

Deterrence or Numbness? Insights into the Psychological Effects of the Encirclement Patrols Conducted by People’s Liberation Army Vessels and Aircraft around Taiwan

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This study investigated the psychological effects of the long-term military intimidation imposed by the People’s Liberation Army (PLA) on the Taiwanese public. Online texts dating between 2016 and 2018 were mined and Russell’s (1980) semantic analysis was used to analyze the online discussions among the Taiwanese public regarding the PLA vessels and aircraft patrolling around Taiwan. The results showed that the PLA’s long-term encirclement patrols have generated numbness among the Taiwanese public. With regard to the Taiwanese government’s policy of disclosing information about such military encirclement patrols, the effects of proliferating this information were not significant, but have led to an increased sense of fear among the public. These findings suggest that the effects of the PLA’s encirclement patrols around Taiwan are not determined by the PLA, but by the Taiwanese government’s policies regarding the disclosure of relevant information on encirclement patrols.

Keywords: desensitization, verbal intimidation and saber rattling, psychological warfare, deterrence strategy

Introduction

After Taiwan and China became separately governed following the end of the Chinese Civil War in 1949, the region has always been at a high risk of military confrontation. Even though it has been 70 years since the split, the military rivalry across the Taiwan Strait has never showed any signs of cessation. In particular, China has been strengthening its comprehensive national power on a long-term basis ever since the launch of the Chinese economic reform. As a result, the People’s Liberation Army’s

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(PLA) military strategies have shifted focus from green to blue water defense.¹ The long-term cross-strait military balance has tilted following the expeditious growth of the PLA's power projection capability. In addition, Tsai Ing-wen's denial of the existence of the 1992 Consensus (the basis of dialogue between both sides) since assuming the presidency has further increased cross-strait military tensions.² Xi Jinping, the incumbent General Secretary of the Communist Party of China swore in his speech commemorating the 40th anniversary of the "Message to Compatriots in Taiwan" that China will never renounce the use of military force to reunify with Taiwan. Furthermore, China has taken a series of measures to realize its goal of reunification and impede Taiwan independence, such as the opening of the M503 flight path west of the Taiwan Strait median line and the deployment of military vessels and aircraft to patrol around Taiwan. These approaches are aimed at reducing Taiwan's preparedness for air strikes and increasing the likelihood of a successful invasion of Taiwan.³

Previously, Taiwan regarded the encirclement patrols conducted by military vessels to constitute a form of verbal intimidation and saber rattling by the PLA. It is believed that China's psychological warfare against Taiwan implemented through military threats is an attempt to threaten the Taiwanese public, suppress plans for Taiwan independence, and establish a foundation for future reunification.⁴ In fact, the encirclement patrols conducted by PLA vessels and aircraft around Taiwan have become increasingly frequent and bigger in scale. The coverage of encirclement patrols has expanded from the east of the Taiwan Strait median line to the northern and southern borders of Taiwan's territorial airspace and waters, stretching to the Miyako Strait and the Bashi Strait, as well as to the territorial region off the east coast. In addition, the number of aircraft has increased from single aircraft to aircraft formations, and frequent encirclement patrols have become the norm.⁵ These practices aim to incorporate the territorial airspace and waters of Taiwan into the routine patrols conducted by the Chinese military, thereby suppressing the morale of the Taiwanese people and achieving military objectives without fighting.

However, some scholars have different opinions.⁶ They suggest that such encirclement patrols are aimed not at weakening the will of the Taiwanese military and public to resist the enemy, but at reducing their vigilance towards the enemy. As the encirclement patrols become a regular affair, the vigilance of the Taiwanese military toward such maneuvers may decrease, thus resulting in favorable psychological conditions for future military actions against Taiwan. In other words, as the PLA's incessant encirclement patrols around Taiwan become the norm, the strength of the Taiwanese military will be reduced. Meanwhile, as reports of such maneuvers are constantly being proliferated by the media and among members of the public, the Taiwanese public may become indifferent and, consequently, less alert to the encirclement patrols. In order to prevent Taiwan from succumbing to the PLA's psychological warfare tactics, Taiwan's Ministry of National Defense stopped

disclosing information regarding the encirclement patrols conducted by PLA vessels and aircraft at some time in the past. Based on this context, this study has proposed two main hypotheses:

Hypothesis 1: The Taiwanese public's psychological fear of PLA military vessels and aircraft circling around Taiwan is decreasing with time.

Hypothesis 2: The Taiwanese government's initiative to stop disclosing information on PLA military vessels and aircraft circling around Taiwan helps to reduce the public's sense of fear.

In general, this study aims to clarify the psychological effects on the Taiwanese public generated from the encirclement patrols conducted by military vessels and aircraft around Taiwan. Will the long-term exposure to information on such encirclement patrols instill fear or psychological numbness among the public? What are the impacts of the government's policies of disclosing or not disclosing information regarding such military encirclement patrols? In light of these issues, this study analyzed public opinion by utilizing big data and data mining techniques to analyze data from a certain period (November 1, 2016, to December 31, 2018), so as to understand the psychological effects on the Taiwanese public generated by the long-term encirclement patrols conducted by PLA vessels and aircraft around Taiwan; and to validate the aforementioned hypotheses.

The rationale of how social media content would be significant factors to influence political campaign, public opinion, and public attitude toward vital public policies is each Internet user could share their voice on the Internet to communicate with broad public in a real-time base. For example, Bermingham and Smeaton⁷ demonstrated that the comments on President Obama's Twitter posts would represent his poll results. Thus, the data mining approaches of social media and online discussion websites to examine online public opinion is an appropriate method for the purpose this program.

Military Deterrence, Crowd Psychology, and Desensitization

Even though many studies have covered China's verbal intimidation and saber rattling against Taiwan,⁸ they have mostly focused on the deterrent effects of military vessels and aircraft circling Taiwan. However, some scholars have suggested that the numbing effects of such encirclement patrols could outweigh the deterrent effects. In other words, the aim of the encirclement patrols conducted by PLA vessels and aircraft around Taiwan is not to intimidate the Taiwanese military and civilians, but to numb them and reduce their alertness towards such maneuvers. Some theoretical concepts relating to deterrence, numbness, and desensitization are discussed as follows:

China's Deterrence

The concept of deterrence dates back to the phrase, “Subdue the enemy without fighting” in Sun Tzu’s *The Art of War*.⁹ Modern deterrence developed during the Cold War period, during which the United States and the Soviet Union threatened one another with nuclear weapons and both sides were cautious in their actions as a result. The Cuban Missile Crisis of 1962 is one of the most well-known events during this period. Although strategic deterrence originated during the Cold War when nuclear weapons were used by both sides to intimidate each other,¹⁰ deterrence theory is in fact also a form of game theory. Through military deterrence strategies, game participants hope to prevent their opponents from taking certain actions, or to encourage their opponent to take certain actions. Hence, some Chinese researchers¹¹ have suggested that the tools of deterrence are not limited to nuclear weapons, as military drills, missile tests, and military deployment can also be considered means of deterrence. The 2015 book *China’s Military Strategy* stated that Taiwan’s independence movement will impede reunification and China’s long-term development. Therefore, the PLA must not spare any efforts in deterring the progress of the movement for the sake of reunification.¹²

China has employed two forms of military deterrence against Taiwan. One aims to prevent Taiwan from interfering with and harming China, while the other aims to curtail Taiwan’s independence movement and promote reunification.¹³ Taiwan has been receiving military threats from China ever since the Battle of Guningtou in 1949. However, China’s military threats back then primarily aimed to prevent Taiwan from disrupting and inflicting damage on China’s armed forces. Meanwhile, due to China’s limited power projection capabilities, confrontations between Taiwan and China before 1995 mostly occurred along the southeastern coast of China, that is, the outlying islands of Taiwan. After 1996, China’s threats began to shift towards curtailing Taiwan’s independence and promoting the reunification of both entities. President Tsai Ing-wen immediately denied the existence of the 1992 Consensus after assuming office in 2016. In retaliation, China established the M503 flight route to reduce Taiwan’s preparedness against air strikes and ordered military vessels and aircraft to circle around Taiwan regularly to amp up their deterrent effects. These strategies also aimed to communicate the military consequences of making a formal declaration of Taiwan’s independence, as well as to create friction between Taiwanese people with different political standpoints, thereby causing the island to descend into chaos. In order to strengthen its deterrent effects, the PLA has increased the frequency with which its ships and aircraft circle around Taiwan, thus ensuring that such encirclement patrols become commonplace. Furthermore, these circles have also shifted from being performed by single aircraft/vessels to being performed by aircraft formations comprising aircraft such as the Su-35, H-6K, Y-8, KJ-2000, and Tu-154, as well as from being performed by aircraft with no equipped missiles to being performed by aircraft equipped with KD-20 cruise

missiles. The intensity and frequency of these encirclement patrols have also increased, as the circling direction and length have changed, respectively, from a unidirectional and half-circling range to bidirectional and full-circling. In this context, some scholars have opined that the encirclement patrols conducted by military vessels and aircraft around Taiwan is not only a means of deterrence, but could also enhance the Chinese army and navy's knowledge of future war zones, thereby increasing their preparedness to take military actions against Taiwan.

Numbed Taiwan?

From the standpoint of neuropsychology, long-term exposure to highly dangerous environments will reduce a person's perceptivity with respect to external information. For instance, when a person is exposed to a noisy battlefield environment for a long time, the resulting excitatory state could lead to interactions between auditory neurons that, in turn, cause mental fatigue. Consequently, the activity of brain cells becomes suppressed and cortical inhibition is compromised, thereby weakening a person's excitation and generating delayed perceptions of similar incidents.¹⁴ In other words, long-term deterrence might not generate fear among people. Instead, it could lead to the delayed perception of threats due to damage to the brain and compromised cortical inhibition. Numbing is often applied in psychological warfare to trick the enemy into a mistaken sense of comfort or to reduce their alertness. For example, the Allied nations utilized military deception to facilitate the Normandy landings during World War II.¹⁵ Another example is the Yom Kippur War in October 1973 when Egypt deceived Israel about its intentions, thereby achieving an element of surprise against Israeli forces.¹⁶ Sun Tzu's *The Art of War* also discussed related concepts, as reflected in the statement, "When able to attack, we must seem unable." In this context, the possibility of a numbing effect generated by the continuous encirclement patrols conducted by military vessel and aircraft around Taiwan remains an issue.

According to the preliminary results of previous studies, China's saber-rattling has not only failed to threaten the Taiwanese public, but instead reduced its fear of the PLA's military actions. For instance, the results of a poll taken after the end of two Chinese missiles tests in 1995 and 1996 showed that the Taiwanese public had become indifferent towards these tests.¹⁷ The number of respondents who expressed no fear over China's military drills towards Taiwan rose from 72.9 percent after the first missile test to 82 percent after the second test.¹⁸ Surveys conducted in Taiwan from 2015 to 2018 showed that China's military deterrence did not impact the Taiwanese public's stance on unification or independence.¹⁹ On the other hand, in surveys from 2013 to 2019, the number of respondents who perceived that China would use force against Taiwan if it continued to resist reunification rose annually from 30.3 percent in 2013 to 40.1 percent in 2019.²⁰ In other words, even though the Taiwanese public perceived, from previous experiences, a stronger degree of saber-rattling from China against their

independence, their fear towards such intimidation had become increasingly lower. The preliminary results of previous studies also proved that China's saber-rattling towards Taiwan had not generated much fear among the Taiwanese public, and there has been a gradual decline in its sense of fear. However, even though the preliminary findings of past studies have shown that the impact of the PLA's deterrence has been declining gradually, these results were not representative of the younger population due to the limitations of door-to-door and telephone surveys. Meanwhile, a higher level of social desirability bias may exist for such issues, and they must therefore be resolved through other methods of research.

Desensitization Theory

Although intimidation and numbness are both research fields in cognitive psychology, they were initially considered different fields. However, more recent efforts have integrated both phenomena into the field of desensitization research by utilizing measurements of emotional responses. Desensitization refers to the loss of fear, uneasiness, and sensibility in a person after being exposed or subjected to media communications or scenarios filled with violent content for a long period.²¹ Simply stated, desensitization is the numbing effect which reduces a person's perceptions towards violence after long-term exposure to violent scenarios or information. However, some previous studies pertaining to desensitization had merely focused on its numbing effect. Hoffman, Kowal, and Francisco²² expanded the scope of desensitization to include fear and numbing effects. The authors aimed to determine if terrorist propaganda had generated deterrent effects or numbing effects among the public. In addition, De Choudhury et al.²³ investigated the perceptions of Mexicans towards their government's war on drugs. Based on the perspectives of desensitization, the authors examined whether drug-related crime had generated psychological fear or numbness among the public. Long-term exposure to violence can easily cause desensitization. In other words, continuous deterrence may reduce the sense of fear. Hence, it is worth examining whether the Taiwanese public's fear of the long-term encirclement patrols conducted by the PLA's military vessels and aircraft around Taiwan would decrease over time.

On the other hand, in response to the PLA's encirclement patrols, the military and the government of Tsai Ing-wen proposed different strategies. The Ministry of National Defense opined that disclosing information on these encirclement patrols would only serve to propagate China's message. Hence, the Ministry of National Defense began to stop disclosing information on the maneuvers on December 20, 2017, in an attempt to stop China from gaining traction by using the information as a means of psychological warfare.²⁴ However, the Tsai government claimed that such a move would cause the media to use information from foreign sources,²⁵ which could still generate fear

due to the lack of information transparency. Thus, the Ministry of National Defense resumed disclosing information regarding PLA encirclement patrols on January 4, 2018.²⁶ Previous findings pertaining to deterrence or desensitization have revealed that the media's information transmission is critical to deterrence or desensitization.²⁷ Inaccurate transmissions of information regarding deterrence will influence the development of fear or desensitization. Meanwhile, Akerlof²⁸ suggested that the government plays a leadership role in information management. If a government is unable to disclose accurate information in appropriate situations, misinformation would proliferate rapidly, shrouding the society and raising fears among the public.²⁹ Incidents that receive more coverage from the media will be perceived to be more severe and harmful by the public.³⁰ In other words, information about military vessels and aircraft circling around Taiwan will have varying deterrent effects depending on the government's disclosure or non-disclosure of such information. Hence, the following questions must be addressed: Would the government's policy of not disclosing information of military encirclement patrols result in greater public concern over such information? Next, would the government's policy of not disclosing information heighten fear among the public?

In short, this study sought to conduct a sentiment analysis of online opinions, so as to understand the psychological effects caused by the military vessels and aircraft circling around Taiwan. Would there be deterrent effects, numbing effects, or both? In addition, this study sought to comprehend the effects on the public generated by the Taiwanese government's attitude (disclosure decision) towards information regarding the PLA's encirclement patrols. Would the government's policy of disclosing or not disclosing such information result in a higher level of concern? Furthermore, would disclosing or not disclosing such information result in a higher level of threat perception?

Research Method

Owing to the rapid development of online media, people often express their opinions on the Internet.³¹ A previous Taiwanese study revealed that the Internet (through bulletin board systems, blogs, news sites, etc.) has become one of the most important platforms through which members of the public express their political views and their concerns over public policies.³² Since 2016, the increase in the duration and frequency of encirclement patrols performed by Chinese vessels and aircraft around Taiwan has gained considerable attention from the Taiwanese government, media, and public. Hence, the large quantity of relevant text available online can be analyzed through big data and web mining, so as to understand the impact of the government's policy on disclosing relevant information after each encirclement patrol on the emotional response of the public. This study employed big data mining methods to collect

relevant data. The semantic analysis approach developed by Russell³³ was used to analyze positive and negative sentiment words, with the aim of understanding the changes in fear and numbness among the Taiwanese public. An increase in negative emotions or a decline in positive emotions reflects the heightened fear among the public towards the military vessels and aircraft circling around Taiwan, which indicates a higher degree of deterrent effects of these encirclement patrols. Conversely, a decline in negative emotions or an increase in positive emotions reflects desensitization, that is, the public gradually become indifferent or numbed toward the deterrent effects of these maneuvers.³⁴ The data collection methods used in this study are described in the following sections.

Sources and Treatment of Information

In this study, public opinions on the military vessels and aircraft circling around Taiwan were collected by a commissioned private company (Eland Data-mining Corporation) and the Social Event Radar (S.E.R.) service platform developed by the Institute for Information Industry.³⁵ At the same time, keyword searches, concept searches, natural language processing, and other semantic processing techniques were utilized to provide observation and tracking services and analytical reports on trending social topics, population preferences, and behavioral tracking.³⁶

In this study, data was collected from November 1, 2016, to December 30, 2018. Sources such as the comments sections of news sites, forums, blogs, and social networking sites from 3,203 media channels and fan pages were collected. There were 28,139 responses from netizens pertaining to the military vessels and aircraft circling around Taiwan (hereinafter referred to simply as “responses”). With regard to the inclusion criteria of data, terms such as “long-distance open-sea training missions”; “military vessels and aircraft to circle around Taiwan”; “military vessels to circle around Taiwan”; and “military aircraft to circle around Taiwan” appearing in the headlines and text on social networking sites and news and media platforms within the specified period were included in the scope of data collection. In order to ensure the completeness of the data, the author of this study set the start time of data collection as November 1, 2016, the date on which the military encirclement patrols were first discussed by netizens. Therefore, the process of data collection covered the full spectrum of media voices.

Netizens’ opinions were analyzed in this study to understand their psychological responses. The collected data primarily consisted of netizens’ responses, while the main text was not analyzed. More specifically, the range of data collection in this study consisted of four main aspects as follows: (1) A checklist of Facebook fan pages: Facebook’s Graph API was utilized to create a checklist of 974 public groups and fan pages according to settings. Open data such as the content of posts, time of posting, type of response (likes, comments, shares), and account ID of respondents were

collected after checking through Facebook posts and corresponding response sections. (2) Local news sites of various media, including netizens' responses in the comments section. (3) Time and content of responses in PTT (a bulletin board system) boards such as Militarylife, Gossiping, and HatePolitics. Web crawling methods were used to collect specific URLs/web pages and web page data from the three preceding aspects. A total of 1,175 public web pages were collected. (4) In the fourth aspect, a total of 2,028 public web pages were collected from forums such as Dcard, Mobile01, and CK101. In summary, a total of 3,203 public web pages served as the basis of analysis in this study.

With regard to data filtering, stop words such as meaningless terms and English words were removed from the data. Stop words were common words that appeared frequently but lacked search value. As stop words could interfere when searching for the themes and concepts of this study (sentiment words) and affect the analysis results, words that were lacking in search value (such as punctuation marks, pronouns (他們 "them"; 這些 "these"; 大家 "us"); particles (的 "and"; 與 "and"; 了 "le, used to indicate a completed action")) had to be omitted before performing a search of sentiment words, so as to facilitate subsequent analyses.

Data Analysis Methods

Share of Voice Analysis

Share of voice refers to the degree of public attention towards an issue. A higher share of voice represents a higher degree of public concern towards an issue, and vice versa. As such, a higher share of voice among the public towards the military vessels and aircraft circling around Taiwan reflects a higher level of concern. In this study, after relevant text from Facebook, Twitter, PTT, and other online forums had been collected, the EdgeRank algorithm, which displays content in the news feed of users, was used to allocate different weights for a like, comment, or share, so as to represent the share of voice of a certain post within a social network. Specifically, three weights were allocated. One, two, and three points were allocated respectively to a like, comment, and share. After adding each point, a higher total score represents a higher online share of voice.³⁷ For example, when a piece of news pertaining to circling military vessels and aircrafts which had crossed over the median line of the Taiwan Strait was forwarded to a board, three points were allocated to its share of voice. If the piece of news attracted comments from netizens, it received two points. If it merely attracted likes, it received one point. The total share of voice of a piece of news is the overall score for all three response types. A higher score indicates a higher degree of public attention towards the incident.

Sentiment Proportion Analysis

Sentiment proportion analysis was performed to analyze the trends in positive and

negative emotions. This was performed to remove the interference of shares of voice in trend analysis. In sentiment proportion analysis, the positive/negative sentiment index of each response was first computed to determine if the response expressed a positive or negative emotion. Then, the proportion of negative and positive emotions towards each military circling incident was computed, which served as the basis for performing a trend comparison. The operation procedure is as follows:

(1) Determine the emotional nature of the response through positive and negative sentiment words: Each response can either be positive, negative, or neutral. Positive and negative emotions are categorized according to Russell's³⁸ categorization model, which consists of 28 words including 13 words expressing negative emotions (afraid, angry, sad, depressed, etc.) and 15 words expressing positive emotions (happy, satisfied, pleased, relaxed, etc.). The content of each response from a netizen was analyzed to determine if the response expressed a positive or negative emotion. First, the author compared the collected data with the 28 aforementioned sentiment words. If the text contained any of the sentiment words, it was included for subsequent sentiment analysis; if the text did not contain any of the sentiment words, it was regarded to be neutral.

(2) Positive/negative sentiment index: The positive/negative sentiment index is comprised of two components: one consists of degree modifiers (extremely, most, very, comparatively more, slightly, quite, etc.) while the other consists of the aforementioned 28 positive and negative sentiment words categorized according to Russell's method.³⁹ The degree modifiers were then paired with the sentiment words to serve as a reference for the calculation of sentiment index. For example, if a word pair consists of "quite" as the degree modifier and "happy" as the sentiment word, the score of positivity of the pair would be lower than that of the word pair "very happy." Hence, the degree of the positive/negative sentiment index varies in each response.

(3) Determination of each response's sentiment: The sentiment expressed in each response was determined according to the positive/negative sentiment index. The author determined if a response expressed positive or negative emotions based on its corresponding positive or negative sentiment index. If its positive sentiment index was higher than its negative sentiment index, the response expressed positive emotions, and vice versa. More specifically, the nature of each response was one-sided, that is, each response either expressed a positive, negative, or neutral emotion. Sentiment proportion analysis was not performed for responses with neutral emotions. Therefore, the 28,139 responses were either categorized as an expression of positive emotions or negative emotions. When a netizen's response pertaining to the military vessels and aircraft circling around Taiwan contained more negative sentiment words than positive ones, the response was regarded as an expression of negative emotions.

(4) Sentiment proportion: Sentiment proportion is defined as the percentage of positive, negative, and neutral emotions over the sum of these three emotions. A higher proportion of negative emotions indicates a higher degree of fear among the public.

Conversely, a lower proportion of negative emotions indicates a lower degree of fear among the public. A higher proportion of positive emotions indicates a lower degree of fear among the public. Conversely, a lower proportion of positive emotions indicates a higher degree of fear among the public. According to desensitization theory, an individual becomes desensitized when they become less fearful after being exposed to long-term deterrent situations. This also means that an individual has become numb towards information on the military vessels and aircraft circling around Taiwan.

Government's Policy on Disclosing Information

In this study, the government's policy on disclosing relevant information regarding the military vessels and aircraft circling around Taiwan is regarded as an indicator of the public's perceptions of these encirclement patrols' effects. Based on the literature review, information disclosure determines whether the public perceived fear or numbness, while the reliability of the sources of information is an important factor affecting the degree of deterrence generated.⁴⁰ In short, the sources of information and effects of military vessels and aircraft circling around Taiwan, as well as the government's disclosure or non-disclosure of information regarding these encirclement patrols, are factors influencing the public's perception of these circles' effects. Therefore, this study aimed to investigate whether the government's policy of issuing an official statement or press release pertaining to the military encirclement patrols had any intervention effects. Two issues are also investigated: (1) The difference (if any) in the overall share of voice resulting from the government's policy of disclosing information regarding military encirclement patrols, and (2) The difference (if any) in the quantity of negative emotions resulting from the government's policy of disclosing information regarding military encirclement patrols.

Data Analysis

Overall Share of Voice of the Military Encirclement Patrols

The period of analysis in this study started on November 1, 2016, and ended on December 30, 2018. Data were collected from the comments sections of news sites, online forums, blogs, and social networking sites from 1,675 media channels and fan pages. There were 28,139 responses from netizens pertaining to the military vessels and aircraft circling around Taiwan. The share of voice peaked on July 21, 2017, with 3521 responses, while it was at its minimum on February 28, 2018, with 68 responses (as shown in Figure 1). At first glance, it appears that the share of voice of the military encirclement patrols differed and fluctuated according to the frequency, method, and military branch. A higher share of voice was observed when there was a higher frequency of encirclement patrols or when the vessel/aircraft performing the circling

maneuver had a higher attack capability, and vice versa. However, diachronically speaking, the share of voice among the public generated from each military circling incident differed and lacked a definite trend.

Validation of Desensitization

In order to determine whether the general public had become numb towards the military circling incidents, this study utilized the desensitization theory to examine whether the proportion of negative emotions in the overall share of voice had continuously declined. The growth of the proportion of positive emotions in the overall share of voice may be used in tandem with the proportion of negative emotions to validate the impacts of desensitization regarding a military circling incident. In other words, according to desensitization theory, the proportion of positive emotions and the proportion of negative emotions should be mutually exclusive. As the trends in long-term shares of voice are influenced by factors such as the government's policy of disclosing information, in this study, the validation of desensitization is based on the percentage of positive and negative emotions in the overall sum of emotions. Hence, regression analysis was used to analyze the trends in the overall proportion of positive and negative emotions in online texts pertaining to the military encirclement patrols.

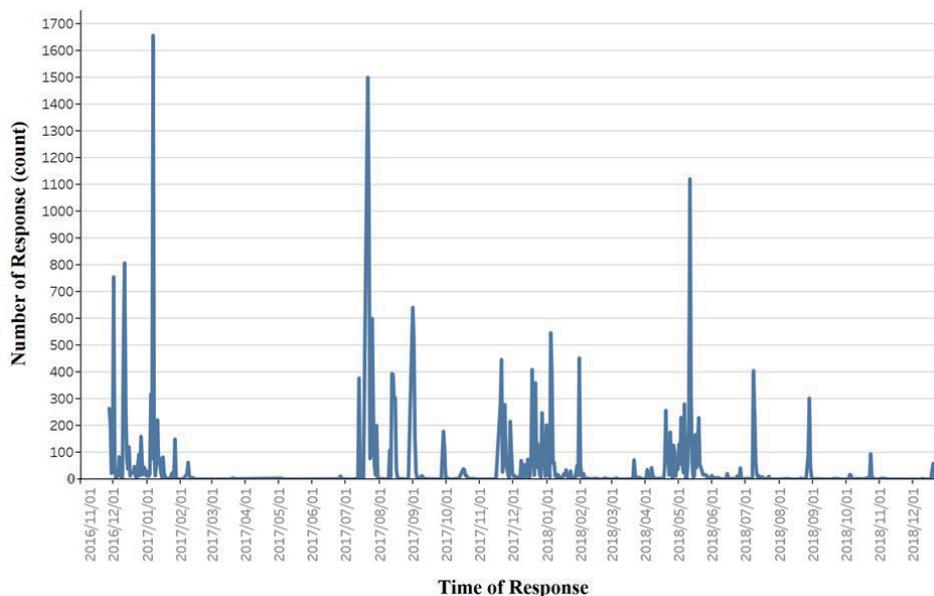


Figure 1. Overall Distribution of Share of Voice of the Military Circling Incidents

As shown in Table 1, the regression analysis results indicate a significant declining trend in the proportion of negative emotions in netizens' responses ($F = 55.043$, $df = 504$, $p < .001$). A line of best fit with the equation $Y = 3.816 + (-3.159 * \text{time})$ can be

deduced. Hence, this regression line can be used to predict if a significant decreasing trend exists in the proportion of negative emotions in the Taiwanese public towards the military circling incidents within the two-year period. In addition, the R^2 of the regression equation is .29, suggesting that 29 percent of the proportion of negative emotions expressed online can be predicted by the frequency of military encirclement patrols.

Table 1. Regression Analysis Results of the Proportion of Negative Emotions in the Share of Voice Regarding Military Encirclement Patrols

Predictor Variable	Unstandardized Coefficient		Standardized Coefficient		
	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
(constant)	3.816	.108		35.379	0.000***
Time	-3.159	.029	.314	-7.419	0.000***
	R^2			<i>F</i>	
	0.29			55.043***	

Note: *** $p < .001$

In contrast, an opposite trend can be observed with regard to the netizens' expression of positive emotions towards the military encirclement patrols. A simple linear regression analysis was performed to examine the proportion of positive emotions expressed by netizens during the period of military circling. As shown in Table 2, the regression analysis results indicate a significant increasing trend in the proportion of positive emotions in netizens' responses ($F = 14.352, df = 504, p < .001$) following the increase in frequency and duration of the circling. A line of best fit with the equation $Y = 6.67 + (0.17 * \text{time})$ can be deduced. Hence, this regression line can be used to predict the change in the proportion of positive emotions expressed online towards the military encirclement patrols. In addition, the R^2 of the regression equation is .19, suggesting that 19 percent of the proportion of positive emotions expressed online can be influenced by military circling incidents. In summary, the analysis results of positive and negative emotions indicate a steady decrease in the deterrent effects of the military circling incidents. The gradual decrease in negative emotions and the gradual increase in positive emotions suggest desensitization with respect to both sentiment indices.

Table 2. Regression Analysis Results of the Proportion of Positive Emotions in the Share of Voice of Military Circles

Predictor Variable	Unstandardized Coefficient		Standardized Coefficient		
	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i>
(constant)	6.67	0.23		19.717	.000***
Time	.17	.049	.167	3.788	.000***
	R^2			<i>F</i>	
	0.19			14.352***	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

According to the regression analysis results above, even though the share of voice of the Taiwanese public regarding the military encirclement patrols is influenced by the government's policy of disclosing information about the maneuvers, the proportion of negative emotions decreased with time in the share of voice for each circling incident. In contrast, the proportion of positive emotions expressed through online opinions increased. Such results are able to validate the hypotheses proposed based on desensitization theory. This shows that the general public had gradually become desensitized towards the military encirclement patrols following increases in duration and frequency of the circling incidents. The trend in the proportion of negative emotions is plotted in Figure 2 below.

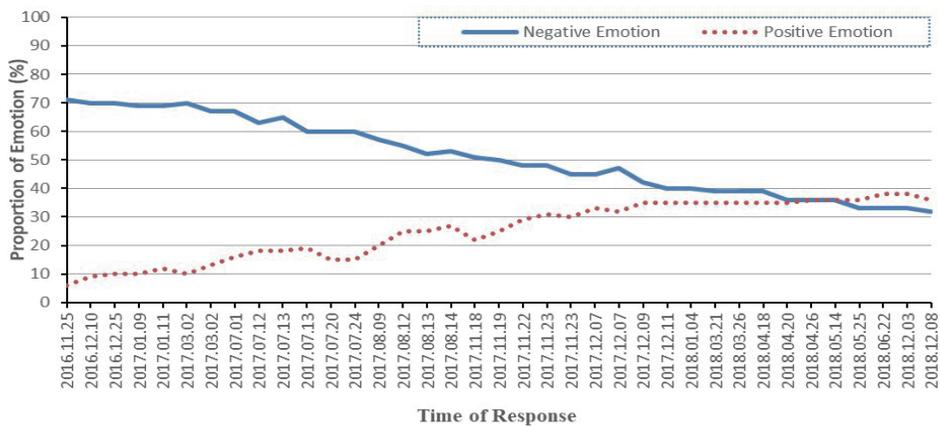


Figure 2. Trends in the Proportions of Negative and Positive Emotions

In fact, Taiwan has been dealing with China's long-term military deterrence efforts long before the PLA vessels and aircraft began circling around Taiwan. Therefore, this study suggests that, after President Tsai Ing-wen assumed office in 2016, the PLA attempted to threaten the Taiwanese public by amping up their circling maneuver operations. However, the public had gradually become accustomed to China's verbal intimidation and saber rattling. These findings are in line with those of previous studies. During the two missile tests in 1995 and 1996, the fear of the Taiwanese public towards the missile threats declined from the first to the second test.⁴¹ This shows that the sense of fear among the Taiwanese public towards the PLA's military deterrence had decreased after facing these threats for an extended period. Meanwhile, the long-term exposure to China's military deterrence had increased the expectations of the Taiwanese public that China would use its military to threaten Taiwan for the purpose of reunification.⁴² As a result, the Taiwanese public had become accustomed to the PLA's saber rattling, and this study further validated that there is a decreasing trend in the Taiwanese public's fear of China's military deterrence.

Validation of the Government's Disclosure Policy Factor

The author of this study further set the government's disclosure policy as an observed variable, so as to examine the effects of the government's disclosure policy on the overall response of the public. A one sample *t*-test was used for analysis. As shown in Table 3, the results indicate no significant differences (*t*-statistic = 725.18 (*df* = 621), *p* = .196 (> .05)) between the government's issuance of a press release and the media's divulgence of a military circling incident (no governmental press release). In other words, the government's issuance (as an intervention) of an official press release did not have significant effects on the general public's perceptions of the military encirclement patrols and the magnitude of their responses. The author then performed a *t*-test to validate the relationship between the government's disclosure policy and the public's negative emotions. As shown in Table 1, the results indicate a significant effect of the government's disclosure policy on the negative emotions (*t*-statistic = 876.49, *p* = .000 (< .05), effect size = .88). In addition, the public's negative emotions were greater during the government's disclosure of information (*M* = 973.28, *SD* = .34) than during the government's non-disclosure of such information (*M* = 521.35, *SD* = .21). To put it simply, the degree of negative emotions expressed by the Taiwanese public towards China's military encirclement patrols is related to the government's disclosure policy. The negative emotions of the general public were significantly higher when the government disclosed information regarding the military circling incidents than when the government kept the information confidential.

This shows that the government's disclosure policy did not significantly influence public attention towards information about the military encirclement patrols. A further analysis of negative emotions, however, showed that the government's disclosure policy had significant effects on the public's negative emotions. In other words, the government's decision to disclose information regarding the encirclement patrols has no effects on the public's attention towards the maneuvers.

These findings, however, are inconsistent with those of previous studies. The theories and research of Tumasjan, Andranik et al.⁴³ suggested that the information disclosed by the government is beneficial for reducing public attention and mitigating the sense of unease in a society. In contrast, this study revealed that the information disclosed by the government did not reduce public attention. Instead, the disclosure of information increased the sense of fear among the public. This contrast can be attributed to the fact that the theories and research of Tumasjan, Andranik et al.⁴⁴ were based on events that elicited high public concern. Since splitting from China in 1949, Taiwan has been dealing with China's military deterrence efforts, and consequently, its people have become accustomed to the PLA's deterrence efforts. Therefore, the government's disclosure policy has no effect on public attention. However, when the government decides to disclose information on a military circling incident, the general public will perceive that the situation has deteriorated, thus generating a higher sense

of fear. In contrast, when the government decided not to disclose information, or when the Ministry of National Defense passively disclosed such information only after the media had first divulged it, a military circling incident was perceived by the general public to entail a low level of threat, thus resulting in a relatively low sense of fear. In short, the countermeasures of the Taiwanese government to not disclose information regarding the military vessels and aircraft circling around Taiwan are relatively favorable for sustaining public composure, whereas the disclosure of information can easily generate a sense of fear among the public.

Table 3. Results of the Independent Sample *t*-Test on the Government's Disclosure Policy, Overall Share of Voice, and Share of Voice for Negative Emotions

	Mean (Disclosure)	Mean (No disclosure)	Standard deviation	Mean Standard error	<i>t</i> -statistic	Significance (2-tailed)	95% CI for the difference between means	
							Lower bound	Upper bound
Overall share of voice	1185	1093	36.69	0.0996	725.18	.196	2.011	2.963
Share of voice for negative emotions	973.28	521.35	28.23	0.09821	8768.49	.000	3.497	3.647

Conclusions

Since the 1949 split, China has never renounced the use of force to “liberate” Taiwan. In addition, there were constant low-intensity military confrontations between both sides in the years following the split, such as the 1958 Kinmen Artillery War (Second Taiwan Strait Crisis) during the Chiang Kai-shek administration and the 1996 missile tests (Third Taiwan Strait Crisis) during the Lee Teng-hui administration. In both crises, China attempted to deter Taiwan independence through its display of force and to create a political divide within Taiwan. President Tsai Ing-wen's Democratic Progressive Party government swiftly denied the existence of the 1992 Consensus (the former basis of dialogue between China and Taiwan) after its victory in the 2016 presidential elections and terminated all dialogues and interactions between both sides. In retaliation, China established the M503 flight route to reduce Taiwan's preparedness for air strikes and ordered military vessels and aircraft to circle around Taiwan, so as to strengthen its military intimidation efforts. In order to prevent Taiwan from falling for China's verbal intimidation and saber rattling and to avoid creating a sense of fear among the public, the Ministry of National Defense announced that effective as of December 20, 2017, it would stop disclosing information pertaining to

the military vessels and aircraft circling around Taiwan. This move was regarded as a countermeasure against China's implementation of psychological warfare through the encirclement patrols. This study analyzed the effects of the Ministry of National Defense's decision to stop disclosing information about the military circling incidents. The results showed that even though the decision had no significant effects on public attention towards the circling incidents, it significantly increased the negative emotions of the public. In other words, even if the Ministry of National Defense stopped disclosing relevant information, there would be no increase in the public attention towards the circles. However, this move would generate a higher proportion of negative emotions within the public. Hence, the Ministry's disclosure of information actually increases the effectiveness the PLA's deterrence efforts. Not only would the Ministry's policy of disclosing or issuing information on the military circling incidents be problematic in terms of maintaining social composure, it might be utilized by the PLA as a tool of propaganda and psychological warfare, increasing the sense of fear among the Taiwanese public towards the encirclement patrols. Conversely, the Ministry's policy of not disclosing or issuing information on the circling incidents would help reduce the deterrent effects of those incidents.

Next, the proportion of positive emotions expressed in online responses gradually increased over time, which indicates that after being exposed to information about the circling incidents for a long period of time, the deterrent effects of the circling incidents on the public gradually declined. This suggests that the Taiwanese public had become numb towards the incidents. It had become increasingly indifferent towards the information over time. Therefore, the PLA's regular encirclement patrols has failed to increase the psychological stress experienced by the Taiwanese public, as they have become desensitized after being exposed to such information over a long period of time. In fact, many previous studies have pointed out that China's military deterrence efforts have no impact on the Taiwanese public, and in some cases, these efforts have even generated counter-effects.⁴⁵ As a result, ever since 2004, China's verbal intimidation and saber rattling towards Taiwan during major Taiwanese elections had shifted to lukewarm, low-key, and indirect strategies. This suggests that China understands that its military deterrence efforts against Taiwan have limited effects. Even though we are unable to truly comprehend the intentions behind China's saber rattling against Taiwan, the results of this study are consistent with those from previous literature. As the Taiwanese public has been exposed to China's military deterrence efforts for a long period and the deterrent effects are remarkably limited, it has become numb towards information relating to deterrence efforts. Perhaps China's military actions against Taiwan are not an expression of its deterrence towards Taiwan's military and civilians, but merely carried out to show that the PLA would not sit idly by and let actions that further independence go unanswered. Its declared purposes could be greater than its essential significance. Therefore, the PLA hopes to utilize continuous military deterrence to numb the alertness of the Taiwanese public. By

drawing inspiration from the phrase, “When able to attack, we must seem unable,” the PLA hopes that Taiwan would misjudge the true intentions of the circling incidents, thereby undermining the alertness of the Taiwanese public towards its threats and facilitating its subsequent invasion plans.

From the perspective of strategic deterrence, the psychological effects of the military circling incidents depend on the Taiwanese government’s policy of disclosing or not disclosing the relevant information. If the government decides to disclose information, a sense of fear among the public is likely to develop. In other words, even though it is China that orders its military vessels and aircraft to circle around Taiwan as an act of verbal intimidation and saber rattling against Taiwan, the effects of these encirclement patrols are not controlled by China, but by the Taiwanese government. As long as the Taiwanese government decides to keep information regarding the circling incidents confidential, a sense of fear among the public would not develop.

However, since the collected data spanned a relatively short period of two years, the long-term psychological trends remain unclear. The author hopes to continue researching this field, so as to provide valuable information for strategic decisions or revisions of theories. With regard to theoretical implications, this study extended the validation scope of desensitization theory. With regard to the recommendations for future research, even though the present study utilized big data to determine the psychological responses of the general public to the military vessels and aircraft circling around Taiwan, a long-term, small-sample, observational panel study approach could also be utilized to further clarify the trends in the public’s psychological responses, as well as to confirm the causal effects between latent variables.

Another research limitation is that the researchers could not separate the online comments that were posted by the Chinese netizens or Taiwanese netizens. Further, national identification also could be a crux index to influence their propensity of online opinion expression. That is, the Taiwan netizens who identify themselves as a pro-Chinese or Taiwanese would trigger different results. The future study could include hybrid methods, such as panel study, online survey, and interview to provide evidence of this confounding variable.

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