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경영학석사학위논문

Do Online Reaction Comments Affect Our Life Satisfaction?

Competitive vs. Cooperative Context

온라인 댓글이 소비자의 외로움과 삶에 대한
만족도에 미치는 영향:
경쟁과 협력 상황의 비교

2015년 2월

서울대학교 대학원
경영학과 경영학전공
이종세

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Abstract

Do Online Reaction Comments Affect Our Life Satisfaction? Competitive vs. Cooperative Context

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People from diverse backgrounds share their opinions by making comments online, and many people react to such comments by replying directly to them. How would such interaction affect people's well-being? A reaction comment is a reply to an original comment. This research examines whether, why, and when the online reaction comments of others affect people's well-being. People tend to care about how others view them; such a tendency is prevalent in today's highly interconnected online world. The study shows that perceived loneliness mediates the effect of reaction comments. Others' reaction comments are more likely to affect the life satisfaction of people in the cooperative (vs. competitive) context. People in the competitive context were unaffected by reaction comments, but people in the cooperative context were more satisfied when reaction comments were similar (vs. dissimilar) to their own opinions.

Keywords: online reaction comments, life satisfaction, perceived loneliness, cooperative context, competitive context

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Introduction

In front of his desktop, Tom scrolls the mouse down for news that might interest him. Tom usually spends his evenings browsing through websites that deal with diverse issues. Suddenly, one of the news titles grabs his attention, and he clicks the link to the article. The article explains a new government policy that kindles his interest. With conviction, he writes down his opinion on the issue in the comments section and then goes to bed. The next day, Tom checks the website for the reaction comments related to his opinion. He finds out that there are a hundred “likes” on his remark. Carefully reviewing the reaction comments, Tom is satisfied that many of the comments support his opinion and there are not many dislikes. He recalls in the past when he wrote a comment that bought a majority of dislikes and opposing reaction comments from the users. How would such reaction comments affect Tom’s life satisfaction? Would reaction comments hurt or enhance people’s well-being? If so, why and when would they have an effect?

We live in a world of constant communication today. People can chat on twitter, send messages via Facebook, and receive diverse news in various formats. Also, the world has become more competitive than ever before as the digital revolution has unfolded. In line with the desire for communication, many devices have been

developed that can keep people connected to the online world all the time, providing an opportunity for non-stop communication.

As more people have gained continual access to the internet, the dark side of the internet has shown its face. Unhealthy discussions and comments of online users have hurt many people's feelings online. For example, in Korea, many celebrities have suffered from malicious online comments, and it is speculated that such malicious comments led to the suicide of some famous actresses. Even in America, malicious comments have driven victims to kill themselves. It is evident that malicious comments online are just as hurtful as malicious words in real life.

However, would this also be the case for innocuous comments that differ from the commenter's opinion? Many of the websites today contain a section in which people can comment on articles. To facilitate user activity, these comments often come with a "thumbs up" or "thumbs down" button. The exact forms may be different (e.g., like, recommend button) but the goal of these functions is to reflect other users' views. A reaction comment can also be added to the original comment, directly referring to the original commenter. It is evident that malicious comments that attack or directly oppose the original commenter may lead to negative feelings. After all, what others say affects us in the real world, and the feedback of others matters to us. However, would an innocuous online comment, whether similar or dissimilar to one's original comment, necessarily affect one's well-being? The purpose of the present research is to find an answer to this question.

Theoretical Background

The development of information technology has opened up chances for people to communicate online. With Facebook, twitter, and other diverse media, it has become much easier to express one's idea through comments. Unlike in the past, where speaking out socially had its difficulties such as accessibility, physical limitations, and time, the online world enables individuals to speak out in a relatively easy way.

According to International Telecommunication Union, the number of internet users reached 3 billion and the number of mobile-cellular users reached 7 billion in 2014 (ITU 2014). People tend to react to computer technology as though it is a social entity (Moon 2000). When people are confronted with a computer or software, they tend to engage in a "social response to (these) communication technologies" (Holzwarth, Janiszewski, and Neumann 2006). Groups on the internet tend to follow the basic rules and principles of social groups (McKenna and Bargh 1998), and membership in such virtual groups matters. Young people use the internet for communication not only with peers but also with strangers (Subrahmanyam and Greenfield 2008). Individuals apparently find communicating online as meaningful as communicating in the real world.

Feedback Information

Humans are social animals. Identifying one's relationship with others is the most important and enjoyable aspect of life (Argyle 1987). Also, Baumeister and Leary (1995) claim that the attempts to forge and maintain strong emotional bonds with others may explain a wide variety of human behaviors.

According to Festinger (1954)'s social comparison theory, people need to have stable, accurate appraisals of themselves. The theory claims that people seek other people for comparisons when there are no objective and nonsocial standards. Festinger claims that people would prefer a person similar to the self-evaluator as a source of comparison. This kind of social confirmation is the process of testing one's assumptions through the eyes of the others, and disagreement from others frustrates people (Newcomb 1953). That is why attitude similarity is critical to interpersonal attraction (Byrne 1961), and the expression of dissimilar attitudes by other individuals is seen as a negative element. Consequently, people could feel social distance through similarity with oneself (Liviatan, Trope, and Liberman 2008).

In a sense, people yearn for other's approval and feedback. In nature, people have a fundamental motivation to belong (Baumeister and Leary 1995). When such needs are not met and people are socially isolated, people show signs of poor health and inhibited development of social, emotional, and cognitive skills

(Williams 2002). That is why people want to be accepted and confirmed. Naturally, the opinions of others or consensus information can be a powerful determinant of the impact that social situations will have on individual behavior (Asch 1951). The concept of self-monitoring, consistent patterns of individual difference in the extent to which people regulate their self-presentation by tailoring their actions in accordance with immediate situational cues (Snyder 1974), is also relevant for how people value other people's reactions and feedback. Both positive and negative feedback allow realistic self-assessment and adjustment of one's efforts (Carver and Scheier 2001). Finkelstein and Fishbach (2012)'s research investigates novices and experts, and shows how novices seek positive feedback, while experts seek negative feedback. With positive feedback, the novices' commitment rose, while negative feedback allowed the experts to reassess their progress. Co-workers' feedback is found to influence salespeople, showing that negative feedback has a dysfunctional impact on salespeople's performance compared with crude numerical ratings (Kohli and Jaworski 1994).

Feedback information is what defines people and affects people in diverse contexts, including retail and organizational contexts. Feedback in the online context also seems to affect people. In an online marketplace situation, eBay sellers who use feedback text comments won more credibility and benevolence (Pavlou and Dimoka 2006).

Life Satisfaction

Much research has focused on subjective well-being and ill-being in the last decade (Neugarten, Havighurst, and Tobin 1961). According to these studies, subjective well-being can be divided into affective and cognitive components. Life satisfaction is a judgmental process in which individuals assess the quality of their lives on the basis of their own unique set of criteria (Shin and Johnson 1978). In this sense, life satisfaction is a conscious cognitive judgment of one's life, and focuses on the presently occurring life (Hoy, Suldo, and Mendez 2013).

Although most CS studies focus on the satisfaction that is defined as attitude-like judgment following a purchase act or based on a series of consumer-product interactions (Yi 1990), in this study, life satisfaction as a more broad concept will be investigated.

Martin and Hill (2012) conducted a more macro-scaled study on implications of life satisfaction in over 51 of the world's poorest countries. These researchers explored over 77,000 individuals and saw how relatedness and autonomy reduced poverty's negative influence on life satisfaction when basic life necessities were available. The authors explained basic life necessities as consumption adequacy, and without fulfilling these basic conditions, psychological need fulfillment is of little effect. Rudd, Vohs, and Aaker (2012) show that awe can improve life satisfaction.

High life satisfaction has proved to be associated with more satisfying social relationships as well as physical and mental health states (Eid and Larsen 2008). Cantril (1965)'s Ladder Scale assesses the life satisfaction of people globally. The measure was originally developed to compare the life satisfaction of people across the globe. The Ladder Scale itself was not applicable directly, so it was worded to ask "to what extent you are satisfied with your current life?"

Perceived Loneliness

Loneliness is defined as an undesirable subjective feeling of social isolation and is not directly related to the quality, frequency, or number of social interactions (Wang, Zhu, and Shiv 2012). Burger (1995) shows how some people prefer to be alone and enjoy solitude as a personal trait. According to Wang et al. (2012), it is the sense of social isolation that makes lonely people unhappy. Because of this sense of isolation, lonely people want to be connected to other people and pay attention to social cues more attentively. Lonely people therefore have a stronger desire for social connection and are more socially anxious (Segrin and Kinney 1995). When people are kept in a state of loneliness, they turn to view social interactions from a negative perspective (Duck, Pond, and Leatham 1994). Various studies have focused on the cause of loneliness as a lack of social skills (Anderson and Martin 1995) or a lack of motivation (Kagan 2009). From this perspective, some studies focus on the conforming behavior of lonely people (Wang et al. 2012), a connection to nostalgia (Wildschut et al. 2006), and effects on health.

However, instead of focusing on loneliness as a personal trait (i.e., chronic tendency of loneliness), the present research examines “perceived loneliness” (i.e., temporary perceptions of loneliness at the moment). What is evident from the previous studies on loneliness is that it centers on social isolation. In this sense, social isolation has not been proven to inhibit the development of various social, emotional, and cognitive skills (Lewis, Haviland-Jones, and Barrett 2010). Furthermore, Cacioppo and Cacioppo (2014) showed how perceived loneliness can impair executive functioning, sleep, and mental and physical well-being. The destructive effect of social isolation on an individual’s well-being is clear. Mellor et al. (2008) also show that loneliness has a negative effect on life satisfaction. The connection between being rejected socially and loneliness is solid, and the social isolation from loneliness will have a negative effect on the well-being of people. Also, loneliness has not yet been investigated as a mediator in an online and competitive context.

Online Comments

Online comments have not yet been explored in depth. The online context is a diverse world that works through diverse channels. Marcus, Machilek, and Schütz (2006) show that the world of personal websites is a medium of personal expression and impression. Other studies focus on social media such as Facebook, studying the relatedness need-satisfaction (Sheldon, Abad, and Hinsch 2011).

Even such studies have examined the effect of online comments in a limited sphere. Williams, Cheung, and Choi (2000) show how ostracism and being ignored can affect internet users. The participants in their study reported feeling bad and losing a sense of belonging. Also, the following study showed that participants were more likely to yield and conform to subsequent tasks. Clearly, the effects of others are prevalent in the online context as well. Canter (2013) explores the effects of comments in local newspaper websites both from the perspectives of the journalists and the readers of comments, adding another example of online interaction through comments.

Pavlou and Dimoka (2006) show that feedback comments on eBay strengthen the seller's ability to gain credibility and benevolence. Other studies examine the effect of peer comments on the evaluation of Public Service Announcement (PSA) videos (Walther et al. 2010). These studies show how feedback comments work in specific situations, but not in a general way.

Besides, there is little research on reaction comments (i.e., others' comments made in reaction to one's own comments), a phenomenon of interest in the present study.

Competitive Context

Deutsch (2008) defines competition as a state of negative interdependence where each individual's goal clashes with another. Each person's probability of gaining

the goal has to be in negative correlation as well. Tauer and Harackiewicz (2004) have shown that competition and cooperation in a recreational context can facilitate intrinsic motivation and performance. Other researchers have examined the effects of competition and cooperation through skin conductance, heart rate, and facial muscles, discovering that cooperation promotes empathy while competition brings counter-empathy (Lanzetta and Englis 1989). Competition alone has been shown to cause anxiety on reacting to the behavior of a favorable out-group member (Wilder and Shapiro 1989). Furthermore, competition has been revealed to bring the “difference” focus while cooperation activates the “similarity” focus (Stapel and Koomen 2005).

Such an extreme situation, according to Deutsch (2008), can make identity information moderate the level of aggressiveness toward others. In other words, how dissimilar one is to the subject will control the aggression level. Norton, Lamberton, and Naylor (2013), for example, has utilized this research to see if the competitive context mixed with different levels of identity information will affect the aggressiveness of subjects. In this research, Norton et al. (2013) suggest three information states: 1) similar identity information, 2) dissimilar identity information, 3) ambiguous identity information. These studies show how competition can bring people to be more aggressive. According to these studies, the perceived dissimilarity among people mediates how people view others.

In this context, we viewed the competitive situation as a variable to induce

loneliness. Such a focus on difference has been shown to promote negative tendencies such as aggressiveness (Norton et al. 2013). Competition is prevalent in our nature today, and the effects of competition and cooperation on the other side will be relevant in today's society.

H1: Similar (vs. dissimilar) reaction comments will have a positive (vs. negative) effect on life satisfaction.

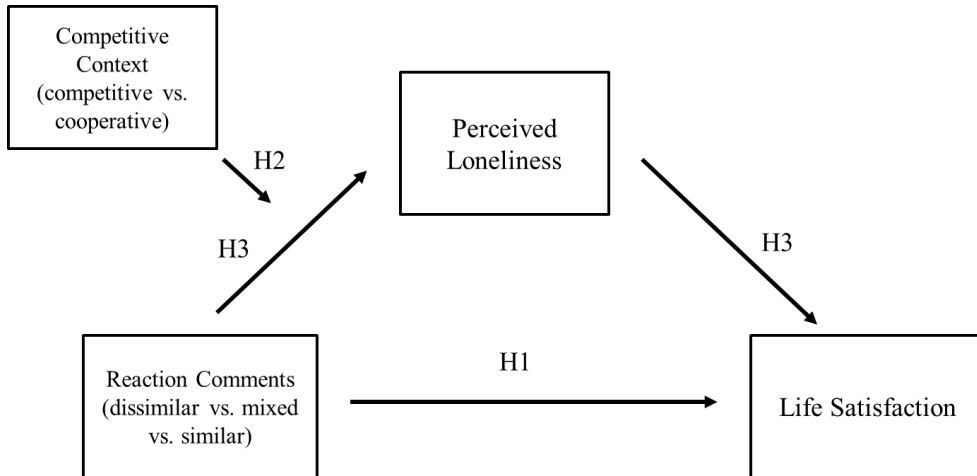
H2: The effect of reaction comment similarity on life satisfaction will be moderated by the context (cooperative vs. competitive).

H2a: Similar (vs. dissimilar) reaction comments in a cooperative context will have a positive effect on life satisfaction.

H2b: Similar (vs. dissimilar) reaction comments in a competitive context will have a negative effect on life satisfaction.

H3: The effect of reaction comments on life satisfaction will be mediated by perceived loneliness.

Figure 1
Conceptual Framework



The present research will examine how similar versus dissimilar reaction comments influence the life satisfaction of people. However, it will also take into account of the current society and the world revolving around it.

People say that competition is constantly growing these days. When you think about it, the advances in transportation have enabled the whole world to become an approachable market, and information technology offers constant connection with people. All these developments create opportunities that were impossible in the past, making American firms build factories in China and hire Indian workers as telemarketers via telephones in their homeland. Such opportunities open up more competition. It would not be an exaggeration to say that we live in a world of extreme competition. From this perspective, it seems natural to see how reaction

comments interact with competitive versus cooperative contexts. Based on Hypothesis 1, we expect that similar reaction comments will have a positive effect. However, we expect an interaction between reaction comment similarity and the context (competitive vs. cooperative). Furthermore, a third condition for reaction comment similarity was added, which represents a mixed situation of both similarities and dissimilarities.

Method

One hundred eight undergraduate and graduate students participated in this study in exchange for 5,000 Won (5 dollars). 51 of them were male and 57 were female. While 92.6% of the participants were in their twenties, 7.4% were in their thirties. 3.7% of the participants were to graduate from high school, 80.6% from college, and 14.8% from graduate school in the near future. Participants were randomly assigned to one of the six conditions in a 3 (reaction comment similarity: similar vs. mixed vs. dissimilar) x 2 (competitive context: competitive vs. cooperative) between-subject design.

Competitive versus cooperative context. A competitive or cooperative context was achieved through priming. The participants were randomly asked to write about their own experience about competitive or cooperative contexts for five

minutes. This manipulation was modified from Lee and Shrum (2012) in the social exclusion context. In this experiment, the participants were asked to recall and write about their experiences. After writing about their own experience of either competition or cooperation, the participants answered the manipulation check on how one felt on a scale of 1 (very cooperative) to 7 (very competitive).

Reaction comment similarity. For the reaction comment manipulation, participants were first asked to write their opinion on raising the school tuition in a comment box. Then, their comments were actually shown in the comments section with manipulated reaction comments. This was done to replicate the actual online conditions where the original commenters read the reaction comments and feedback on his or her opinion. Participants in the similar reaction condition were given more likes and supportive reaction comments, whereas participants in the dissimilar reaction condition were given fewer likes and unfavorable reaction comments. The mixed similarity condition had approximately the same number of likes and dislikes, and the reaction comments were equally divided between supporting and opposing the participant's comment. The manipulation was based on Liviatan et al. (2008)'s study that used similarity as a measure of social distance. Building on this idea, the present study used the similarity between the reaction comments and the original comment as a manipulation for social distance. Specifically, the reaction comments that were similar to the original comment were set as socially distant while similar comments were set as socially close.

After viewing the reaction comments in the artificial news comments section, participants were asked to evaluate their perceived similarity with other people (e.g., with one's peer group) on the topic of raising school tuitions. Three items using seven-point scales measured perceived similarity. After measuring perceived similarity, the participants were given a selection of scales that measured self-esteem (Rosenberg 1979), happiness (Lyubomirsky and Lepper 1999), and life satisfaction (Cantril 1965). The self-esteem scale consisted of three items from the Rosenberg scale; "I have a positive attitude toward myself," "At times I think I am no good at all," and "I certainly feel useless at times." The participant's responses were coded on a scale of 1 (strongly disagree) to 7 (strongly disagree). For happiness, two different questions were chosen from Lyubomirsky and Lepper (1999)'s happiness scale: In general, I consider myself: 1 (not a very happy person) to 7 (a very happy person), and Compared to most of my peers, I consider myself: 1 (less happy) to 7 (more happy). For life satisfaction, Cantril (1965)'s self-anchoring striving scale was used with a 7-point scale. The participants indicated: to what extent are you satisfied with your current life? The participants answered on a scale of 1 (dissatisfied) to 7 (satisfied).

Perceived loneliness. Perceived loneliness was examined as a possible mediator in the present study. The UCLA loneliness scale (Russell 1996) with 20 items was modified and used to measure the participant's perceived loneliness. The original scale measures the frequency of loneliness, but in this case, we were trying to

capture the perceived loneliness at the moment. So, the instructions at the start asked the participants to focus on the emotions they were currently feeling to capture the perceived loneliness, not as a personal trait but as a measured variable. The original four-point response scale was expanded to a seven-point scale to better capture the emotions of people at the time. The participants provided their current perceptions with 20 statements on a scale of 1 (strongly disagree) to 7 (strongly disagree). The statements include “I feel alone”, “I feel left out”, “No one really knows me well,” etc. The full list of items can be found in **table 1**. As can be seen in the list, nine items were reversed to prevent response bias.

Table 1
Items for Perceived Loneliness

I feel alone	
I feel left out.	
No one really knows me well.	
I feel isolated from others.	
I am unhappy being so withdrawn.	
There is no one I can turn to.	
There are people who really understand me.*	Reversed
People are around me but not with me.	
I feel part of a group of friends.*	Reversed
There are people I feel close to.*	Reversed
I can find companionship when I want it.*	Reversed
There are people I can talk to.*	Reversed
There are people I can turn to.*	Reversed
I feel in tune with the people around me.*	Reversed
I am an outgoing person.*	Reversed
I lack companionship.	
I am no longer close to anyone.	
My social relationships are superficial.	
I have a lot in common with the people around me.*	Reversed
My interests and ideas are not shared by those around me.	

Results

Manipulation check. An ANOVA showed that reaction similarity manipulation (F (2,105) =5.607, p<.005) resulted in significantly more perceived similarity ($M_{\text{similarity}} = 4.35$) as compared to the mixed ($M_{\text{mixed}} = 3.65$) and dissimilarity ($M_{\text{dissimilarity}} = 3.26$) manipulations. The results are given in **table 2**.

Table 2
Reaction Comment Manipulation Check (ANOVA)

<i>Reaction comment similarity</i>	<i>Cases</i>	<i>Mean</i>	<i>SD</i>	<i>df</i>	<i>F</i>	<i>Sig.</i>
<i>Similar</i>	37	4.35	1.09	Between groups 2	5.60	.05
<i>Mixed</i>	37	3.65	1.16			
<i>Dissimilar</i>	34	3.26	1.85	Within groups 105		

In addition, the competitive versus cooperative context manipulation ($F(1,106) = 152.042, p < .001$) resulted in a significantly competitive perception ($M_{\text{competitive}} = 5.36$) as compared to a cooperative perception ($M_{\text{cooperative}} = 2.41$). These results are organized in **table 3**.

Table 3
Competitive Context Manipulation Check (ANOVA)

<i>Competitive Context</i>	<i>Cases</i>	<i>Mean</i>	<i>SD</i>	<i>df</i>	<i>F</i>	<i>Sig.</i>
<i>Competitive</i>	55	5.36	1.24	Between groups 1	152.04	.00
<i>Cooperative</i>	53	2.41	1.25			
				Within groups 106		

Life satisfaction. Participants' reports on life satisfaction ranged from 1 to 7, and showed a mean of 4.8 and standard deviation of 1.43. The life satisfaction scores in **table 4** show a reasonable range.

Table 4

Descriptive Statistics of Life Satisfaction

<i>Max</i>	<i>Min</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>N</i>
7	1	4.8	1.43	5	108

Then, participants' ratings of their life satisfaction were submitted to a 3 (reaction comment similarity: similar vs. mixed vs. dissimilar) x 2 (competitive context: competitive vs. cooperative) ANOVA. This analysis showed that the reaction comment similarity x competitive context interaction was significant ($F(5,102) = 3.54, p < .034$). See **table 5** and **figure 2** for the mean scores of life satisfaction for the six conditions. The tests of between-subjects effects are summarized in **table 6**.

Table 5

Life Satisfaction by Competitive Context and Reaction Comment Similarity

<i>Competitive Context</i>	<i>Reaction Comment</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
<i>Cooperative</i>	Dissimilar	4.29	1.69	17
	Mixed	4.61	1.54	18
	Similar	5.39	.85	18
<i>Competitive</i>	Dissimilar	5.12	1.22	17
	Mixed	4.89	1.37	19
	Similar	4.47	1.65	19

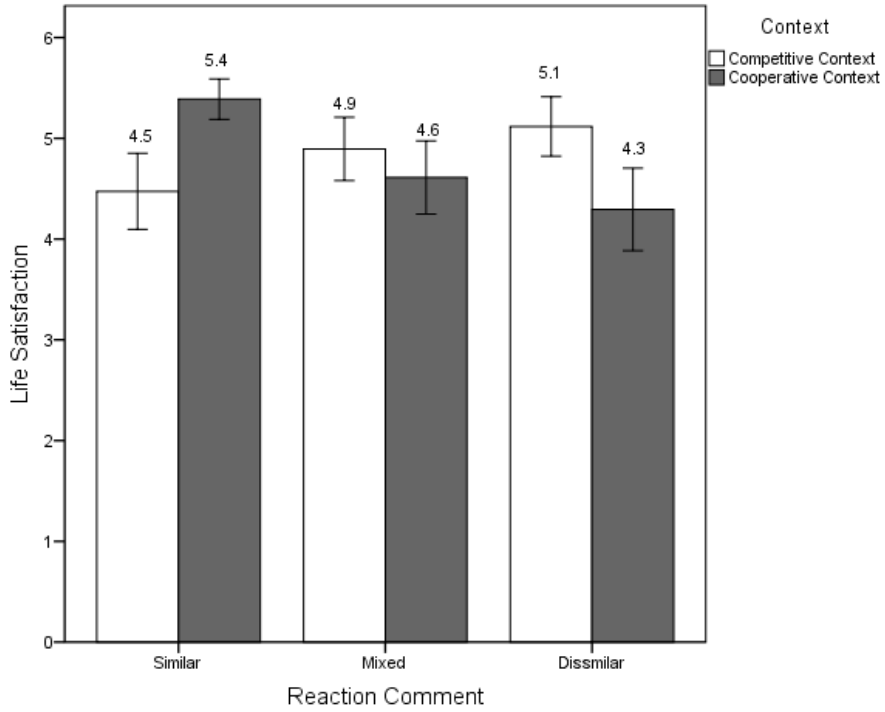
Table 6

Two-way ANOVA on Life Satisfaction

	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
<i>Corrected Model</i>	15.14	5	3.03	1.51	.193
<i>Intercept</i>	2479.78	1	2479.78	1237.61	.000
<i>Reaction Comment: (Similar/Mixed/Dissimilar)</i>	1.02	2	.510	.255	.776
<i>Competitive Context: (competitive/cooperative)</i>	.11	1	.110	.55	.815
<i>Reaction Comment*Competitive Context</i>	14.2	2	7.1	3.54	.033
<i>Error</i>	204.38	102	2		
<i>Total</i>	2704	108			
<i>Corrected Total</i>	219.519	107			

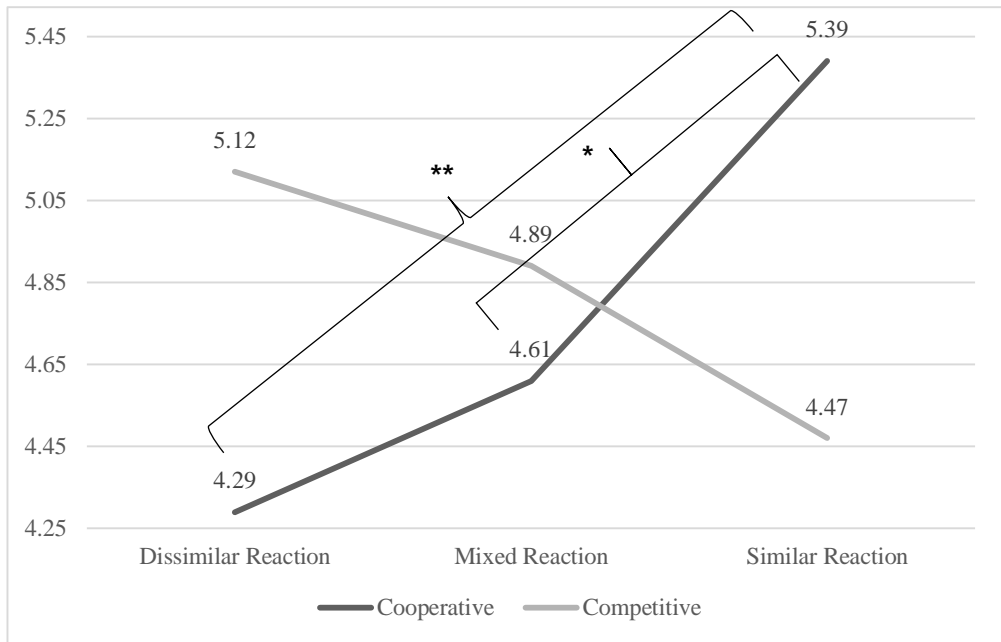
Further, as seen in **figure 3**, contrast analysis revealed that participants in the cooperative context showed higher life satisfaction with similar reaction comments (M=5.39) than with mixed reaction comments (M=4.61) or dissimilar reaction comments (M=4.29). These results support H2a. However, contrast analysis in the competitive context condition showed no interaction with reaction comment similarity. Thus, H2b had to be discarded. As is observable in **figure 3**, in the cooperative context, similar reactions (M=5.39) showed significant difference ($p < .025$) with dissimilar reactions (M=4.29), but a marginal difference ($p < .07$) with mixed reaction comments (M=4.61).

Figure 2
Life Satisfaction Scores



Error bars denote standard errors

Figure 3
Contrast Analysis



Note: * $p < .10$, ** $p < .05$, *** $p < .01$

Perceived loneliness as mediator. The Cronbach α for perceived loneliness was .936, showing satisfactory reliability. After the nine reversed items were inverted, all 20 items on a 7-point scale were averaged. The perceived loneliness of the participants showed a mean of 3.07, a maximum value of 6.9 and a minimum of 1.25. Key results are summarized in **table 7**.

Table 7

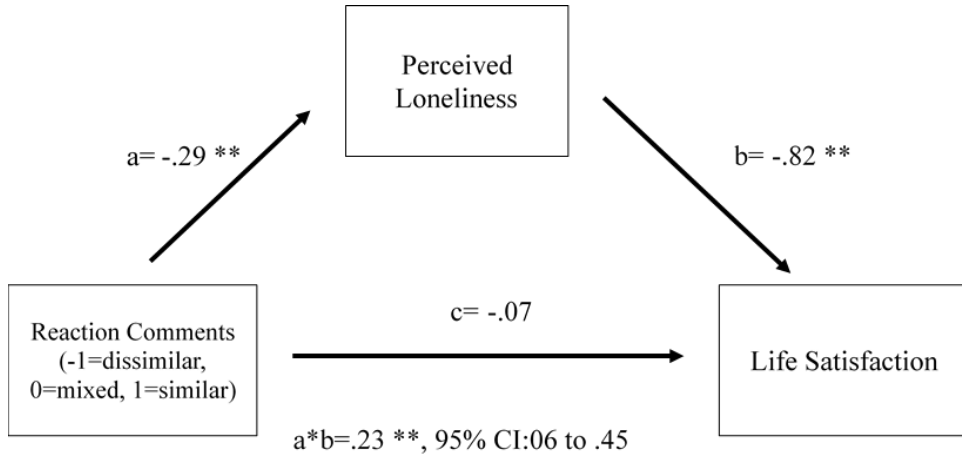
Summary Statistics of the UCLA Loneliness Scale

<i>Max</i>	<i>Min</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>N</i>	<i>α</i>
6.9	1.25	3.07	.98	2.95	108	.936

To assess how the reaction comments affected life satisfaction, Hayes (2013)'s bootstrap mediation analysis was used. A bootstrap analysis was conducted for the indirect effect of reaction comments (-1=dissimilar, 0=mixed, 1=similar) on life satisfaction through perceived loneliness. As seen in **figure 4**, the analysis showed that the perceived loneliness path was significant (indirect effect=.23; $p < .099$, 95% CI: .0557 to .4465). Since the 95% CI did not include 0, the indirect effect proved to be in effect. These results indicated that perceived loneliness mediated the effect of reaction comments on life satisfaction (Sobel test: $z = 2.30$; $p < .05$). In sum, the mediation analysis supported H3.

Figure 4

Mediation Analysis



**p<.05

To classically assess the indirect effect of reaction comments on life satisfaction through perceived loneliness, Baron and Kenny (1986)'s method was also used. In this process, three steps are followed, and the previous step must be significant to progress to the next one. First, a regression analysis assesses the significance of the path from the independent variable to the mediator. Second, the independent variable is regressed on the dependent variable. Third, the analysis is conducted on how the independent variable affects the dependent variable with the mediator variable included. In the third stage with the mediator variable, if the effect of the independent variable is no longer significant, this is considered perfect mediation. However, if the independent variable is still significant but weaker than in step 2,

this is considered partial mediation.

Following the first step, the path from reaction comments to perceived loneliness ($\beta = -.29$, $t = -2.49$, $p < .015$, 95% CI: $-.512$ to $-.058$) proved significant. In the second step, regression analysis was executed on life satisfaction as the dependent variable and the reaction comment as the independent variable ($\beta = .107$, $t = .629$, $p < .53$, 95% CI: $-.231$ to $.445$). At first glance, the effect of reaction comments on life satisfaction was insignificant. If we had followed the rules of Baron and Kenny's method, the process would have stopped here. However, with the results from Hayes's process method that perceived loneliness as the mediator, we continued to see if there was a causal relationship through perceived loneliness. In the final stage, all the variables were considered for the effect on life satisfaction. The effect of perceived loneliness on life satisfaction ($\beta = -.547$, $t = -6.45$, $p < .01$, 95% CI: -1.038 to $-.550$) was significant, while the effect of reaction comments on life satisfaction ($\beta = -.068$, $t = -.798$, $p < .428$, 95% CI: $-.415$ to $.177$) proved insignificant.

Moderating effect of competitive context. Using Hayes (2013)'s moderated mediation analysis, the competitive context was added as a moderator in the perceived loneliness's mediation. Using Hayes's process model 7 (refer to **figure 6**), a partially significant interaction effect was present (interaction = $-.22$ $p < .051$,

CI: -0.44 to .00). In this process, the effect of a competitive context, a dichotomous moderator, proved to be significant conditionally. In **table 8**, the competitive condition CI at 95% includes the value '0' (95% CI: -.18 to .82), thereby making it insignificant. On the other hand, the cooperative condition at 95% does not include the value '0' (95% CI: .13 to .82), proving significant.

In other words, in the competitive context, the reaction comment similarity did not affect life satisfaction, but in the cooperative context, reaction comment similarity proved to affect life satisfaction.

Figure 5

Moderated Mediation Analysis

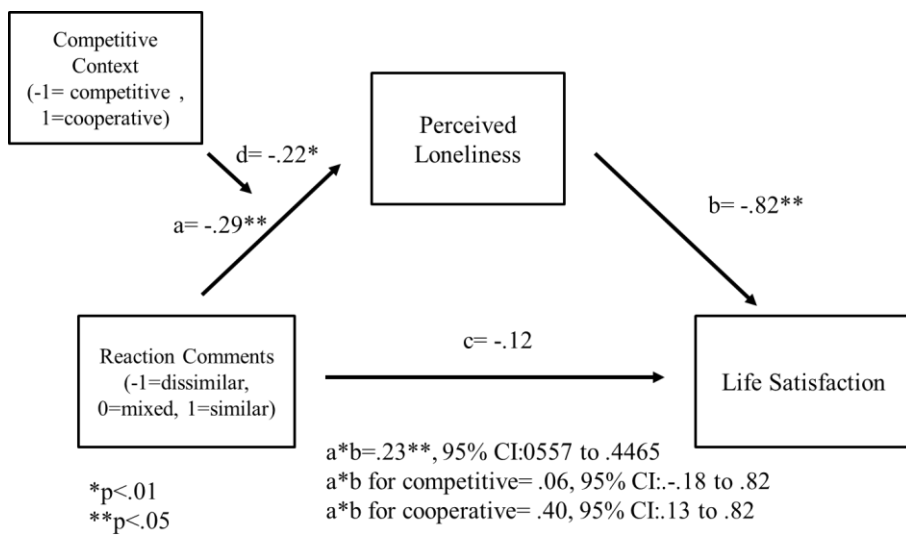


Table 8

Bootstrapping Estimates of Indirect Effects

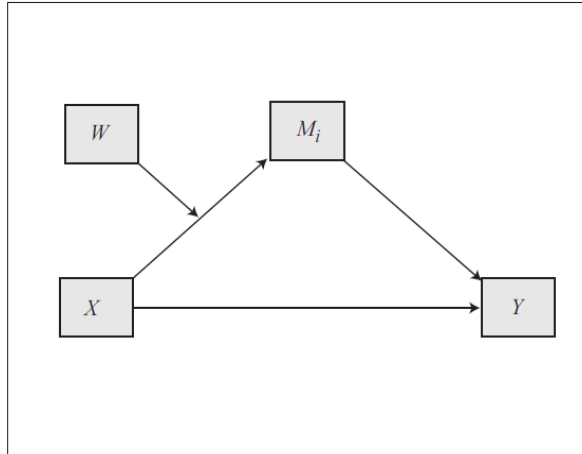
<i>Reaction comment similarity</i>		
<i>Competitive context</i>	Point estimate	95% Bias-corrected bootstrap confidence interval
<i>Competitive (-1)</i>	.06	-.18 to .82
<i>Cooperative (1)</i>	.40	.13 to .82

The results show that perceived loneliness mediated the effect of reaction comment similarity on life satisfaction. Also, the competitive context proved to moderate the mediation of perceived loneliness. Specially, only participants in the cooperative context were affected by the similarity of reaction comments. The cooperative context proved to be strengthening the reducing power of perceived loneliness, which reduced life satisfaction, thereby relatively raising life satisfaction.

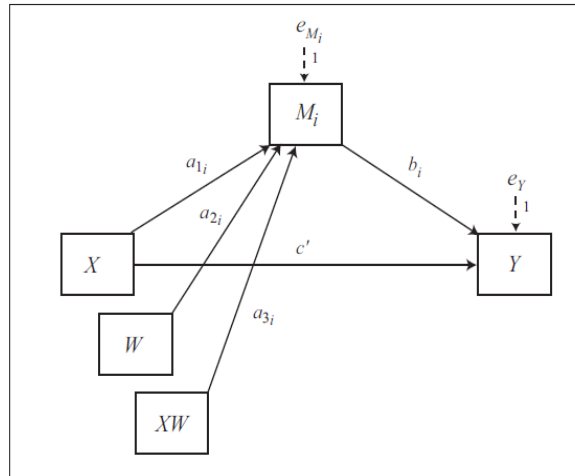
Figure 6
Hayes' PROCESS Model 7

Model 7

Conceptual Diagram



Statistical Diagram



Conditional indirect effect of X on Y through $M_i = (a_{1i} + a_{3i}W)b_i$

Direct effect of X on $Y = c'$

Note: Model 7 allows up to 10 mediators operating in parallel.

Discussion

Overall, this research demonstrated that reaction comments affect life satisfaction, but in a subtle way. The total effect of reaction comments on life satisfaction was not significant in the initial bi-variate analysis of reaction comments and life satisfaction. This result implies that, on the surface, reaction comments seemed not to affect the life satisfaction of people. However, further investigation based on moderated mediation analysis revealed the significant indirect effect of reaction comments on life satisfaction. In sum, the process was mediated by perceived loneliness, and moderated by the competitive (vs. cooperative) context. To be specific, people in the cooperative context were affected by reaction comments while people in the competitive context were not. People in the cooperative context showed an increase of life satisfaction with similar reaction comments, but dissimilar reaction comments decreased the corresponding life satisfaction. These effects of reaction comments might not have been discovered without such close scrutiny, illustrating the benefit of moderated mediation analysis.

Theoretical and Practical Implications

These findings contribute to the literature on subjective well-being, social comparison, online comments, and competitive contexts. First, this research

investigates how people respond to reaction comments directly addressed to themselves, which is an unexplored area of research. Current research sheds light on the effects of online interaction on people's well-being, including life satisfaction and happiness. It reveals that even small comments from others can improve or worsen people's lives. This research provides evidence that social comparison occurs in the online context in that people compare their own comments with how other people react to these comments. Although the influence of the internet is growing daily in our everyday lives, the effects of such new social contexts on people's quality of life have not been directly explored.

Second, the present research reveals the importance of context (competitive vs. cooperative) in the effects of reaction comments on life satisfaction. As competition is growing fiercely in today's information-driven world, it is worthwhile to explore how such (competitive vs. cooperative) contexts affect people in the online world. As is shown in research on behavioral decision making, the context matters in the effects of reaction comments as well. By examining one dimension of context (i.e., competitive vs. cooperative), this research makes a unique advance to the field.

Third, this study contributes to the study of individual happiness from a micro perspective. Most studies of life satisfaction to date have been focused on the comparison of people's subjective well-being in relation to income or GDP from a macro perspective. Easterlin (1974) showed that a high income is correlated with

happiness to a certain extent but not in the long term. On the other hand, Stevenson and Wolfers (2008) refuted Easterlin's claim, showing that happiness is higher in richer countries. Such studies are mostly focused on macro aspects, but this study focuses on how online social interaction, not income or GDP, affects personal happiness. Exploring the frontiers of people's everyday activities through online comments will help us understand the aspects of subjective well-being.

Fourth, this research provides an interesting insight into the process through which online comments affect life satisfaction. We have hypothesized and shown that perceived loneliness plays a pivotal role in the effect of online comments on life satisfaction. It is interesting to note that online interactions can either increase or decrease perceived loneliness depending on the similarity of others' reaction comments to one's own comments. It is the quality, not the quantity, of online interactions that affects life satisfaction. No matter how many interactions one has online, one may still feel lonely to the extent that others make reaction comments dissimilar to one's own comments. This study demonstrates that social media may be a double-edged sword in that it can either benefit or harm users in terms of felt loneliness and satisfaction with life.

In addition to the theoretical contributions, this study has several practical implications as well. First, consumer well-being can be affected by online reaction comments. Since consumer satisfaction and happiness beyond the product purchase point are considered important, these results are highly relevant to marketers. Also,

web portals providing services should take note of such results and consider the interactions among service users. In particular, web portals whose ultimate goal is to satisfy visitors should be more careful about negative results.

Second, from the perspective of users, people should band together to be happy. After all, to raise the chances of keeping a high level of life satisfaction and happiness, it is beneficial to stick to a group that has views similar to one's own. This study showed that receiving similar reaction comments in a cooperative context increased life satisfaction. In real life, for users to accomplish life satisfaction while using the internet, it would be beneficial to search for communities where one can easily become familiar with and find similarities with other people.

Third, from the perspective of firms, it is important to watch out for unintended effects of online comments. Almost every firm today operates a website of some sort. However, many firms fail to closely manage such virtual spaces where consumers interact with each other. As the results of the study show that reaction comments can affect the ultimate happiness of consumers, it seems vital for firms to closely manage their websites by promoting similar comments while preventing dissimilar comments. At the same time, it is important for managers to maintain online spaces as cooperative rather than competitive among users.

Limitations and Future Directions

The current study does have some limitations and room for future research. For instance, the generalizability of the study is an issue. The experiment was conducted with an artificial scenario where participants were asked to post comments on the topic of tuition fees. Different scenarios would improve the generalizability of the research. Also, the website used in the study was not clearly defined or described. Exploring the results when the website is perceived as in-group or out-group website would be an interesting direction for further study. Lastly, identifying other potential moderators is another direction to be explored.

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국문 초록

온라인 댓글이 소비자의 외로움과 삶에 대한 만족도에 미치는 영향: 경쟁과 협력 상황의 비교

이중세

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오늘날 다양한 배경의 사람들이 온라인으로 자신의 의견이나 댓글을 올리고 있으며, 이런 글에 다시 댓글을 다는 사람도 역시 많다. 이렇게 한 개인이 올린 글에 대해 다른 사람들이 올린 댓글이 그 개인의 삶에 어떤 영향을 끼칠까? 이 연구는 이런 온라인 댓글이 사람들의 행복에 어떤 영향을 미치는지 살펴보았다. 사람들은 타인이 자신을 어떻게 보고 있는지 신경 쓴다. 이러한 경향은 실시간으로 서로 연결된 온라인 세상에서는 더더욱 만연하다. 본 연구는 이런 온라인 댓글이 개인의 삶에 대한 만족도에 미치는 영향을 인지된 외로움이 매개한다는 것을 확인했다.

또한, 경쟁보다는 협력 상황에서 온라인 댓글이 사람들의 삶의 만족도에 영향을 미치는 것으로 나타났다. 경쟁 상황의 사람들은 온라인 댓글에 의해 영향을 받지 않았지만, 협력 상황의 개인들은 온라인 댓글이 자신의 의견과 유사할 때 삶에 대한 만족도가 높았다. 이처럼 협력적인 상황에서 개인이 온라인상 타인의 의견에 더욱 민감하다는 사실은 다양한 시사점을 제시한다.

주요어: 온라인 댓글(online reaction comments),
삶의 만족도(life satisfaction),
인지된 외로움(perceived loneliness),
경쟁 상황(competitive context),
협력 상황(cooperative context)

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