

# Exploring the “Inoculated Spiral of Silence” Effect on the Formation of Public Opinion about Controversial Issues in Hong Kong

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## Abstract

The present study introduced the “Inoculated Spiral of Silence (ISoS)” effect in the context of Hong Kong, by exploring the effect of individual characteristics on the weaving relationship of inoculation and the spiral of silence associated with people’s attitude change and behaviour intention. An experiment was conducted with a two-wave survey to test the effect on the controversial issue of Article 23 of the Hong Kong Basic Law. The core findings from data analysis indicated that inoculation would generate more resistance to attitude change and promote more willingness to speak out in public. Moreover, inoculation would grow more resistance to attitude change for people highly involved in the issues, but would produce lower resistance to attitude change for the hardcore resisters. As an innovation of the study, testing “hardcore characteristics” in effect was the first time crossed past literature on the spiral of silence and inoculation to consider such a concept. The present study could further provide a better understanding of both the ISoS effect and public opinion in Hong Kong, introducing a novel perspective for academics and professionals to address issues of controversy with effective communication strategies of persuasion in various fields, such as political campaigning and public policymaking.

## Keywords

Inoculated Spiral of Silence, Public Opinion, Hong Kong, Article 23

## 1. Introduction

Throughout his writings, Darwin (1873) identifies two sides of human nature,

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one oriented outwards, the other inwards. The individual who is oriented outward conforms to social conventions, whereas the individual who is oriented inward conforms to his own nature.

Studies on these two sides of human nature have provided intriguing implications over the past decades. For instance, regarding personal nature, inoculation theory examines people's ability to resist prevailing external attitudes internally. Inoculation is a preventive strategy that reinforces personal attitudes, so that people are less susceptible to external influences (Pfau, 1997). More recent studies have introduced the Post-Inoculation Talk (PIT) as an internal cognitive process (Compton, 2013). The findings of PIT with self-others relations might be one of the connections between humans' personal and social natures.

At the same time, social nature has also been a vital aspect of research in numerous studies, including the spiral of silence theory. A core component of the spiral of silence is the fear of isolation. This theory asserts that deviant individuals are constantly at risk of being isolated by society, leading them to continuously monitor public opinion, which influences their public behaviour (Noelle-Neumann, 1993). Therefore, the basic assumptions of the theory are largely based on people's social nature.

There has been a call for more attention to the impact of people's social nature on their personal attitude changes (Mutz, 1989; Eagly & Chaiken, 1993). Therefore, the purpose of the study is to focus on the influence of social dynamics on personal perceptions of public opinion.

Combining these two theories may contribute to academic literature and democratic political practice. The spiral of silence is one of the most widely documented theories of public opinion. However, the spiral of silence theory suggests that people might become pessimistic towards a democratic system due to the dominance of winning side opinion, as pointed out by its founder Noelle-Neumann (1993). The democratic ideal of a well-informed, responsible citizen is limited in scope. As an effective prevention strategy (Pfau, 1997), utilisation of the inoculation may strengthen citizens' ability to resist attitude change forced upon them by "the winning opinion" in the spiral of silence process. Deliberative democracy could be enhanced by a more substantial public dialogue regarding controversial public issues.

Furthermore, the value of analysing the effect of inoculation in the spiral of silence is evident in getting insights into controversial issues such as Article 23 under the Basic Law in Hong Kong. In recent years, citizens of Hong Kong have reacted severely to the controversial Article 23 under the Basic Law, which prohibits such acts as treason, secession, sedition, subversion against the Central People's government, and theft of state secrets (HKSAR, 2020). Hong Kong society and other common law jurisdictions do not view secession or subversion as crimes. Many people argue that adding these concepts in Article 23 would inevitably adversely affect freedom of expression.

In Hong Kong, public opinion has been a prime consideration in developing government policies by obtaining a general picture of the common view and sup-

port from citizens who are requested for their opinions. Informed by the spiral of silence, however, it explains that the fear of isolation, neglect, or exclusion from a dominating social group could lead individuals to remain silent instead of voicing opinions. Under this circumstance, public opinion does not reflect the actual view of the majority, especially in Hong Kong, where people could be more likely to hold back their thoughts because of their traditional culture and custom. In order to alleviate the undesired condition, the inoculation theory (McGuire, 1961; Pfau, 1997; Compton & Pfau, 2005) associated with persuading and resisting persuasion by other people, in some ways, would contribute to a different process of public opinion, one not always be dominated by the stronger side. Applying inoculation in the spiral of silence is considered to offer a better solution to deliberative democracy in Hong Kong society. More substantial political deliberations and dialogue about public agendas would therefore be able to be held.

Former studies uncovered the effect of inoculation in the process of the spiral of silence and introduced an effect called “Inoculated Spiral of Silence (ISoS)”, in which inoculation was applied in the spiral of silence for applications on enhancing citizens’ political deliberation in democracy regarding political communication and public opinion research (Lin, 2003; Lin & Pfau, 2007). Previous studies examining the interrelationships between inoculation and the spiral of silence have explored and built-up conceptual relationships among essential weaving variables of the two theories, including attitudinal confidence, overt resistance, and willingness to speak out (Lin, 2003; Lin & Pfau, 2007).

However, those former studies leave room for other variables supporting the theoretical construct of weaving the two theories. Among these variables, fear of isolation and issue involvement may be key factors. “Fear of isolation” is negatively correlated with the probability of one’s willingness to speak out, whereas “issue-involvement” is not only a basic variable in inoculation theory but also an important concept to measure the “hard-core” in the spiral of silence theory. The present study intends to examine the greater implications of the two theories and expand the application of inoculation strategies in the spiral of silence. More discussions on those key variables will be provided later in the hypotheses section.

At the same time, former studies extend inoculation research to some international contexts, other than the US, where most inoculation studies apply. The present study aims to develop a new theoretical construct of the ISoS effect with innovative concepts and variables in the context of Hong Kong.

## **2. A Brief Review of the Spiral of Silence and Inoculation Theory**

Due to space limitations, this study will focus on discussions on weaving inoculation and the spiral of silence, utilising a literature review mainly to form hypotheses. Hence, the literature review for each theory will be briefed in this section,

while more discussions will be provided later.

The spiral of silence effect is the most outstanding part of Elisabeth Noelle-Neumann's (1974) first published theory of public opinion. For many decades, this impactful theory has triggered a considerable amount of research interests led to a wide range of publications all over the world up to recent adaptation for the social media era (Schulz & Rössler, 2012; Roessing, 2013; Hampton et al., 2014; Chen, 2018; Sohn, 2019). Most used in the fields of public opinion, political science, and mass communication, the spiral of silence theory is also highly applicable to other areas such as probing into the effects on reputation and brand of business organisations (Roessing, 2014). The understanding of people's social behaviours is based on three core assumptions: 1) fear of isolation, knowing what behaviours will increase the likelihood of being isolated; 2) reticent to express minority views, afraid of being isolated; and 3) quasi-statistical sense, a sixth-sense capable of feeling the prevailing public opinion. Almost instinctively, individuals can notice the majority or minority opinion of people around them in such a way that they would correspondingly shape their behaviour according to the prevalent attitudes that are largely considered acceptable (Noelle-Neumann, 1974).

As Noelle-Neumann (1993) noted, individuals are motivated to avoid social sanction and use a "quasi-statistical sense" to examine the distributions of others' opinions towards a public issue, allowing individuals to remain silent about their own views when they feel that present or future majority opinion opposes their positions on that particular issue. The mass media plays an intervening role in the process. When people view the mass media's position as consistent with theirs, it "confirms" their opinions as on the winning side, whereas people tend to perceive their opinions as losing ground in the general population if the media's position is against theirs. On the other hand, individuals perceiving a present or future trend in their favour are more inclined to voice their opinions in public. In the case of a divergence between perceptions of the present and future majority opinion, an individual's perception of the future will determine the extent to which the individual is willing to express himself (Noelle-Neumann, 1974, 1993).

In addition, the likelihood that people will voice their opinions in the long term is consistent with their perceptions of the majority opinion changes with time. Diminution of opinion expression occurs when individuals perceive their opinions to be in the minority, although it is possible that some people in the "actual" majority form an outside observer's viewpoint. Those people who perceive themselves as continuing to fall into the minority will, after a certain period, act out of fear of social isolation and remain silent on that public issue rather than risk social sanction by others (Neuwirth, 1995).

On the other hand, McGuire's inoculation theory (McGuire, 1961; McGuire & Papageorgis, 1962) mainly concerns the understanding of peoples' resistance to persuasion and attitude change. Initially developed during the post-Korean War era when American prisoners broke under pressure from North Korea, this in-

fluent theory has attracted renewed attention over the past decades (Pfau, 1997; Szabo & Pfau, 2002; Compton & Pfau, 2005; Banas & Rains, 2010; Compton, Jackson, & Dimmock, 2016). Based on an analogy of immunisation, the basic idea behind inoculation is under the assumption that through exposing individuals to messages consisting of an argument weaker than a particular attitude they have, it is feasible to produce an inoculative effect on them by promoting and building up their confidence against future attacks on that attitude (Pfau, 1997).

The pattern of inoculation essentially involves a core step known as refutational pre-treatments, which purposely introduces potential challenges to threaten a receiver's attitude while at the same time providing refutation against those challenges in the presence of a supporting environment. Through the pre-treatment process, the receiver's motivation to strengthen attitude is triggered for inducing greater resistance to subsequent counterarguments (Compton & Pfau, 2005). Two fundamental components are associated with the pre-treatment process, namely threat and refutational pre-emption. The threat component, the most important concept of inoculation theory, gives the forewarning of expected challenges that are powerful enough to intimidate the receiver's existing attitudes. The refutational pre-emption component, which is in the form of questioning and answering, involves initially raising specific challenges to the receiver's existing attitudes and then providing relevant responses to such challenges. These two components are constantly arranged to carry out one behind the other; the sequence follows the order of first alarming the threats to challenge the receiver's attitudes and then giving appropriate pre-emptive refutations against such threats (Pfau, 1997; Szabo & Pfau, 2002; Compton & Pfau, 2005).

### 3. Testing Hypotheses of the ISoS Effect

For the present study of testing the ISoS effect, the weaving relationship between inoculation and spiral of silence is considered the key issue of interest. In such effect, it is proposed that if people perceiving as on the losing-side in the spiral of silence process are inoculated, they will gain more attitudinal confidence; hence, their resistance to change is strengthened. In other words, people with pre-inoculation feel more confident towards their own attitude, making them more willing to speak out because of having stronger resistance developed to oppose attitude change. Therefore, the ISoS effect aims to provide an effective mechanism to reduce the spiral of silence impact on the decision-making process by strategically presenting multi-faceted information to influence specific attitudes of people.

Previous related studies have proven the effectiveness of inoculation on elevating attitudinal confidence and, therefore, higher resistance to influence and willingness to speak out (Lin, 2003; Lin & Pfau, 2007). The present study intends to further examine some essential variables in inoculation and the spiral of silence theories, fear of isolation, involvement, and the hard-core, in the weaving ISoS effect. Thus, in the present study, the development of a new conceptual con-

struct of the ISOs effect with innovated variables in the context of Hong Kong will be investigated. Related rationale and discussions are provided as follows.

The inoculation strategy has been suggested as a method for improving resistance to changes in attitudes and behaviours, thus reducing the effects of political attacks on receivers (Miller & Burgoon, 1973). This strategy has proven to be effective because receivers perceive threat component in refutational pre-treatments. As a result of this function, the motivation to reinforce arguments that support the receiver's attitude is heightened, thus producing resistance (McGuire & Pageorgis, 1962).

During the past few years, discussions regarding the internal and external effects of inoculation have been conducted via PIT about issues with families and friends after inoculation. Scholars are usually concerned that "counterarguing in inoculation is an internal process" (Pfau et al., 2006: p. 144). Nevertheless, some evidence shows that inoculation also triggers external dialogue (Compton & Pfau, 2005; Ivanov et al., 2012). People turn to their friends when threatened with inoculation for support or to share newly acquired refutational content. Discussion of the issue seems to strengthen their attitudes towards it (Compton & Pfau, 2005). The strengthened attitude also increases individuals' willingness to speak out in public in the process of the spiral of silence (Lin & Pfau, 2007).

In addition, according to Ivanov et al. (2012), post-inoculation talk is not only a by-product of inoculation but is also a major factor of resistance. Their study finds that inoculation increases talk regarding a particular issue, as well as bolstering resistance to following attacks. Clear et al. (2021) investigate inoculation mechanisms regarding healthy nutrition. Their results suggest that people process messages differently depending on their level of elaboration. There is a positive relationship between the elaboration of information and resistance processes such as post-inoculation planning, talking, and searching for information.

In particular, the factors of issue position, fear of isolation, and issue involvement could influence the outcome of willingness to speak out because they could affect the degree of effectiveness of inoculation strategies for increasing one's attitudinal confidence (Lin, 2003). People in both the winning and the losing opinion camps may enhance their confidence in their initial issue positions by providing appropriate inoculation treatments with equivalent arguments for both sides. However, a more noticeable confidence increase is expected among those people viewing their opinions to be on the losing side. The reason for this is that they see themselves as having weaker confidence on the issue prior to receiving inoculation treatments than those who perceive their opinions to be on the winning side.

Furthermore, an increased likelihood of resistance to subsequent counter-persuasion is expected when enhanced attitudinal confidence is coupled with a higher willingness to speak out (Lin & Pfau, 2007). Since higher confidence can promote a greater sense of superiority in one's attitudes, people would become even more willing to speak out in public as their argumentation skills continue to

improve via active discussions with others. Arguing with other people is a practising process that initially raises specific challenges to existing attitudes and then prepares for relevant answers accordingly. Therefore, people's resistance to attack can be made stronger with refutational pre-emption against subsequent attitudinal change (Pfau, 1997; Lin & Pfau, 2007).

As discussed above, this study views inoculation as enhancing people's attitudinal resistance to influence and the possibility of their willingness to speak out on the controversial issue of Article 23. Therefore, the following hypothesis is advanced:

***H1: As compared to those in the control group, inoculation generates more resistance to attitude change and more willingness to speak out in public for those who receive inoculation treatments.***

Involvement is an important concept in both spirals of silence and inoculation theories. For the spiral of silence theory, involvement relates to the notion of hard-core group members who are usually considered to be highly involved with an issue (Noelle-Neumann, 1993). In most inoculation studies, evidences suggest that higher level of involvement leads to more resistance (Pfau & Burgoon, 1988; Pfau et al., 1997). However, few inoculation studies explore the possibility that issue involvement would have interacted with inoculation strategies to further strengthen the degree of people's attitudinal resistance and, meanwhile, the willingness to speak out, the important variable informed by the spiral of silence.

When trying to intervene in the spiral of silence process using inoculation, various characteristics must be considered in association with specific contextual conditions that could affect the outcome. For example, depending on the level of involvement in the issue, people may or may not be inoculated as intended. Inoculation is expected to be more effective on highly involved people who tend to be more resistant to persuasion (Pfau, 1997). They would not fall silent even seeing themselves on the losing side of the public opinion, as their levels of involvement are high on particular issues. On the other hand, inoculation is anticipated to be inept at generating noticeable influence on people of low involvement. Inoculation effects would unlikely occur if involvement is too low since a certain degree of involvement is at least needed for sparking off threats to the receiver's attitude (Compton & Pfau, 2005; Pfau et al., 1997).

Moreover, for both spiral of silence and inoculation research, some evidence for the influence of involvement on attitude changes are examined and provided as follows. Petty and Caciopoo (1986) posit that more involvement increases one's likelihood of recognizing the vulnerability of one's attitudes and acting to strengthen them. The more involved a person is with an attitude, the more likely it is that they will exert the cognitive energy required to strengthen that attitude (Pfau et al., 1997). In addition, as Salmon and Neuwirth (1990) state, more involved people tend to be more likely to speak out in public. Thus, hypothesis two is formed:

***H2: For those who are highly involved in the issues, inoculation grows more resistance to attitude change.***



Former studies on the effect of ISoS have developed core variables and potential applications on political communication and public opinion research. In order to improve the nuance of the effect, some potential concepts require additional tests, especially examined in various international contexts. For example, the core variable of the theory of spiral of silence, fear of isolation, has not been examined thoroughly in previous studies.

People's willingness to speak out in public is essentially influenced by two variables: fear of isolation and attitudinal confidence. The correlations of these variables associated with one's willingness to speak out are usually understood that the fear of isolation is negatively correlated while the confidence of an individual's attitude is positively correlated (Noelle-Neumann, 1993). The effectiveness of inoculation in the spiral of silence on elevating an individual's attitudinal confidence has been significantly tested (Lin & Pfau, 2007). Following such reasoning, it is possible to deduce that strengthening attitudinal confidence with appropriate inoculation treatments can help decrease an individual's fear of isolation.

In addition, media content that promotes social support may decrease the fear of isolation, and this is included in the design of this study. Recipients of such inoculation messages may have more ammunition for counterarguments against oppositional opinions. Furthermore, this corresponds to Noelle-Neumann's (1993) concept of "articulation function". The following hypothesis is therefore postulated:

***H3: In the group of losing-side, people who receive inoculation strategies would have lower fear of isolation than those who do not receive the strategies.***

One of the essential concepts in the spiral of silence, called "the hard-core," also requires more research attention. Because of the lack of samples, which usually account for about 2% via the method of survey (Noelle-Neumann, 1993), the hard-core group will not be pronounced in most related studies. It is necessary to point out that although the hard-core group's perceived attitudinal threat by inoculation messages is low due to the ceiling effect between involvement and perceived threat, their resistance to attacks should still be at a high level. This is not because of the triggering function of threat but a result of being a hard-core group member. The characteristics of a hard-core person can be partly understood by the feelings of an avant-garde person, who regards isolation as a price he or she must pay. Therefore, over the peak of positively related involvement and attitudinal threat, although the hard-core people's attitudinal threat decreases due to the ceiling effect, they are expected to maintain resistance to counter-persuasions by their "hard-core characteristics" rather than by threat to attitudes. Thus, hypothesis four is formed as follows:

***H4: In the inoculated group, inoculation strategies would generate lower resistance to attitude change for the hard-core.***

Based on the consideration of various characteristics and relationships between inoculation and spiral of silence discussed above, a conceptual framework



depicted as **Figure 1** can be formulated to examine the possible interactions and outcomes under different condition.

## 4. Methods

### 4.1. Studying the ISoS Effect in the Context of Hong Kong

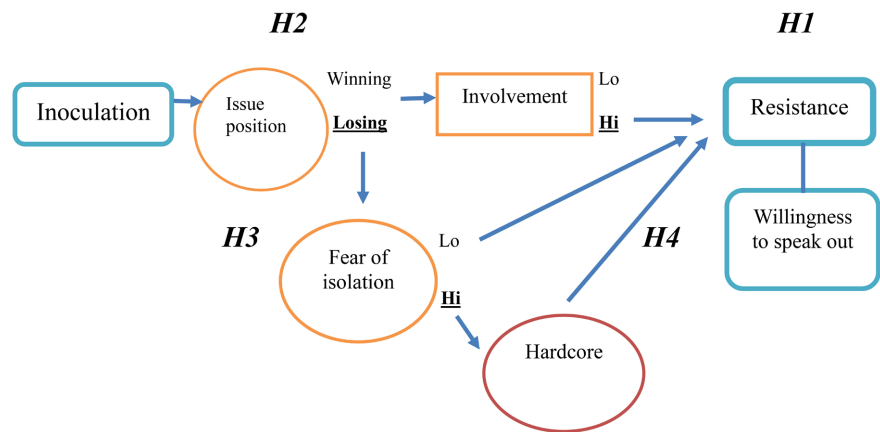
To further explore the ISoS effect under a specific condition, the present study attempts to examine its application in the context of Hong Kong by studying the effect of individual characteristics on the relationship between inoculation and people's changes in attitude and behavioural intention. The goal is two-fold: expanding the basic ISoS effect to gain a better understanding of the effect of individual characteristics, and testing the robustness of the effect applied in a different cultural and social background.

The Hong Kong Basic Law (HKSAR, 2020) has been serving as the de facto constitution of the Hong Kong Special Administrative Region (HKSAR) since 1997, when the UK passed the sovereignty of Hong Kong on to the People's Republic of China (PRC). Treason, secession, sedition, subversion against the Central People's government, and theft of state secrets are among the prohibited acts ruled by the controversial Article 23 under the Basic Law (HKSAR, 2020). In Hong Kong and other common law jurisdictions, secession and subversion are not crimes. Freedom of expression would be negatively affected by the introduction of these new concepts.

In February 2003, National Security Bill 2003 was proposed by the HKSAR Government to the Legislative Council. In response to the decision to publish the consultation paper for enacting Basic Law Article 23, the Hong Kong Journalists Association (HKJA) expressed regret. Considering Hong Kong's stable political environment and absence of any threat to state security, the HKJA has consistently maintained that enactment shouldn't be rushed (HKJA, 2003).

In June 2003, Civic Exchange sponsored The Public Opinion Programme (POP) at Hong Kong University to conduct a survey on the opinions of Hong Kong's people regarding the legislation of Article 23 under the Basic Law. This survey has shown that, between 23 and 25 June 2003, the people of Hong Kong were, overall, opposed to Article 23 legislation, both in principle and on practical terms. According to the poll, 55% oppose it in principle, 49% oppose the original proposal, 45% oppose the "National Security Bill", and 64% oppose setting a 9th July deadline for the new legislation (POP, 2003a).

Subsequently, a massive demonstration broke out on 1 July 2003, and the Civic Exchange again sponsored the Concern Group on Article 23 of the Basic Law for a follow-up survey to gauge public opinion on the legislation. While 54% opposed passing the bill, only 23% supported it. In response to the legislation for Article 23, 40% of respondents said they would continue their struggle in accordance with the law; 16% said they would defy the law (POP, 2003b). Since then, the public opinion against Article 23 implementation has always been the winning side, and the bill of implementing the article has not been reintroduced.



**Figure 1.** Interactive effects of inoculation and the spiral of silence.

In recent years, the Article 23 debate has been reignited in the context of the rise of pro-independence sentiments in Hong Kong (Tong, 2018a, 2018b). However, the majority view has been basically against the legislation of Article 23; it would probably take quite some time for the government to reintroduce the legislation of such a controversial law. The present study has taken Article 23 as the target issue because it has been one of the most controversial issues in Hong Kong and different people hold strong views about its legislation. Such controversy has been considered reasonably suitable for testing out the ISOs effect in the context of Hong Kong.

#### 4.2. Experimental Design

The present study employed the lab experiment as the main research method, which applied a design of full crossed  $2 \times 3$  factorial analysis of covariance. Two independent variables were examined: inoculation treatment with two groups (experimental and control); and involvement level with three intensities (low, medium, and high). The inoculation condition of participants allowed comparisons to be made between the two groups, in which the control group was given no treatment while the experimental group was presented with specifically designed inoculation messages. The pre-attitude was measured as the covariate.

The key dependent variables associated with the theories of inoculation and spiral of silence were examined in the present study, including perceived threat, post-attitude, fear of isolation, willingness to express one's opinions in public, and overt resistance to counter attitudinal attack. The measurement of the hardcore construct consisted of three variables in the survey, namely "issue involvement", "willingness to speak out", and "fear of isolation".

#### 4.3. Participants

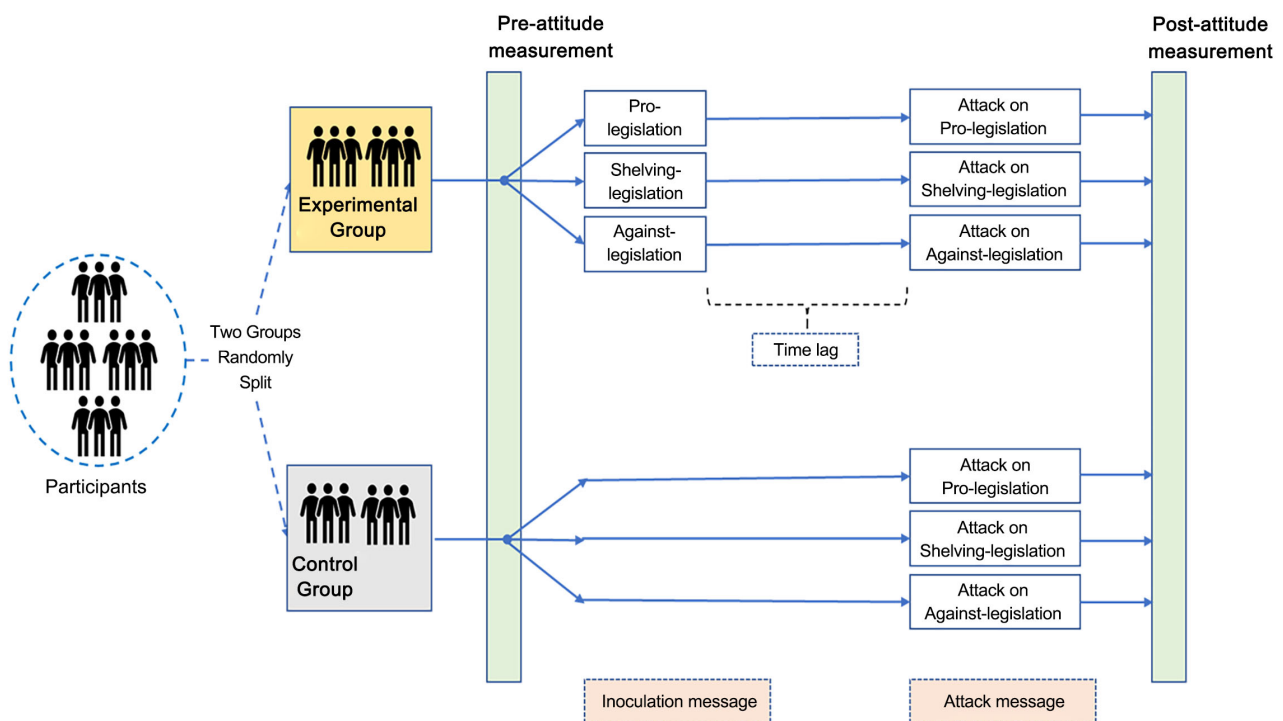
A sample size of 388 subjects participated in a two-wave experiment completed at a Hong Kong university in 2019. Among those subjects, 233 finished the two-wave experiment, giving a response rate of 60.05%.

#### 4.4. Implementation

This two-wave experiment was implemented with participants randomly selected to form an experimental group and a control group, as illustrated in **Figure 2**. In the first wave, participants of the experimental group were asked to finish a questionnaire on media exposure, issue involvement, and pre-attitude towards the issue before proceeding to read two inoculation messages tailored towards their own issue attitude. The second wave was conducted after a time-lag of two weeks; the participants were asked this time to read an attack message tailored towards their own issue attitude before proceeding to complete another questionnaire with similar items set for the first wave. For the control group, the same procedures as those for the experimental group were basically applied except that the participants read no inoculation messages during the first wave testing.

#### 4.5. Instruments of Measurement

Various scales of measurement used for measuring the relevant variables are as follows: Perceived Threat generated by inoculation messages was measured with five bipolar adjective pairs previously employed by **Pfau and Burgoon (1988)**. Post-attitude of the respondents was measured in wave-two using the same instrument as for pre-attitude in wave-one by following six scale items (a 7-scale measurement for each), which was previously employed by **Pfau and Burgoon (1988)** and **Pfau et al. (1990)**. Attitudinal Confidence in one's issue position was measured using a 0 - 100 probability scale. Willingness to Speak Out was measured



**Figure 2.** Two-wave experimental design.

by adopting the operationalisation of speaking out in public previously adopted by Sun (1991). Resistance to Attack was measured by employing three item 0 - 100 probability scales, patterned after scales, previously used by Pfau et al. (1992) and Pfau and Van Bockern (1994) in a health context. Fear of Isolation as the key trigger in the spiral of silence process was measured by applying a set of statements already analysed by factor analysis in Neuwirth's (1995) study.

#### 4.6. Message Construction

Three types of issue position (pro-legislation, against-legislation, and shelving-legislation) were identified for the participants regarding their attitudes towards the legislation of Article 23. Two kinds of inoculation messages, known as refutational-same and refutational-different, were designed for each of the issue position types. Six inoculation messages were therefore created for such a combination. In addition, three attack messages were also written in association with the type of issue position for triggering the threat to attitude change and willingness to speak. In total, 9 messages, 6 for inoculation, and 3 for attack, were developed for the experiment.

In relation to the topics and content of arguments, the refutational-same and refutational-different messages of inoculation were constructed differently. The refutational-same message was made up of arguments specifically matching the topics of subsequent attacks, while the refutational-different message was deliberately to present topics of arguments that differed from attacks regarding the same issue of controversy. The design of the first paragraph of each inoculation message contained a threat component that functioned as a forewarning of potentially harmful attack messages against a receiver's existing attitudes. This was done in accordance with the inoculation principle of applying threat to induce the receiver's motivation to uphold existing attitudes in order to become more resistant to subsequent attacks.

In addition to the inoculation messages, two tailor-made attack messages corresponding to the three different issue positions were also designed. The same format as the inoculation messages was used for the design of each attack message, where a general attack was deliberately introduced in the first paragraph, followed by two specific arguments in the second and third paragraphs for attacking the receiver's existing attitudes.

### 5. Results

#### 5.1. Manipulation Check on Inoculation Treatment and Opinion Climate

The purpose of the manipulation check is to address two fundamental questions: 1) ensuring the triggering of threat by the "stimulus" or treatment; and 2) confirming the opinion climate. One of the main indicators to look at manipulation check is associated with the threat to attitude, indicating that the treatment (inoculation messages) has been generated. To measure the triggered threat by the

inoculation messages, questions with a 7-scale measurement previously adopted by Pfau and Burgoon (1988) and Lee (1997) were used. As shown in **Table 1** summarising a comparison of the experimental condition means for all the dependent measures of the inoculation (experimental) group versus those of the control group, the result of Threat to Attitude is above average with respect to a total score of 7 as the maximum (3.99 for the Inoculation group and the Control group). This means the inoculation treatment generated similar threats above the average of 3.5 to both groups, which gives a good indication of an acceptable level for the triggering of threat.

The inoculation treatment also worked throughout the following process of administration and significant results showing by Post-attitude (2.37 for Inoculation group and 2.92 for Control group), Attitudinal Confidence (61.34 for Inoculation group and 52.15 for Control group), Willingness to Speak Out (43.39 for Inoculation group and 33.69 for Control group), and Resistant to Attack (61.57 for Inoculation group and 56.58 for Control group).

Double confirmation of the opinion climate was checked by asking respondents which issue position was being supported by the public and media to provide an indication for identifying the winning/losing side of public opinion on the Article 23 issue. For public opinion, 62.2 percent of the respondents considered against-legislation as the winning position, followed by 50.2 percent of shelving-legislation and 17.6 percent of pro-legislation as the mainstream position. Mass media's perceived position presented a similar pattern: 58.4 percent considering against legislation as the mainstream position; and 39.5 percent and 30 percent reported shelving-legislation and pro-legislation as the winning side, respectively.

## 5.2. Test of Hypotheses

For testing the hypotheses, Multivariate Analysis of Covariance (MANCova) and Analysis of Covariance (AnCova) were applied as the main statistical analysis methods. To check out H1 and H2, the following variables and covariates were used: the group and issue involvement served as the two independent variables; the pre-attitude as the covariate; and the resistance to attitude change and willingness to speak out as the two dependent variables. As shown in **Table 2**, the inoculated group was found significantly different in willingness to speak out and resistance to attitude change; H1 was supported. Issue involvement was found to have a significant influence on the resistance to attitude change, and post hoc analysis further suggested that high issue involvement generated a significantly higher level of resistance to attitude change; therefore, H2 was also supported.

To test H3, the subjects were divided into "winning side" (against-legislation) and "losing side" (shelving-legislation or pro-legislation) groups by their issue position. The losing side group was tested by the AnCova method, with inoculation condition as the independent variable and pre-attitude as covariant variable,

and fear of isolation as dependent variables. The result showed no significance between the experimental and control group; H3 was therefore not supported. To test H4, the subjects were divided into “hardcore” and “non-hardcore” groups by the mean of the hardcore score. Inoculation condition and the hardcore group were the two independent variables used to test their effect on resistance to attitude change, with pre-attitude serving as the covariate. As shown in **Table 3**, the hardcore group displayed a significantly higher level of resistance to attitude change; therefore, H4 was supported.

**Table 1.** Summary of experimental condition means for all dependent measures.

Dependent Measures	Inoculation Group			Control Group		
	Mean	SD	(n)	Mean	SD	(n)
Threat to Attitude	3.99	1.45	(123)	4.06	1.51	(110)
Post-attitude	2.37	1.30	(123)	2.92	1.48	(110)
Attitudinal Confidence	61.34	25.73	(123)	52.15	26.75	(110)
Willingness to Speak Out	43.39	22.99	(109)	33.69	22.35	(105)
Resistance to Attack	61.57	22.61	(109)	56.58	25.07	(105)
Fear of Isolation	3.69	.65	(122)	4.06	1.51	(110)

Note: For all above measures, higher numbers indicate higher score for the specific dependent variables, except for post-attitude in which lower numbers reveal greater strengths of participant’s attitudes in two-wave survey.

**Table 2.** MANCova result of inoculation condition and issue involvement on resistance to attitude change and willingness to speak out.

	Independent Variables		Covariate
	Inoculation Condition	Issue Involvement	Pre-attitude
	$F(R^2)$	$F(R^2)$	$F(R^2)$
<b>Main Effect</b>	.29 (.004)	2.37* (.03)	.82 (.01)
<b>Resistance</b>	.001 (.000)	4.78** (.06)	.65 (.005)
<b>Willingness to Speak</b>	.43 (.003)	1.69 (.02)	.17 (.001)

Note: N = 150, \* $P < .05$ , \*\* $P < .01$ .

**Table 3.** AnCova result of inoculation condition and hardcore on resistance to attitude change.

	Independent Variable		Covariate
	Inoculation Condition	Hardcore	Pre-attitude
<b>Effect on Resistance</b>	.41	60.39***	9.83**

Note: N = 150, \* $P < .05$ , \*\* $P < .01$ , \*\*\* $P < .001$ .

## 6. Conclusion and Suggestion

The present study attempted to test and extend the ISOs effect in the context of Hong Kong by considering Article 23 legislation as the controversial topic of the study. The results showed this effect generally fitted well in the context of Hong Kong where inoculation increased people's resistance to attitude change and willingness to speak out, which mitigated the process of the spiral of silence.

Overall, the study found that the use of inoculation enhanced resistance to attitude change and willingness to speak up in public, the two most important dependent variables in the spiral of silence and inoculation theories. In addition, inoculation led to a decrease in fear of isolation and an increase in issues involved in the process of the spiral of silence.

The study findings revealed that subjects in the inoculation condition perceived a greater threat than those in the control condition, which supported the argument that people would be more resistant to subsequent attacks and more likely to express their own opinions. It meant people would be more resistant to mainstream opinions and hold on to their own opinions when they encountered attacks or arguments from the winning side.

More importantly, the study findings also indicated that issue involvement and hardcore characteristics contributed to resistance to attitude change, which demonstrated the ingenuity of explicating how the individual characteristics work in the process.

However, part of the study results did not support the fear of isolation would be lower for people in the inoculated group on the losing side. In other words, the levels of fear of isolation in both inoculation and control groups were similar. In terms of the losing side group, the possible explanation was the unclear public climate in Hong Kong. Subjects reported very close percentages of the three positions on Article 23 issue, especially when asked to perceive the public opinion. Therefore, the close contest among the positions might make losing-side people less influenced by fear of isolation, and accordingly the resistance to attitude change and willingness to speak out, compared to those who did not receive inoculation treatments.

The study results have shown that the segmented groups of people may act very differently towards the same Inoculation messages. Under some conditions, for instance, the topic is attracting much attention or unclear opinion climate, people may be too involved or less feared that they might not be influenced by inoculation. Furthermore, the significant result of successfully testing the hypothesis of hardcore characteristics in this study is particularly encouraging as it is the first time ever crossed past literature and research on the spiral of silence and inoculation to have such a concept.

The present study has examined the robustness of the ISOs effect applying to the social context specific to Hong Kong society under the controversial legislation issue of Article 23 of the Basic Law, further suggesting the inoculation influence on the individual characteristics of the spiral of silence process across



different cultures and societies. Some key implications of the inoculation and the spiral of silence theories to the political and human communication fields are signified. Future applications of the construct of the ISoS effect, therefore, could be expected to develop in practical fields, for example, election campaigning, public policy promotion, and public relations.

Finally, there are some suggestions for this study for future research. First, in addition to the current design of the lab experiment, it would benefit the related literature if more subjects could be randomly surveyed and analysed to achieve better generalisability of the study findings. Second, the social contextual factors should be considered when analysing the result, for example, the political reality and the pressure on freedom of speech in Hong Kong, which may cause psychological pressure on people when they consider resisting or speaking out. Moreover, the latest approval by China's National People's Congress to directly impose a national security bill for Hong Kong (Lee, 2020; Tsoi, 2020; Li, 2020) has yet to create a different context which would probably require further investigation into the ISoS effect under a new situation of development.

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### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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