory, this study investigated the competition between WeChat and QQ through the satisfaction and satisfaction opportunities obtained from these two social media platforms. This study used an online questionnaire survey, and 670 valid questionnaires were collected in China and South Korea. Two conclusions can be drawn from the data analysis. (1) This study found that WeChat belongs to the category of Generalist, whereas QQ is a Specialist. (2) There is competition between WeChat and QQ, and WeChat's Competitive Superiority is higher than QQ in all the competition dimensions studied.

**Keywords:** Niche Theory, User Satisfaction, WeChat, QQ

## 1 Introduction

In recent years, the rapid development of the internet has changed the way people communicate socially. 2022 Global Digital Summaries Report points out that global social media users have exceeded 4.62 billion, and the average daily time of Internet users using social media has reached 2.5 hours, and is increasing at the rate of 2 minutes per day[1]. Among them, WeChat and QQ, as the earliest and most representative social media platforms in China, have hundreds of millions of users.

Media substitution research and media competition research are important research directions in media relations, and these two types of research are mainly used to explore whether there is a substitution or complementary relationship between old and new media[2]. In media competition research, niche theory uses user satisfaction as a resource to compare media competition [3]. This study analyzed the competition between WeChat and QQ, mainly by observing user usage patterns. Given that there has not been any competition study between the two in existing research, this study is innovative.

## 2 Literature References

### 2.1 Niche Theory

Using niche theory to analyze competition between media outlets, it is first necessary to understand the concepts related to niche theory. The niche theory contains three important concepts: Niche Breadth, niche overlap, and Competitive Superiority [3]. Niche Breadth refers to the wide use of resources by the media and is an index of the satisfaction that the media brings to users [3]. Niche breadth refers to the sum of the various resources available to the media, i.e. it is an indicator of the diversity of the resources used by the media. The wider the niche breadth of a media, the less specialised the species is, meaning that it tends to be more of a generalist media. [3]. Although ‘specialist’ can use resources more efficiently than generalist media, when the media environment changes drastically, ‘specialist’ media may not be able to adapt and become obsolete. In contrast, although ‘generalis’ use media resources less efficiently, when the media environment changes drastically, ‘generalis’ will reduce the risk of obsolescence because they are better able to adapt to the new environment [2].

$$B = \frac{\sum_{n=1}^N \left[ \frac{\sum_{k=1}^K GO_n - K1}{K(u-1)} \right]}{N} \tag{1}$$

Niche overlap refers to the degree of similarity between groups emerging from a pattern of resource utilization, that is, the degree of dependence on a common resource[3]. Niche overlap can also be understood as the extent to which the competitive relationship between media has reached such that if the niche overlap increases, the resources utilised by the two media become similar, thus creating a competitive relationship[3]. Niche overlap is regarded as an index of substitutability or complementarity that can be captured, and from the point of view of user satisfaction, niche overlap implies functional similarity between the media being compared[3].

$$O_{i,j} = \frac{\sum_{n=1}^N \left[ \frac{\sum_{k=1}^K \frac{(GO_i - GO_j)^2}{K}}{K} \right]}{N} \tag{2}$$

Competitive Superiority is an indicator of which of two media is in a better position to utilise resources [3].

$$\text{SUPERIORITY } S_{i>j} = \frac{\sum_{n=1}^N \sum_{k=1}^K m_{i>j}}{N} \tag{3}$$

$$\text{SUPERIORITY } S_{j>i} = \frac{\sum_{n=1}^N \sum_{k=1}^K m_{j>i}}{N} \tag{4}$$

The core concepts of niche theory, "niche overlap, and competitive superiority are analytical tools that make it possible to grasp the competitive relationship between media. Through fitness for purpose overlap and competitive advantage, it is possible to grasp whether the media being compared are competitive substitutes or competitive excluders[3].

## 2.2 Gratifications Obtained, Gratification Opportunities

The concept of "gratifications obtained" in niche theory refers to the extent to which a user's self-needs are satisfied through media use [3]. Therefore, the concept of "gratifications" is similar to the concept of "satisfaction" in "use and satisfaction". Usage and gratification research views audiences as individuals with specific "needs", and their media exposure activities as "using" the media based on the motivation of specific needs, so that these needs can be "satisfied". The process satisfies these requirements [3].

Satisfaction opportunities are derived from Carlstein's (1982) budgeting of human time. Carlstein considered time as a resource and emphasized that limited activities are intelligently carried out in a 24-hour day. How media leisure time is allocated has a direct impact on the amount and duration of media use by users, that is, satisfaction opportunities[4]. According to Dimmick, satisfaction opportunities can be seen as a measure of embracing the space and time of media use [3]. That is, if media A is better able to break through the constraints of time and space compared to media B, then media A has a greater satisfaction opportunity for the user. For example, mobile phones have a greater satisfaction opportunities than telephones because users can use mobile phones in an unlimited amount of time and space than telephones [2].

## 3 Research Methods

### 3.1 Questionnaire Design and Distribution

This study draws on several studies of social media, including Li and C. S. (2017)[8], Heon Baek & Ha Jin Hwang (2014)[5], Bengtsson, Stina, and Sofia Johansson(2022)[6], Park Sunho (2020)[7], Roh Dong-hwan (2018)[8] , Giganti, et al. (2022)[9], Xu Y. (2022)[10],Li, Shu-Chu Sarrina, et al.(2022)[11] to determine the items of satisfaction obtained and opportunities for satisfaction. A total of 36 items were used in this study.

After identifying the items, the questionnaire was formulated using four criteria - gender, education, age, and occupation - and targeted interviews were conducted with people from different backgrounds. A five-point Likert scale was used to measure the proposed items and apply them to the questionnaire. The final number of questionnaires used for the analysis was 670, after removing the failed questionnaires. The questionnaires were compiled using the SPSS 26. The questionnaires were subjected to confirmatory factor analysis using Amos.

### 3.2 Confirmatory Factor Analysis

In this study, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used to validate the results of the analyses. The steps were as follows: (1) Firstly, five EFAs were conducted on the 36-item responses on the usage of WeChat and QQ users, of which five items were not satisfactorily analyzed by factor analysis, and 31 of these items were finally used for analysis. (2) Five CFA were conducted via

Amos software, with CFI (>0.90), RMSEA (<0.10), IFI (>0.90), and NNFI (>0.90) based on CFA analytical criteria (Hair et al.) Table 1 shows the results of the CFA, after excluding undesirable items, the CFI, RMA, IFI and NNFI values are greater than 0.90, and the NFI is greater than 0.80. The RMSEA values for both WeChat and QQ are less than 0.10. The data indicate that the overall fit is acceptable[12].

**Table 1.** Confirmatory Factor Analysis of WeChat and QQ

Gratifications and opportunities	Weixin	QQ	Gratifications and opportunities	Weixin	QQ
Factor1:			Factor7:		
factor1.1	0.517	0.811	factor7.1	0.711	0.703
factor1.2	0.652	0.811	factor7.2	0.571	0.730
factor1.3	0.547	0.635	factor7.3	0.662	0.729
Cronbach a	0.595	0.799	Cronbach a	0.686	0.764
Factor2:			Factor8:		
factor2.1	0.587	0.805	factor8.1	0.792	0.865
factor2.2	0.715	0.870	factor8.2	0.747	0.914
factor2.3	0.647	0.804	factor8.3	0.536	0.701
Cronbach a	0.688	0.866	Cronbach a	0.706	0.869
Factor3:			Factor9:		
factor3.1	0.911	0.700	factor9.1	0.612	0.547
factor3.2	0.708	0.662	factor9.2	0.843	0.723
Cronbach a	0.797	0.633	factor9.3	0.721	0.781
Factor4:			Cronbach a	0.772	0.728
factor4.1	0.491	0.562	Factor10:		
factor4.2	0.745	0.807	factor10.1	0.737	0.679
factor4.3	0.516	0.700	factor10.2	0.717	0.701
Cronbach a	0.573	0.735	Cronbach a	0.692	0.645
Factor5:			Factor11:		
factor5.1	0.672	0.682	factor11.1	0.633	0.542
factor5.2	0.728	0.702	factor11.2	0.671	0.839
factor5.3	0.695	0.761	factor11.3	0.641	0.808
Cronbach a	0.741	0.759	Cronbach a	0.685	0.780
Factor6:					
factor6.1	0.826	0.746			
factor6.2	0.894	0.727			
factor6.3	0.803	0.660			
Cronbach a	0.879	0.755			
Goodness of fit			Goodness of fit		
x2	822.533	542.812	x2	822.533	542.812
Df	379	379	Df	379	379
RMSEA	0.042	0.033	RMSEA	0.042	0.033
IFI	0.929	0.962	IFI	0.929	0.962
NFI	0.876	0.884	NFI	0.876	0.884
CFI	0.928	0.961	CFI	0.928	0.961

## 4 Research Findings

### 4.1 Niche Breadth

This study calculated Niche Breadth, Niche Overlap and Satisfaction Superiority of WeChat and QQ using the Dimmick formula. The data in Table 2 show that, overall, WeChat's Niche Breadth is higher than QQ to some extent. Especially in terms of Trendiness Addiction, Social Interaction, social Presence, Social Relationship and Tool Utility, WeChat's niche breadth was significantly higher than that of QQ. In other aspects, WeChat's Niche Breadth is higher than that of QQ, but the difference is not obvious. In terms of gender, WeChat and QQ are comparable in terms of niche breadth for men and women.

**Table 2.** Niche breadth analysis results for WeChat and QQ

Sortation		Wechat(670)			QQ(398)		
		total	male	female	398	male	female
Cognitive & Emotional Dimensions	Information	0.676	0.677	0.675	0.550	0.505	0.573
	Pleasure	0.599	0.589	0.605	0.505	0.495	0.510
	Trendiness	0.904	0.924	0.895	0.570	0.553	0.578
	Addiction	0.678	0.685	0.675	0.463	0.428	0.478
Social Dimensions	Social Interaction	0.659	0.666	0.658	0.473	0.463	0.478
	Social Presence	0.721	0.722	0.720	0.435	0.388	0.455
	Social Relation	0.923	0.939	0.915	0.678	0.665	0.710
Service Dimensions	Convenience	0.840	0.829	0.843	0.812	0.800	0.815
	Tool Utility	0.883	0.888	0.881	0.690	0.703	0.685
	Content Diversity	0.681	0.701	0.671	0.516	0.508	0.523
Satisfaction Opportunity	High Efficiency	0.863	0.864	0.861	0.788	0.785	0.790

### 4.2 Niche Overlap

As the data in Table 3 show, the niche overlap of the social resources dimension was very high. In the cognitive and emotional dimensions, except for Pleasure, the Niche overlap between WeChat and QQ is also very high. In the Service Dimension, except for Convenience, the Niche overlap of their niches is also high. As for Satisfaction Opportunity, the Niche overlap of their niches is not high. In terms of gender, in terms of fun and tools, women perceived a higher degree of niche overlap between WeChat

and QQ than men. In other areas, WeChat and QQ overlap more for men than for women.

**Table 3.** Niche Overlap analysis results for WeChat and QQ

Sortation		WeChatVS QQ(398)		
Number		total	male	female
Cognitive & Emotional Dimensions	Information	0.505	0.712	0.425
	Pleasure	0.351	0.320	0.362
	Trendiness	1.320	1.455	1.268
	Addiction	0.833	0.959	0.784
Social Dimensions	Social Interaction	0.780	0.847	0.754
	Social Presence	1.246	1.423	1.178
	Social Relation	0.896	1.117	0.815
Service Dimensions	Convenience	0.136	0.140	0.134
	Tool Utility	0.781	0.761	0.789
	Content Diversity	0.655	0.775	0.608
Satisfaction Opportunity	High Efficiency	0.307	0.306	0.307

### 4.3 Competitive Superiority

As Table 4 shows, WeChat's competitive advantage in all four dimensions is higher than that of QQ. In particular, WeChat has an absolute advantage in terms of trendiness, social presence, and tool utility. Women are more likely than men to think that WeChat is more competitive than QQ.

**Table 4.** Competitive Superiority analysis results for WeChat and QQ

Sortation			WeChat>QQ	WeChat<QQ
Number	398			
Cognitive & Emotional Dimensions	Information	total	N 11.438	1.972
			t 14.371	
		male	N 13.581	1.779
			t 9.753	
		female	N 10.610	2.047
			t 10.989	
	Pleasure	total	N 7.808	2.111
			t 9.366	
		male	N 6.959	1.757
			t 4.731	
		female	N 8.136	2.247
			t 8.074	

		total	N	19.856	0
			t	45.001	
	Trendiness	male	N	20.856	0
			t	26.984	
		female	N	19.469	0
			t	36.531	
		total	N	14.491	0.653
			t	27.544	
	Addiction	male	N	14.978	0.766
			t	14.914	
		female	N	14.303	0.610
			t	23.128	
	Social Interaction	total	N	13.631	0.465
			t	26.266	
		male	N	14.144	0.496
			t	14.398	
		female	N	13.432	0.453
			t	21.953	
Social Dimensions		total	N	17.487	0.333
			t	38.069	
	Social Presence	male	N	17.815	0.113
			t	23.985	
		female	N	17.361	0.418
			t	30.595	
		total	N	19.523	0.176
			t	38.546	
	Social Relation	male	N	21.802	0.405
			t	24.962	
		female	N	18.641	0.087
			t	30.595	
		total	N	7.456	3.310
			t	5.379	
	Convenience	male	N	7.568	3.446
			t	2.774	
		female	N	7.413	3.258
			t	4.602	
		total	N	17.971	0.101
	Tool Utility		t	34.147	
Service Dimensions		male	N	19.212	0.180

		t	20.669	
		N	17.491	0.070
	female	t	27.595	
		N	13.813	0.421
	total	t	26.597	
		N	16.149	0.405
	Content Diver-	t	18.778	
	sity	N	12.909	0.427
	male	t	20.436	
		N	10.082	1.660
	female	t	11.598	
		N	10.428	2.140
	total	t	5.738	
		N	9.948	1.481
	male	t	26.597	
		N		
	female	t		
		N		
Satisfaction		t		
Opportunity		N		
	High Efficiency	t		
		N		
	male	t		
		N		
	female	t		
		N		

## 5 Conclusion

This study analyzes the competition between WeChat and QQ using the niche theory. After calculating the data, the main conclusions drawn from the statistical analysis were as follows:

First, the Competitive Superiority of WeChat is significantly higher than that of QQ; both belong to the same company and QQ is likely to be swallowed by WeChat in the future. Second, in terms of Niche Breadth, niche overlap, and degree of Competitive Superiority, WeChat belongs to comprehensive media, and QQ belongs to professional media. Third, it again proves that niche theory is suitable for studying the competitive relationship between different social media. The disadvantages and advantages of specific social media can be determined by calculating Niche Breadth, niche overlap, and Competitive Superiority among, the disadvantages and advantages of specific social media.

Existing studies in China have hardly explored the competition between social media from the perspective of niche theory, and this study calculated the values of niche overlap and Competitive Superiority for WeChat and QQ. This study also identified the substitution behavior between WeChat and QQ social platforms in terms of four dimensions: cognitive, emotional, social, service, and satisfaction. This study had some limitations. First, it only measured the satisfaction that users obtained when using WeChat and QQ.

In addition, this study was limited by the factors set by the existing research. If pre-existing expert and user interviews are added to assist in the factor setting, there is a net to overcome this limitation. Finally, it is hoped that this study will provide data clues for the exploration of competition in Chinese social media and provide empirical



references for the quality improvement and sustainable development of Chinese social media services.

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