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[Translation]
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◆CONTENTS◆

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Perceptions of the COVID-19 Pandemic and Anxiety-Relieving Behaviors after the Lifting of the First State of Emergency in Japan: Comparing International Students from Mainland China and Others [1)]

Keywords:
International students, Lifting of the first state of emergency, Perceptions of the COVID-19 pandemic, Anxiety-relieving behaviors

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Abstract

This study aimed to examine differences in perceptions of the coronavirus disease 2019 (COVID-19) pandemic and anxiety-relieving behaviors after the lifting of the first state of emergency in Japan between mainland China international students (MCISs) and other international students (ISs). An online survey targeting ISs enrolled at four national universities in the Kanto region of Japan was conducted from early to mid-June 2020. Data from 333 ISs were analyzed, including 202 MCISs and 131 other ISs. The results indicated that MCISs started to pay attention to the COVID-19 pandemic earlier and collected relevant information more proactively than other ISs before the first state of emergency. However, MCISs used official media, such as television and newspapers, much less than other ISs. In addition, all ISs were able to cope with stress toward the COVID-19 pandemic by asking for help and advice from same-language speakers (SLSs). However, other ISs were able to ask for more help and advice from Japanese people than MCISs, and they engaged in more anxiety-relieving behavior than MCISs. Furthermore, although MCISs and other ISs used different social media to collect information, the usage and methods of coping with stress had similar positive effects on relieving anxiety for both MCISs and other ISs. Those who received less help and advice from SLSs and Japanese people struggled to relieve anxiety, particularly other ISs with lower levels of Japanese language proficiency.

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1. Introduction

This study aimed to investigate the relationship between international students' (ISs) perceptions of the coronavirus disease 2019 (COVID-19) pandemic and their anxiety-relieving behaviors, considering the effects of their demographics and media usage, and differences in these relationships between ISs from mainland China (MCISs) and other ISs.

Since the end of 2019, the COVID-19 pandemic caused by SARS-CoV-2, which began to spread from mainland China, has been affecting people's lifestyles. By the end of March 2020, Japan had the second highest infection rate in Asia outside mainland China. Therefore, the Japanese government had to take various measures to deal with this issue, including announcing the First Emergency Declaration on April 7, 2020. Since then, the Japanese government has implemented various infection prevention measures. While self-restraint associated with the state of emergency continues after almost two years, people's feelings of anxiety may not have decreased, increasing their susceptibility to both physical and mental exhaustion. In such a state, people may believe in rumors, hoax information, and fake news, which might have negative effects on people's safety (Fukunaga, 2018). Therefore, it is very important to clarify whether people can alleviate emotional anxiety by collecting information from various fields and adopting appropriate anxiety-relieving behaviors.

From April 2020, the Japanese government has proposed a new lifestyle to avoid the "three-Cs": closed spaces, crowded places, and close-contact settings (Prime Minister's Office of Japan, 2020). Therefore, most universities have taken measures such as shifting face-to-face (FTF) to online classes and suspending extracurricular activities, which have significantly changed students' campus lives (Ministry of Education, Culture, Sports, Science and Technology [MEXT], 2020). In other words, FTF communication, known as "primary voice culture," has been greatly restricted. In general, people maintain their physical and mental health by building good interpersonal relationships with others, sharing worries, and relieving stress through FTF communication (Sawada & Kuzumi, 2019). Therefore, this study investigated how people can obtain social support, especially emotional support, and relieve anxiety while minimizing FTF contact with others.

Traditionally, it was believed that people only receive instrumental social support, such as information collection, from computer-mediated communication (CMC), which has no effect on decreasing loneliness (Igarashi, 2002). In contrast, Ye and Ho (2022) found that people receive instrumental and emotional social support from Twitter. Although emotional social support did not improve subjective well-being, the findings were pre-COVID-19, which is vastly different from the current situation. Therefore, this study examined the effects of media usage on people anxiety-relieving behaviors.

Compared to Japanese students, ISs face more challenges during the pandemic. Owing to severe restrictions on cross-border travel, the number of part-time jobs available to ISs has decreased. Therefore, ISs with financial problems, such as lack of scholarships, might feel more anxious. In addition, many ISs cannot enter Japan or return home. Further, as most classes are conducted online, ISs have fewer opportunities to communicate with others, especially Japanese language speakers (JLSs), such as their academic

advisors and lab mates, inevitably increasing their online communication with same-language speakers (SLSs).

Ye (2017) found that male and female ISs who adapted well were able to form stable social support networks (SSNs) with other language speakers (OLSs), especially JLSs. In contrast, those who could not adapt well preferred to use more voice calls and instant messaging (IM) texts to communicate with SLSs. Ye (2018) indicated that ISs with higher levels of generalized trust were able to receive more social support from JLSs, which helped improve their sense of acceptance in Japan. However, no similar effects were detected for SLSs. Furthermore, Ye (2021) compared the effects of ISs' generalized trust toward out-group members, such as JLSs and OLSs, and group identification toward in-group members, such as people from the same country, and noted the following trends. (a) ISs' generalized trust toward JLSs and OLSs led them to receive more social support from JLSs and OLSs; however, only support from JLSs helped decrease feelings of stress in Japan, while no similar effects were found for OLSs' support. (b) ISs' group identification toward SLSs helped them receive more social support from SLSs, which, in turn, increased their feelings of stress, since social support differed from that of JLSs. (c) Non-Chinese ISs' group identification toward SLSs had no effect on social support from SLSs. These results suggest that ISs' generalized trust toward out-group members and group identification toward in-group members have different effects on their intercultural adaptation, and the effects of group identification toward in-group members differ between Chinese and non-Chinese ISs. The former form in-groups more easily than the latter, as nearly half (43.6%) of the ISs in Japan are from mainland China (JASSO, 2021).

Aside from mainland China, ISs in Japan come from Vietnam (22.3%), Nepal (8.6%), South Korea (5.6%), and Taiwan (2.5%) (JASSO, 2021). As such, it is easier for MCISs to receive social support from each other rather than from OLSs or JLSs. Other ISs might rely on OLSs, especially JLSs, to receive support to relieve anxiety, which may be expected, as they have fewer opportunities to communicate with others in person. In addition, since the COVID-19 pandemic has spread from mainland China, it is reasonable to believe that other ISs may have different perceptions toward it, especially attitudes toward media reports, compared to MCISs. Therefore, they may have different preferences for using media to collect relevant information. Compared with other ISs, MCISs may prefer not to collect information from Japan or other countries' media, even if they have high levels of Japanese or other language proficiencies.

In addition to the above factors, this study examined the effects of ISs' perceptions of health risk and social consideration consciousness. People with higher levels of health risks are more sensitive to illness and tend to collect more information to relieve their anxiety (Yamauchi et al., 2009). Similarly, people who are highly considerate of society as a whole would refrain from going outside unnecessarily and reduce the possibility of infection by staying home, resulting in behavioral adaptations that can relieve or eliminate their anxieties. As mentioned above, owing to different perceptions of the COVID-19 pandemic and attitudes toward various types of media, the social consciousness of Japanese society may differ between MCISs and other ISs. Therefore, it may have different effects on anxiety-relieving behaviors.

Moreover, this study also examined the effects of ISs' lifestyles on anxiety-relieving behaviors. People are commonly comforted by others when facing problems and anxiety. For instance, people are able to share opinions with each other when encountering fake news or rumors on the Internet or in other media sources. This would be easier for ISs who live with other people than those who live alone.

2. Research method

To examine the above issues, a self-report online survey was conducted from early to mid-June 2020)[2]. Questionnaires in Japanese, English, and Chinese (both simple and traditional) were used, which allowed the participants to select the version they wished to answer. The English version was translated by the author, and reviewed and proofread by a native English speaker. The two Chinese versions were translated by native Chinese speakers whose Japanese language proficiency was close to that of native Japanese speakers. All versions were confirmed by back translation. The participants were ISs enrolled at four national universities in the Kanto region of Japan. The questionnaire survey with four language versions were created using the Monkey Survey tool. We sent out the links of the survey with instructions to ISs who had participated in the project's previous surveys and who studied at our graduate school. In addition, we sent out an invitation to participate in the survey by email to ISs in other graduate programs at university. Moreover, we asked professors at other universities to share the links of survey. Before answering the survey, ISs were provided with written instructions and information regarding the storage of their data, informed consent, the voluntary nature of the participation, ability to withdraw without penalty at any time, and privacy and protection of personal information. In total, 367 ISs submitted responses. Responses from ISs outside of Japan were excluded. The remaining 333 responses were analyzed. The survey consisted of three parts. The contents were as follows.

Part A gathered personal information, including demographic data, such as gender, age, nationality, and academic standing, total length of stay in Japan, duration of learning of the Japanese language, level of Japanese language proficiency (score and level from the Japanese Language Proficiency Test [JLPT] and self-evaluation of Japanese language proficiency in reading, listening, speaking, and writing compared to an adult native Japanese speaker, reported as a percentage),[3] English language proficiency (score on TOEFL-iBT, TOEIC, and self-evaluation of English language proficiency in reading, listening, speaking, and writing compared to an adult native English speaker, reported as a percentage),[4] lifestyle,[5] and experience with and frequency of working part-time jobs (see Table 1 for details).

In addition, 17 items were chosen from Yamauchi et al., (2009) to measure respondents' perception of illness and health (hereinafter referred to as "perception of health risk"). Eleven items were chosen from Shimizu and Imae (1981) to measure emotional anxiety tendencies, and 10 items from Saito (1999) to measure social consideration consciousness. The responses were rated on a five-point Likert scale (5 = Strongly agree; 1 = Strongly disagree).

Part B addressed the period of when the participants started to pay attention to the COVID-19 pandemic,[6] including levels of active

information collecting (5 = Very active; 1 = Not active at all), frequency of information collection before, during, or after the first state of emergency per day, and the methods they used to obtain information.[7] In addition, ISs were asked to rate how anxious they felt toward COVID-19 (5 = Very anxious; 1 = Not anxious at all), and the reasons they felt this level of anxiety (Table 2). Furthermore, eight items from Ye (2021) were used to measure methods of coping with stress (5 = Very stressed; 1 = Not stressed at all; Table 5). Moreover, this study created 11 items to identify behaviors to relieve anxiety toward the COVID-19 pandemic (5 = Strongly agree; 1 = Strongly disagree; Table 6).

Part C measured the participants' use of media, including personal computers, smartphones, and tablets, and the amount of time spent daily accessing the Internet via these devices (8 = Over 12 hours; 1 = Don't use). [8] Furthermore, their daily usage frequency, purpose of use, and frequency of posting on social media, including LINE, Twitter, WeChat, and Facebook, were measured (Table 2).

3. Results

3.1 Descriptive results

The results indicated that most participants were from mainland China (60.7%), followed by Vietnam (4.5%), Indonesia and Brazil (2.7%), South Korea (2.1%), and the United States (1.8%), which is similar to the national survey results (JASSO, 2021).

Table 1 shows that there was no significant difference between the two groups in terms of lifestyle; however, there were many other ISs living in university dormitories. Regarding Japanese language proficiency, 63.4% of the MCISs passed JLPT-N1/L1, whereas only 16.8% of the other ISs passed JLPT-N1/L1. Regarding English proficiency, more MCISs took English tests, which was likely partly because some of the other ISs were native English speakers.

Furthermore, only 11.4% of the MCISs received scholarships, while 74.8% of the other ISs received scholarships. This revealed an economic disparity between the two groups. Moreover, only 20.6% of other ISs had part-time jobs, whereas 43.1% of the MCISs had part-time jobs. Therefore, MCISs had more opportunities to communicate with Japanese people.

Table 2 shows the participants' use of media and types of social media used. First, 59% of the MCISs spent less than six hours using the Internet, whereas 55.2% of other ISs spent more than six hours. Second, MCISs spent more time than other ISs using smartphones and tablets. Moreover, 98% of the MCISs used WeChat, 60% used QQ, and nearly half used Twitter and LINE, whereas nearly 80% of the other ISs used LINE and 60% used other social media platforms.

3.2 Perception of the COVID-19 pandemic and related behaviors

Table 3 shows ISs' perception and related behaviors of the two groups. First, 80% of MCISs started paying attention to COVID-19 before mid-January 2020, compared with only 42% of other ISs. The percentage of MCISs who answered "very anxious" or "somewhat anxious" was slightly higher than other ISs, and the percentage of MCISs who actively collected information was approximately double that of other ISs. Although the top four reasons for feeling anxious were the same for both groups, 80% of MCISs felt anxious because of "strong infectivity," which differed significantly from other ISs.

Table 1. Participant characteristics

Items	MCISs (202)	Other ISs (131)
Gender ratio	Men 38.1% Women 61.4% Other 0.5%	Men 50.4% Women 49.6% Other 0.0%
Age (in years)	24.5 years (*SD* 2.37)	28.4 years (*SD* 5.77)
Academic standing	Undergraduate 8.9% Master's 63.4% Doctoral 20.8% Other 6.9%	Undergraduate 19.8% Master's 41.2% Doctoral 37.4% Other 1.5%
Length of stay in Japan	27.9 months (*SD* 20.1)	29. months (*SD* 20.4)
Length of learning Japanese	43.6 months (*SD* 31.1) (JLPT-N1/L1 holders 128, 63.4%)	33.3 months (*SD* 45.7) (JLPT-N1/L1 holders 22, 16.8%)
English language proficiency test[2)]	TOEIC 52.0% TOEFL 39.6% IELTS 7.9% Other 0.0%	TOEIC 19.8% TOEFL 14.5% IELTS 29.0% Other 2.3%
Residence	University dormitory 20.3% Dormitory for ISs only 16.3% Private rental housing 62.9% Rental/house share for foreigners 0.5% Other 0.0%	University dormitory 34.4% Dormitory for ISs only 15.3% Private rental housing 43.5% Rental/house share for foreigners 4.6% Other 2.3%
Lifestyle	Alone 77.7% With other ISs 18.3% With family/relatives 1.0% With Japanese students 2.0% Other 1.0%	Alone 63.4% With other ISs 6.1% With family/relatives 19.1% With Japanese students 6.1% Other 5.3%
Scholarship	Yes 11.4% (MEXT % 60.9% Private 34.8% Other 4.3%) No 88.6%	Yes 74.8% (MEXT % 68.4% Private 9.9% Other 11.5%) No 25.2%
Part-time job	Yes 43.1% (*Mean* 12.7 hour per week) No 56.9%	Yes 20.6% (*Mean* 14.0 hour per week) No 79.4%

Furthermore, other ISs collected more information per day during the first state of emergency than before, and less after the state of emergency. In contrast, MCISs' frequency of collecting information decreased during the state of emergency.

Over 85% of the MCISs used WeChat to collect information regarding COVID-19, whereas 69.5% of the other ISs used Facebook. In addition, the percentage of MCISs using Twitter was much higher than that of other ISs. Moreover, although MCISs had higher levels of Japanese proficiency, they used official media, such as television and newspapers, much less than other ISs. Furthermore, nearly 50% of the MCISs collected information from university bulletin boards and emails, compared with only 10% of the other ISs.

3.3 Average scores and internal reliability for each scale and differences in two groups

This study confirmed the internal reliability of each scale by calculating Cronbach's α. Table 4 presents the detailed results for the two groups. The scales had extremely high reliability, except for the anxiety-relieving behaviors toward the COVID-19 pandemic of other ISs. As it was the

Table 2. Usage of media and social media

Items	MCISs (202)	Other ISs (131)
Internet time (computer)	0-2h 12.9% 2-4h 22.8% 4-6h 23.3% 6-8h 16.3% 8-10h10.4% 10-12h 5.4% Over 12h 5.0% Don't use 4.0%	0-2h 9.7% 2-4h 16.8% 4-6h 16.8% 6-8h 21.4% 8-10h 13.0% 10-12h 7.6% Over 12h 13.7% Don't use 1.5%
Internet time (smartphone)	0-2h 10.4% 2-4h 24.8% 4-6h 26.2% 6-8h 22.8% 8-10h 8.4% 10-12h 3.5% Over 12h 4.0% Don't use 0.0%	0-2h 16.8% 2-4h 32.8% 4-6h 18.3% 6-8h 14.5% 8-10h 5.3% 10-12h 3.1% Over 12h 8.4% Don't use 0.8%
Internet time (tablet)	0-2h 25.2% 2-4h 14.4% 4-6h 11.4% 6-8h 3.5% 8-10h 3.5% 10-12h 1.0% Over 12h 1.5% Don't use 39.6%	0-2h 13.0% 2-4h 6.9% 4-6h 3.8% 6-8h 3.1% 8-10h 1.5% 10-12h 1.5% Over 12h 1.5% Don't use 70.2%
WeChat: private/ group chat	0-2h 59.9% 2-4h 23.3% 4-6h 9.9% 6-8h 2.5% 8-10h 2.9% 10-12h 0.5% Over 12h 0.0% Don't use 2.0%	0-2h 13.0% 2-4h 4.6% 4-6h 0.0% 6-8h 0.0% 8-10h 0.8% 10-12h 0.0% Over 12h 0.0% Don't use 81.7%
WeChat: Moment	0-2h 66.3% 2-4h 12.9% 4-6h 6.4% 6-8h 1.5% 8-10h 1.0% 10-12h 0.0% Over 12h 0.0% Don't use 11.9%	0-2h 6.9% 2-4h 0.8% 4-6h 0.0% 6-8h 0.0% 8-10h 0.0% 10-12h 0.0% Over 12h 0.0% Don't use 92.4%
Twitter	0-2h 48.5% 2-4h 3.5% 4-6h 1.0% 6-8h 0.5% 8-10h 0.0% 10-12h 0.0% Over 12h 0.0% Don't use 46.5%	0-2h 26.7% 2-4h 6.1% 4-6h 0.8% 6-8h 3.1% 8-10h 0.8% 10-12h 0.8% Over 12h 0.8% Don't use 61.1%
LINE: private/ group chat	0-2h 62.4% 2-4h 3.5% 4-6h 0.0% 6-8h 0.0% 8-10h 0.0% 10-12h 0.0% Over 12h 0.0% Don't use 34.2%	0-2h 58.8% 2-4h 10.7% 4-6h 4.6% 6-8h 2.3% 8-10h 0.8% 10-12h 0.8% Over 12h 0.8% Don't use 22.1%
LINE: Timeline	0-2h 12.4% 2-4h 0.0% 4-6h 0.5% 6-8h 0.0% 8-10h 0.0% 10-12h 0.0% Over 12h 0.0% Don't use 87.1%	0-2h 14.5% 2-4h 2.3% 4-6h 0.8% 6-8h 0.0% 8-10h 0.8% 10-12h 0.0% Over 12h 0.0% Don't use 81.7%
QQ	0-2h 49.5% 2-4h 8.4% 4-6h 1.5% 6-8h 0.5% 8-10h 0.0% 10-12h 0.0% Over 12h 0.0% Don't use 40.1%	0-2h 83.2% 2-4h 0.0% 4-6h 0.0% 6-8h 0.0% 8-10h 1.5% 10-12h 0.0% Over 12h 0.0% Don't use 99.2%
Other	0-2h 18.8% 2-4h 2.5% 4-6h 0.5% 6-8h 0.5% 8-10h 0.0% 10-12h 0.0% Over 12h 0.0% Don't use 77.7%	0-2h 21.4% 2-4h 16.8% 4-6h 13.0% 6-8h 3.1% 8-10h 0.8% 10-12h 1.5% Over 12h 3.1% Don't use 40.5%

first time these items were measured and it seemed necessary to improve their internal reliabilities, it was considered acceptable if Cronbach's α was higher than .50 (Oshio, 2020). Therefore, this study used the total score for each scale in subsequent analyses.

Table 5 presents the details of ISs' methods of coping with stress, using the scale based on Tanaka (2000) and Ye (2021). Higher the scores indicated that they coped with stress well. In particular, this study compared the differences and similarities between MCISs and other ISs by

Table 3. The participants' perceptions of the COVID-19 pandemic and related behaviors

Items	MCISs (202)	Other ISs (131)
Period started to pay attention	Before mid-late Jan.78.7% Mid-early Feb.15.3 % Mid-late Feb. 3.5 % Early Mar. 0.5% Mid-late Mar. 2.0%	Before mid-late Jan. 42.0% Mid-early Feb.26.0% Mid-late Feb. 14.5% Early Mar.6.9% Mid-late Mar. 10.6%
Degree of anxiety regarding COVID-19	Very anxious 18.3% Slightly anxious 60.4% Neutral 6.9% Somewhat anxious 12.9% Not at all 1.5%	Very anxious17.6% Slightly anxious 51.1% Neutral 12.2% Somewhat anxious 15.3% Not at all 3.8%
Reasons for feeling anxious	Strong infectivity 81.4 % No silver bullet 58.8 % Chance of death 51.3% Chance of recurrence 32.7% Possibility of infecting others 55.3% Chance of being infected but asymptomatic 63.3% Do not feel anxious 6.5%	Strong infectivity 48.8 % No silver bullet 58.1 % Chance of death 41.1% Chance of recurrence 29.5% Possibility of infecting to others 48.8% Chance of being infected but asymptomatic 55.0% Do not feel anxious 10.1%
Aggressiveness of information collecting	Very 25.2% Slightly 46.5% Neutral 12.9% Not very 14.4% Not at all 1.0%	Very 13.7% Slightly 42.0% Neutral 30.5% Not very 9.9% Not at all 3.8%
Information collecting /Before	Over 10 8.4% 6-10 12.4% 3-5 22.8% 1-3 39.1% Seldom 17.3%	Over 10 3.1% 6-10 6.1% 3-5 19.8% 1-3 45.8% Seldom 25.2%
Information collecting/During	Over 10 5.4% 6-10 8.4% 3-5 22.3% 1-3 49.0% Seldom 14.9%	Over 10 6.9% 6-10 9.9% 3-5 29.8% 1-3 45.8% Seldom 7.6%
Information collecting /After	Over 10 3.0% 6-10 3.0% 3-5 10.9% 1-3 45.0% Seldom 38.1%	Over 10 1.5% 6-10 6.1% 3-5 14.5% 1-3 48.1% Seldom 29.8%
Ways for information collecting	Twitter 47.5% Instagram 5.9% Facebook 7.4% LINE News 20.8% Weibo 85.1% Other online articles 50.0% Television 21.8% Radio 3.5% Newspaper 10.4% Others 3.0% Talking with family/relatives 44.1% Emails/texts from family/relatives 39.1% Taking with friends/acquaintances 39.6% Emails/texts from friends/acquaintances 48.0% University bulletin boards/emails 48.5%	Twitter 29.0% Instagram 18.3% Facebook 69.5% LINE News 13.0% Weibo 2.3% Other online articles 55.0% Television 29.0% Radio 1.5% Newspaper 27.5% Others 11.5% Talking with family/relatives 44.3% Emails/texts from family/relatives 23.7% Taking with friends/acquaintances 42.0% Emails/texts from friends/acquaintances 27.5% University bulletin boards/emails 12.2%

conducting *t*-test (independent sample), and found that, compared with MCISs, other ISs received more social support from JLSs and tended to entertain themselves by posting things on social media, which helped them decrease stress.

Table 6 presents the details of the anxiety-relieving behaviors examined in this study. Higher the scores indicated that they engaged in more behaviors to relieve anxiety. In order to clarify the differences between MCIS and other ISs, this study conducted *t*-test (independent sample). As a result, it was found that other ISs relieved their anxiety by communicating with others, collecting relevant information and exercising more than MCISs.

Table 4. Internal reliability for each scale in two groups

Names of the scale	MCISs	Others
1. Perception of health risk	.90	.92
2. Emotional anxiety tendency	.91	.92
3. Social consideration consciousness	.96	.90
4. Methods of coping with stress	.60	.61
5. Anxiety-relieving behaviors	.65	.59

Table 5. Methods of coping with stress

Items	Mean	
	MCISs	Others
1. Seek advice and help from other international students or friends from the same country	3.07	3.34
2. Seek advice and help from Japanese people	1.94	2.61**
3. Try to change myself according to the situation	3.95	3.90
4. Entertain myself by posting something on social media	1.77	2.50**
5. Complain to my friends from my country, or go out for a meal with them	2.25	2.15
6. Complain to my Japanese friends, or go out for a meal with them	1.59	1.79
7. Exercise	3.43	3.60
8. Concentrate on my hobbies, studies, or research	4.17	4.37

Note: $^{**}p < .01$.

Table 6. Behaviors to relieve the anxiety toward the COVID-19 pandemic

Items	Mean	
	MCISs	Others
1. Communicate with family and friends and share information and concerns with each other	3.60	4.13***
2. View related information on Twitter, Facebook, LINE, etc.	3.44	3.73*
3. Post my thoughts and feelings about COVID-19 on Twitter, Facebook, LINE, WeChat, etc.	2.15	2.33
4. Try to collect more accurate information	3.85	4.20**
5. Exercise	3.49	3.84*
6. Sleep well	3.67	3.87
7. Eat foods that are good for improving my immunity	3.71	3.95
8. Try to stay home as much as possible	4.49	4.43
9. Watch shows and movies at home	4.02	3.62**
10. Immerse myself in other things without searching for information on COVID-19	2.68	3.14**
11. Online shopping	3.31	2.98*

Note: $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

3.4 Factors that influenced ISs' anxiety-relieving behaviors

This study aimed to clarify the relationship of ISs' perceptions of the COVID-19 pandemic and their anxiety-relieving behaviors and identify differences in these relationships between

MCISs and other ISs. In particular, it was believed that ISs with higher levels of perception of health risk, emotional anxiety tendency, and anxiety toward COVID-19 would have more anxiety-relieving behaviors. It was predicted that this would be more obvious for those who lived alone, had more financial concerns, and received less social support from JLSs and SLSs. To examine this, this study conducted multiple regression analysis, taking the total score of anxiety-relieving behaviors as a dependent variable, and their demographics, perception of health risk, emotional anxiety tendency, social consideration consciousness, use of media and social media, perception of COVID-19, frequency of collecting relevant information, and methods of coping with stress (including social support from SLSs and JLSs) as independent variables.[9] Table 7 presents the significant variables of the two groups.

Some similarities were found, such as the use of social media to collect information about COVID-19, and methods of coping with stress toward COVID-19, which demonstrated positive effects on relieving their anxiety. Conversely, ISs received less social support and had to engage in other behavioral adaptations to relieve their anxiety. However, no effects for their financial anxiety (scholarship), perception of health risk, emotional anxiety tendency, and social consideration consciousness were found, which was unexpected.

Furthermore, there were some differences between the two groups. For instance, lower levels of Japanese language proficiency and less time using computers to access the Internet led other ISs to require additional anxiety-relieving behaviors. In contrast, MCISs who lived with others, who exhibited a higher degree of anxiety toward the COVID-19 pandemic, and collected information more actively exhibited more anxiety-relieving behaviors.

Table 7. Factors that influenced anxiety-relieving behaviors in the two groups

Variables	MCISs (β)	Other ISs(β)
Japanese language proficiency	*ns*	-.17*
Lifestyle	.11*	*ns*
Anxiety toward COVID-19	.28**	*ns*
Active information collection	.19**	*ns*
Numbers of using social media to collect information	.11*	.23**
Time using WeChat (moment)	-.24**	*ns*
Total time using social media	.18*	*ns*
Internet access time via computer	*ns*	-.17*
Methods of coping with stress	.65***	.80***
Social support from SLSs	-.26**	-.28*
Social support from JLSs	-.22**	-.24*
Goodness of fit of the model (R^2 and significance)	.52*	.36*

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

4. Discussion

This study investigated the relationship between ISs' perceptions of the COVID-19 pandemic and their anxiety-relieving behaviors, including the effects of their demographics and media usage, as well as the differences in these relationships between MCISs and other ISs.

Compared to other ISs, MCISs paid attention to COVID-19 from an early stage and had higher levels of emotional anxiety towards it; therefore, they collected relevant information more actively even before the lifting of the first state of emergency. This might be partly because Wuhan City was locked down in late January 2020, which increased tension throughout mainland China. However, with the cancellation of the state of emergency, both groups' frequency of collecting information on COVID-19 decreased. This might be because their anxiety toward COVID-19 was alleviated by a decrease in the number of infected people.

The results showed that although MCISs had higher levels of Japanese proficiency, they used official media, such as television and newspapers, much less than other ISs. Although all the ISs analyzed in this study remained in Japan, 85% of the MCISs used WeChat, whereas nearly 70% of the other ISs used Facebook to collect relevant information on COVID-19. These findings support the assumption that ISs from different countries and regions have different preferences for media, including social media. In Japan, there are no limitations on accessing social media, such as Facebook and Twitter; however, MCISs prefer to use WeChat to collect relevant information, which might relate to their group identification and attitude toward the COVID-19 pandemic. One of the main reasons for this might be that MCISs can use Chinese to communicate with other Chinese people without physical limitations to share their concerns and receive social support, especially emotional social support. This type of communication might lead most MCISs to believe what the Chinese government claims. In this sense, media usage strengthens homogeneity of in-group members. In contrast, as Facebook is still the most popular social media platform in the world, it might be one of the most convenient methods to communicate with others to receive necessary social support and collect relevant information from all over the world, which might help broaden horizons and accept different opinions toward the COVID-19 pandemic. However, it is necessary to note that this study did not investigate the credibility of various social media platforms, the participant' levels of trust toward each media, and the languages they used to communicate with others and collect information. As it is possible that accepting uncertain information on social media might lead users to feel more anxious, it is necessary to examine these in more detail in the future. Thus, future studies should investigate ISs' levels of trust toward media and social media and the language used to communicate and collect information.

Furthermore, utilizing more behaviors to cope with stress toward COVID-19 led ISs to exhibit more anxiety-relieving behaviors. However, less support, such as help and advice from SLSs and JLSs, led them to exhibit more behaviors to relieve their anxieties, which was the same in both groups. Ye (2018) indicated that only social support from JLSs improved ISs' sense of acceptance in Japan. In addition, Ye (2021) pointed out that social support from JLSs had a positive effect on decreasing ISs' feelings of

stress, whereas social support from SLSs increased their feelings of stress in Japan. However, these implications were related to understanding Japanese culture and feeling accepted by the Japanese society. This study revealed that social support from SLSs decreased ISs' anxieties toward the COVID-19 pandemic, as it had no relationship with a better understanding of Japanese culture or feelings of acceptance by Japanese people. However, as social support from SLSs led ISs to feel more stressed, this may not change easily even after the COVID-19 pandemic; therefore, it is necessary to consider a way to maintain a good balance in the future.

Moreover, other ISs had lower levels of Japanese language proficiency, with less than 20% of them having passed JLPT-N1/L1. The lack of Japanese language proficiency may have contributed to receiving less social support and collecting less information. Therefore, it may be necessary to improve the Japanese proficiency of other ISs in the future.

Interestingly, although the percentage of other ISs living with others was higher than that of MCISs, only MCISs who lived with others adopted more behaviors to relieve their anxieties, which was unexpected. A possible reason might be that most other ISs lived with family or relatives, while most MCISs lived with other ISs, as Table 1 indicates. This suggests that emotional support from family and relatives may differ from that of ISs.

Finally, ISs' perception of health risk or social consideration consciousness did not exhibit significant effects. This may be because these two variables were less significant than others. This phenomenon requires further investigation in the future.

5. Implications and future work

5.1 Implications

This study was conducted from early- to mid-June 2020, immediately after the first state of emergency was lifted. The results indicated that MCISs and other ISs had different perceptions of the COVID-19 pandemic and adopted different behaviors to alleviate their anxiety. These findings are expected to be useful when considering the type of education and social support required for the two groups in the future. In particular, maintaining a good balance between FTF and online communication and social support for ISs from SLSs and JLSs are important issues that merit consideration even after the COVID-19 pandemic.

5.2 Future work

This study did not investigate what language ISs used to collect information, and the relationship between these and their attitudes toward various media, including social media. In addition, as the COVID-19 pandemic continues, there are symptoms such as "corona habituation" and "corona fatigue." Therefore, the long-term impact of the pandemic using a wider range of samples should be examined.

Notes

1) Segments of the results have been reported in 2020 National Conference for the Society of Socio-Informatics and IEICE Human Communication Science in October 2021.
2) The survey was conducted with the approval of the Research Ethics Review Board at Faculty of Library, Information and Media Science, University of Tsukuba.
3) Japanese language proficiency was calculated as

follows: (a) For ISs that had passed JLPT-L1/N1, it was calculated as L1 score/400 or N1 score/180. (The total score of L1 is 400, while that of N1 is 180.); (b) For ISs that had passed JLPT-L2/N2, it was calculated as L2 score/400 × .08 or N2 score/180 × .08. (L2/N2 level is approximately 80% of L1/ N1's.); (c) For ISs who did not pass JLPT 1/2, it was calculated as (self-evaluation percentage of "listening" + "speaking" + "reading" + "writing")/400.

4) English language proficiency was calculated as follows: (a) for ISs who had taken TOEIC: their score/ 990; (b) for ISs who had taken TOEFL-iBT: their score/120; (c) for ISs who had taken IELTS: their level/9; (d) for ISs who had taken multiple tests, their average percentage from (a) and/or (b) and/or (c) was used; (e) for ISs who had not taken any test, proficiency was calculated as (self-evaluation percentage of listening + speaking + reading + writing)/400.
5) Regarding their living style, "living alone" was coded as "1" and living with others was coded as "2" in the analysis.
6) Regarding the period of started to pay attention to the COVID-19 pandemic, "Before mid-late January" was coded as 5, "Mid-late February" was coded as 3, and "Mid-late March" was coded as 1.
7) Their frequency of information collecting was calculated monthly as below: "over 10" was counted as 300, "6-10" was counted as 240, "3-5" was counted as "120", "1-3" was counted as 60, and "seldom" was 0.
8) The use time of media/social media was converted monthly as follows: "over 12 hours" was 360, "10–12 hours" was 330, "8–10 hours" was 270, "6–8 hours" was 210, "4–6 hours" was 150, "2–4 hours" was 90, and "less than 2 hours" was 30.
9) Since "gender" is a nominal scale, this study coded male as "0", female as "1", and other as "2" when conducting analysis.

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Translation

Comparative Analysis of the Operation of Social Media Channels by 156 Foreign Embassies in Japan: Focusing on the use of Twitter and Facebook Accounts in Communication with Japan

Keywords:
Public Diplomacy, Digital Diplomacy, Social Media, Embassies in Japan, Twitter

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Abstract

Governments and embassies in various countries have opened social networking accounts and are engaged in online communication activities. Social media usage plays a significant role in diplomacy today. However, research on online communication by foreign countries with Japanese society is not sufficient to advance the substantive discussion.

This paper aims to understand the actual situation of online diplomatic communication with Japanese society conducted by 156 countries that have embassies in Japan through a comparative analysis of their operations of social media channels. First, this study investigated whether the 156 embassies have opened accounts on the two platforms, Facebook and Twitter. The study identified 89 Twitter accounts and 99 Facebook pages of 119 embassies based in Tokyo, and reviewed the openings of these accounts starting from the early days of social media. Then, a detailed analysis of the Twitter accounts was conducted—the accounts were mapped according to the correlation between the average monthly growth of followers, the average monthly number of tweets, and the degree to which Japanese language was used in the tweets of each account.

The results revealed that more than three-quarters of the 156 countries are on social networking sites. In contrast, only a limited number of countries use social media as a public diplomacy tool to communicate with the Japanese public. In addition to major Western countries, medium and small countries tweeting in Japanese are also considered relatively strategic in operating their accounts.

1. Introduction

More than a decade has passed since the United States—under the guidance of the Secretary of State, Hillary Clinton—pioneered the use of digital technology in diplomacy. Now, in a trend that seems unlikely to reverse itself, diplomatic actors from various countries are competing in the communicative sphere of social media, just as in the private sector.

Diplomacy was originally conducted by the government of one country with those of other countries as its counterparties. In contrast to such traditional diplomacy, public diplomacy—a new form of diplomacy that targets the general public of the counterpart country—has become an important factor in diplomacy since the First World War.

Spry (2020: 94) regards the incorporation of an interdisciplinary approach as a characteristic of the development of public diplomacy studies over the past two decades. He indicates that the emergence, characteristics, and challenges of the new public diplomacy, which emphasizes public engagement and interactive communication in both normative values and practical strategies, have been examined in terms of a transition from one-way to two-way communication, often coinciding with the study of public relations (Spry 2020).

Regarding the idea that the new public diplomacy theory is normative in that it represents what is considered an "ideal" approach to contemporary diplomacy rather than reflecting its degree of empirical practice, Pamment (2013) considers verifying this theory through an inductive approach a challenge.

Directing our attention to the activities of foreign countries toward Japan, we can confirm the active social media presence of embassies in Japan, although the actual state of affairs remains unclear. This paper presents a comparative analysis of the social media activity of embassies in Japan, focusing on communications directed toward Japan, with the aim of examining how foreign embassies communicate with and exert influence on their host country through their social media presence. This study identifies and analyzes 89 Twitter accounts and 99 Facebook pages maintained by the embassies of 119 countries. This examination of social media usage by embassies in Japan determines the significance of foreign embassies' social media communications with the Japanese public and clarifies the current state of public diplomacy as it is practiced through social media.

2. Situating the Present Study in the Existing Literature

2. 1 Public diplomacy and new public diplomacy

Public diplomacy is often "broadly understood as an activity for 'winning hearts and minds' in other nations and international public opinion" (Watanabe 2014: 6). The scope and content of its practice are wide-ranging. It is also a relatively new topic of focus of academic research. As noted by Fitzpatrick (2010), referring to a review of more than 150 definitions of public diplomacy, previous studies have interpreted the notion variously, ranging from narrow to broad.

However, no unified definition has been established. In this paper, following the definition proposed by Banks (2020: 64), public diplomacy is conceived as being "an international actor's policy-based communication activities designed to understand, engage, inform, and influence foreign publics in support of national/institutional

interests."

In keeping with its development, public diplomacy is characterized by two major conceptual frameworks. The first framework is primarily concerned with the unilateral dissemination of information by a government to the citizens of another country and is considered to have originated in the United States during the First World War. The second framework is the new public diplomacy that emerged in connection with the growing recognition of the importance of public diplomacy in the United States after the terrorist attacks that occurred on September 11, 2001. The emergence of a robust civil society has made it necessary to be aware of public opinion in other countries when advancing foreign policy. In addition, the development of information technology has led to the appearance of new communication tools, intensifying competition in the information space. Moreover, the end of the Cold War has prompted a growing interest in soft power that stems from a country's attractiveness as a source of power other than the military. Such developments have provided the backdrop for the proposal of the new public diplomacy theory in recognition of the bidirectional nature of communication and the diversification of actors in the diplomatic scene, including non-state actors, such as international and non-governmental organizations (Melissen 2005, Kitano 2014).

2. 2 Public diplomacy and digital technology

Since the first decade in the 21st century, studies of diplomatic communication have been characterized, particularly in Europe and North America, by an increasingly active discussion around the nature of public diplomacy in the age of social media and digital diplomacy, which uses digital technologies, including Twitter and Facebook, in diplomacy. Research has covered diplomatic communication among various actors, such as foreign ministries, ambassadors, political leaders, and international organizations.

Compared to traditional means of communication, Bjola and Jiang (2015: 87) have identified social media as 1) a highly effective tool for information dissemination, 2) allowing the intended message to reach the target audience in depth, and 3) enabling a two-way dialog between diplomats and the general public in foreign countries. They state that social media has become such a powerful symbol of the new public diplomacy in that it has enabled diplomats to directly interact with the citizens of the target country (Bjola and Jiang 2015: 71).

Different views on how to position social media in the context of public diplomacy have been observed. Cull (2019) classifies the public diplomacy practice into five categories: listening, advocacy, cultural diplomacy, exchange diplomacy, and international broadcasting. However, he does not separately consider digital methods or the expansion of social media influence, as he considers that these elements are incorporated into each of these activities. He explains that it would be misleading to treat social media on its own as something that can transform the international profile of certain actors (Cull 2019: 19).

Manor (2018) posits that diplomacy using digital technologies is the digitalization of diplomacy and explores the broader possibilities of its application. He argues that digital technology impacts the institutions, practitioners, audiences, and practices of diplomacy, and that the digitalization of diplomacy is a long-term process that goes far beyond the use of new technologies. In this sense, diplomacy in the digital age (i.e., digitalization of diplomacy) is still in the process of development. Moreover, this

development is not uniform but differs from country to country.

In considering the impact of social media, in terms of diplomacy, on people in other countries,. the interactive nature of social media is being examined in several regions globally. Many studies, such as those by Bjola and Jiang (2015), who analyzed 50 days of data posted on Weibo (considered as China's version of Twitter) by the European Union delegation, Japanese Embassy, and the U.S. Embassy in Beijing, and by Strauß et al. (2015), who analyzed two months of Twitter communication by the embassies of four Western countries in the Gulf region, have concluded that the interactive nature of social media is not fully effective (also see Ittefaq 2019).

Public diplomacy can also be differentiated into activities that use media tools and those that occur face-to-face. Adopting the standpoint that most people learn about foreign affairs from the news media rather than from projects that attempt to convey a country's attractions, such as language, education, and cultural exchange, Golan et al. (2019) argue that because the media plays a major role in international relations, "mediated public diplomacy" is gaining attention. The mediated public diplomacy model represents Entman's (2008) explanation (notionally based on the example of the U.S. government) of the flow of the favorable framing of a country's policies in foreign news media. Given the ascendance of social media, Golan et al. (2019) propose a modification to Entman's model, which presupposed a traditional media environment.

2. 3 Japan-oriented public diplomacy and social media

Although studies of public diplomacy conducted by Japanese scholars have emphasized social media in conjunction with the new public diplomacy theory and the presentation of overseas case studies, they have not yet achieved sufficient critical mass to advance the essential discussion of social media activity, which represents a current challenge for diplomacy. In the United States, where social media was adopted early on, the Japanese Embassy in Washington D.C. "appears to have been slower than several European nations, and than South Korea, in embracing the potential of social media, such as Twitter and Facebook, for burnishing Japan's public image in Washington" (Calder 2014: 221). It is conceivable that these circumstances have also affected the progress of research in this area in Japan.

With respect to the focus of this study—the use of social media by other countries in the practice of public diplomacy toward Japan—the introduction of various online platforms by the U.S. Embassy in Japan in the early 2010s has been described previously. The U.S. Embassy introduced Twitter along with platforms such as nico nico douga and Google Hangout with the intention to "create a new paradigm melding traditional cultural diplomacy with virtual engagement," and was one of the earliest to experience the transformation of public diplomacy in tandem with technology development (Davidson 2013: 18, 2014). Underlying this was the embassy's attitude of seeking to engage in dialog with its target audience where they are and its view that Japanese people were becoming increasingly likely to use various social media platforms (Davidson 2013: 18). In fact, social media represents a familiar information source for the Japanese. According to a survey by the Ministry of Internal Affairs and Communications (MIC), the use of social media in Japan has been increasing annually. In 2020, the overall use rate was 73.8%, increasing to 80% for cohorts between the ages of 13 and 49 (MIC

2021).

2. 4 Position and contribution of this study

Many empirical studies on social media use by diplomatic organizations have involved only a few of these organizations (Spry 2020). This might be due to the technical issues faced while analyzing substantial data. In addition, these analyses have been limited to short- and medium-term phenomena, covering periods ranging from a few weeks to a few months. This study targets all countries with embassies in Japan to compare their social media usage in the context of diplomacy. The study also adopts a long-term perspective that begins at the dawn of social media usage in diplomacy.

Embassies established in foreign countries are a key component in maintaining and managing diplomatic relations with their host countries. Discussing diplomatic communication with Japan, this paper focuses on the official accounts maintained by embassies in Japan that represent their country in the host country. As a member state of the Group of Seven and the country with the third largest gross domestic product in the world, Japan is a major world power that hosts embassies from many countries. This is probably the first study of digital diplomacy practiced by these embassies toward Japan. Addressing activities conducted on the common platform of social media can enable an unprecedented level of scope for the comparison of Japan-focused communication by a large number of countries.

3. Scope of Analysis and Methods

3. 1 Scope of analysis: Identifying embassies in Japan

First, the investigation identified all embassies present in Japan. Of the 195 countries in the world recognized by the Japanese government, 185 countries maintain certain embassy or consulate in Japan. The addresses of embassies in Japan were extracted from the Ministry of Foreign Affairs (MOFA)'s "List of Foreign Diplomatic Missions in Japan" (MOFA 2021a), and the actual buildings (or offices) of the embassies of 156 countries were confirmed (excluding the European Union Delegation). This accounts for 80% of the countries recognized by Japan. The 29 countries whose diplomatic missions to Japan do not have a physical address either have only honorary consulates or maintain embassies in neighboring countries that serve concurrently as embassies to Japan (MOFA 2021b).

3. 2 Target data: Collecting social media accounts

Next, between April and July 2021, the Twitter accounts and Facebook pages maintained by the embassies in Japan that were confirmed to be active during the survey period were collected. Because it was evident that although some of these accounts had gone dormant for a certain period after their creation but then resumed posting at a later date, the survey included accounts that had not posted for a defined period immediately prior to the start of the survey period. As Twitter and Facebook dominated social media platforms for accounts listed on embassies' official websites, exceeding those of the other platforms identified in the preliminary survey, these two types of social media accounts were selected as target data for the survey.[1]

In the cases of countries with multiple accounts for different languages or campaigns (e.g., Canada, which maintains separate accounts for

French, English, and Japanese), the official embassy account that posts mainly in Japanese was selected. Only one account per country was included in the study.

3. 3 Survey structure

The first step in this survey involved determining whether each country's embassies in Japan maintained Twitter accounts or Facebook pages. Several methods were used to collect these accounts, including (1) checking the social media accounts listed on the embassies' official websites and other online public relation tools; (2) searching for accounts on Twitter and Facebook in Japanese, English, and in some cases, in the official language of the target country; and (3) mining the follower and following lists of embassy accounts that had already been identified.

Some Twitter accounts and Facebook pages have a badge (blue tick), indicating that they have been verified by the social media platform in question. In this study, the survey included both verified and non-verified accounts. Regarding the latter, whether the account was an official account of the embassy in Japan was determined based on three criteria: 1) the respective account's profile (e.g., whether a link to the embassy's official website was included); 2) the presence of followers from verified accounts, such as Japanese government agencies, other countries' embassies in Japan, or other overseas embassies of the country in question; and 3) the presence of posts featuring photos and videos related to the activities of ambassadors to Japan.

Second, the month each Twitter account was established was determined from the information shown in the profile section, and the start date of each Facebook page was identified by the creation date shown at the beginning of each page. At the same time, the date of the first post for each account was checked.

Third, focusing on Twitter in particular, the numbers of followers and tweets (the total number of organic tweets and retweets) displayed in the profile section of the accounts were collected. Furthermore, from these data, the relationship between the average increase in the number of followers and the average number of tweets for each account concerning the total number of months that the account had been in operation was clarified. With the additional criteria of whether Japanese is the primary language used in the tweets, the Twitter accounts were illustrated in the scatter diagram.

4. Results of Analysis

4. 1 Active Twitter and Facebook accounts

The survey findings reveal that 119 of the 156 countries (76.3%) with embassies in Japan use at least one of the two platforms: Twitter and Facebook. Sixty-nine countries (44.2%) have accounts on both platforms, with 20 countries (12.8%) on Twitter only and 30 countries (19.2%) on Facebook only. No account on either platform can be confirmed for the 37 other countries (23.7%) that maintain a physical embassy.[2]

In addition, no account on either platform can be confirmed for the 10 countries without diplomatic missions in Japan or for the 29 countries with diplomatic missions to Japan but no physical embassy (39 countries in total).

By platform, the number of countries maintaining Facebook pages (99) is slightly greater than those maintaining Twitter accounts (89). Verified accounts are available in 39 countries (43.8%) for Twitter and 43 countries (43.4%) for Facebook.

Figure 1 shows the analysis results broken

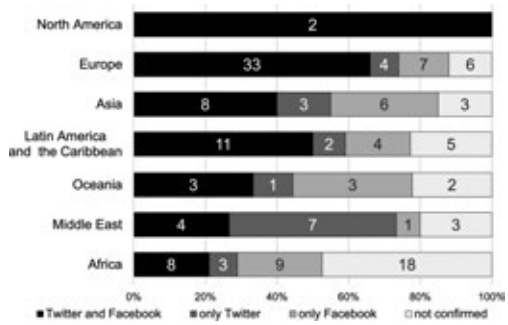

Figure 1: Active Twitter and Facebook accounts by region and platform usage (N = 156 countries) (prepared by the author)

down by region following the classification used by the MOFA. Two North American countries (the United States and Canada) have both Twitter and Facebook accounts. In Europe, 44 of the 50 countries (88%) with embassies in Japan use at least one platform, and both the absolute number of accounts and relative platform usage are higher than those in other regions. In Asia, although the parameters are smaller, 17 of 20 countries (85%) have at least one of either Twitter or Facebook. In Latin America and the Caribbean, 17 of 22 countries (77.3%) are active on both platforms, as are 7 of 9 countries (77.8%) in Oceania, 12 of 15 countries (80%) in the Middle East, and 20 of 38 countries (52.6%) in Africa. In addition, outside of the Middle East, the use of Facebook tends to be slightly more common than Twitter.

4. 2 Trends in the creation of Twitter and Facebook accounts

Based on a survey of the creation dates for Twitter accounts for the embassies of 89 countries and Facebook pages for 99 countries, embassies in Japan started creating Twitter accounts in 2009 and Facebook pages in 2010. Looking at the contemporary context, Twitter launched its Japanese-language service in 2008. Although the number of Twitter users in Japan increased rapidly thereafter, as of January 2010, the number of users on the platform was still around 5 million, which is quite small compared to the more than 20 million users of the then-mainstream social media services provided by domestic companies, such as mixi, GREE, and Mobage (MIC 2011).[3] At that time, Facebook users numbered even fewer than Twitter users (Ōmukai 2015).

The first four countries to establish a presence on Twitter and Facebook during this early period were the United States, the United Kingdom, France, and Germany, whose embassies in Japan created Twitter accounts between May and November 2009. Finland, Belgium, and Israel were the earliest adopters of Facebook, with all three countries creating their pages in October 2010.

Over the next decade or so, accounts by other countries' embassies in Japan gradually proliferated. Figure 2 shows the cumulative monthly graph for the creation of 188 accounts for 119 countries.

The number of accounts on both platforms has

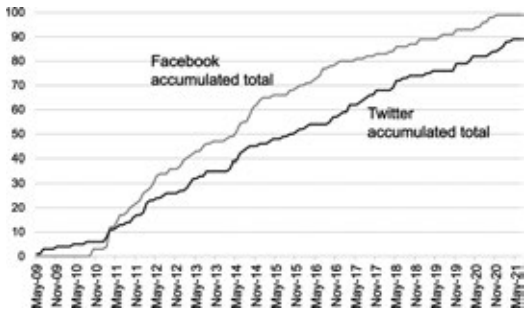

Figure 2: Trends in the creation of Twitter and Facebook by embassies in Japan (N = 119 countries) (prepared by the author)

grown continuously. More than half of the accounts on both platforms were created by 2014, with 47 countries (52.8%) having done so on Twitter and 64 countries (64.6%) on Facebook. An average of 1.3 accounts were created on both platforms each month.

The number of accounts established in March 2011—a total of 11 accounts—was outstandingly high. During March 11–31, the embassies of the United Kingdom, Spain, Chile, Estonia, Mexico, Sweden, the Dominican Republic, and Portugal in Japan created official Facebook pages. On Twitter, the embassies of Thailand, Indonesia, and Sweden created accounts in March, with Indonesia and Thailand making their first posts on March 11 and Sweden on March 17. One can easily imagine that this sudden rush was occasioned by the Great East Japan Earthquake, which struck on March 11, 2011.

In the 119 countries with embassies in Japan, 69 countries (58%) confirmed having accounts on both platforms, out of which ten countries created their Twitter account and Facebook page in the same month: South Korea (February 2011), Sweden (March 2011), Ireland (January 2012), Togo (May 2012), the Netherlands (April 2013), Russia (August 2013), Ukraine (June 2014), Uganda (July 2014), Lesotho (November 2017), and Jordan (November 2019). The fact that both were created around the same time suggests the presence of certain social media strategy. In other cases, 37 countries created their Facebook pages first, while 22 countries created their Twitter accounts first.

4. 3 Twitter followers and tweet counts

Next, a more detailed analysis of Twitter accounts was conducted, focusing on the accounts maintained by the embassies of 89 countries in Japan. The survey was initiated by examining the numbers of followers and tweets indicated in the profile section for each account.[4]

The total number of followers on these accounts ranges from 23 at the lowest (for the Senegalese embassy account) to 161,000 at the highest (for Finland), with most countries' accounts concentrated in the zone with the fewest followers. Figure 3 shows the number of followers in units of 5,000.

Countries with fewer than 5,000 followers accounted for the largest number of countries, at 53 (59.6%), and 63 countries (70.8% of the total) had fewer than 10,000 followers. These include the 11 African countries for which accounts could be confirmed, countries in the Middle East except for Israel (which had 23,000 followers), and countries in Latin America except for Mexico (20,000 followers).

In contrast, most of the accounts with the highest number of followers were maintained by the embassies of European countries. Only five countries had accounts exceeding 100,000 followers: Finland (161,000), France (132,000), the United States (130,000), Germany (128,000),

Figure 3: Number of followers of Twitter accounts maintained by embassies in Japan (N = 89 countries) (prepared by the author)

and the United Kingdom (118,000).

Similarly, the total number of tweets listed in the profile section of each account was examined. In 46 countries (51.7%), more than half of the total number of tweets was less than 1,000 (Figure 4).

Countries with relatively few tweets include those with recently opened accounts, such as Bulgaria, which opened its account in April 2021 and has tweeted 106 times in just over two months, and those that have been dormant for a medium-to-long period, such as Bangladesh, which opened its account in August 2017 and has posted only 13 tweets. In regional terms, with the exception of Turkey (5,318 tweets), accounts for embassies from countries in the Middle Eastern and African regions have each posted less than 3,000 tweets.

The nine countries with accounts that have posted more than 100,000 tweets (i.e., Finland, Cuba, Russia, Australia, India, the United States, Mexico, Spain, and France) are spread over several regions. As with the number of followers, large differences in terms of the range of the number of tweets can be observed; however, this difference is not as pronounced as in the case of followers.

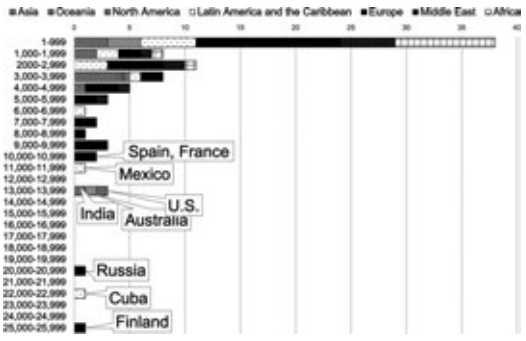

Figure 4: Number of tweets for Twitter accounts maintained by embassies in Japan (N = 89 countries) (prepared by the author)

4. 4 Languages used by Twitter accounts for each country

The languages used for spontaneous tweets from the time each account was opened were analyzed.

First, an initial visual survey was conducted to ascertain the languages used in tweets made between January and June 2021, whereupon the 89 accounts were classified into those whose primary language appeared to be Japanese and those whose primary language was not Japanese.

Next, a secondary survey of tweets was conducted for each account from the time of its creation to December 2020, reclassifying the 89 accounts into the following three categories based on the prevalence of Japanese-language tweets: “mainly Japanese-language accounts,” “mixed Japanese-language accounts,” and “non-Japanese-language accounts” (Figure 5).

For the accounts classified in the initial survey as predominantly Japanese, the number of non-Japanese posts was counted, and the ratio of tweets in Japanese to the total number of tweets, as well as the timing of the language use, was examined. Conversely, for accounts classified in

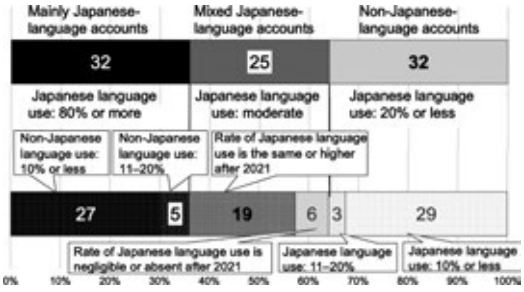

Figure 5: Languages used in Twitter accounts maintained by embassies in Japan (N = 89 countries) (prepared by the author).

the initial survey as predominantly non-Japanese, any Japanese tweets were looked for, and where they were present, their ratio to the total number of tweets was counted and calculated, and the timing of their posting was checked. The languages used were identified using Twitter search codes.

As a result, 32 countries (36%) were identified as having "mainly Japanese-language accounts." In these accounts, organic tweets in English or the country's native language accounted for less than 20% of the total number of tweets between the account creation and June 2021 (the percentage of Japanese tweets was presumed to be 80% or more). These included accounts of countries that switched their primary language from English or the native language to Japanese at some point (e.g., South Korea, Ireland, and Spain) and countries that posted numerous non-Japanese tweets within a limited period (e.g., Brazil and Eritrea). The primary language of tweets in these countries was Japanese, even after January 2021. In regional terms, 20 of the 37 Twitter accounts (54.1%) maintained by European countries with embassies in Japan were classified as mainly Japanese-language accounts.

A total of 25 countries (28.1%) were identified as maintaining "mixed Japanese-language" accounts, featuring a moderate percentage of Japanese-language tweets. As the language used in the early stage of the account's operation may differ from that used more recently, the language used in the accounts of these 25 countries after January 2021 were reconfirmed, dividing them into two subcategories according to the degree of use of Japanese during this period. First category includes accounts where the primary language of tweets after January 2021 is Japanese (e.g., Russia and Thailand) and the accounts tweeting in multiple languages, including Japanese (e.g., the United States, Australia, and India). Of these 25 countries, 19 could be judged as communicating to the general public in Japan, albeit to different degrees. In the accounts for the remaining six countries, however, although Japanese was used in the past, only a few Japanese tweets could be confirmed after January 2021. As such, they could not be deemed to be communicating with the Japanese general public at the time of the survey.

A total of 32 countries (36%) were found to be maintaining "non-Japanese-language accounts" (the same number as that for mainly Japanese-language accounts), which comprised those tweeting primarily in languages other than Japanese and where the ratio of Japanese to the total number of tweets was less than 20%. The Maldives, North Macedonia, and Afghanistan, all of which made some use of Japanese for a limited period, had more than 11% of their tweets in Japanese, while 29 other countries posted less than 10% of their tweets in Japanese. 15 countries in the Middle Eastern and African regions fell into this category.

4. 5 Correlations between the average monthly increase in the number of Twitter followers and the average number of tweets per month

Based on the above analysis, the relationship between the number of followers and the number of tweets for the 89 Twitter accounts surveyed was investigated.

As each account was established at a different time, the number of followers per month was calculated by dividing the total number of followers added to each account by the number of months the account had been in operation.

Similarly, the number of tweets per month was calculated based on the total number of tweets and the number of months in operation. Figure 6 shows the correlations between the average monthly increase in the number of followers (horizontal axis) and the average number of tweets per month (vertical axis) for the 89 Twitter accounts in a four-quadrant scatter plot. The average monthly increase in the number of followers (about 157.7) and the average number of tweets per month (about 40.7) for all accounts were used as reference values.

These results show 51 embassy accounts (57.3%) in which both the average monthly increase in the number of followers and the number of tweets per month are below average. While these countries' accounts are classified as "inactive" in terms of Twitter activity, this category accounts for the largest number of countries, comprising more than half of the total.

The accounts for 12 countries (13.5%), including Cuba, Honduras, and Ethiopia, show more than the average number of tweets per month but have fewer followers than the overall average.

These accounts are "inefficient" in that although they tweet more than average, this has not translated into a corresponding growth in the number of followers. Conversely, accounts for seven countries, including Iceland and Israel, can be characterized as "efficient" in that the average monthly increase in the number of followers is above average even though the number of tweets is lower than the average.

Furthermore, 19 countries with higher-than-average numbers in terms of both monthly increase in the number of followers and number of tweets are classified as "active" on Twitter.

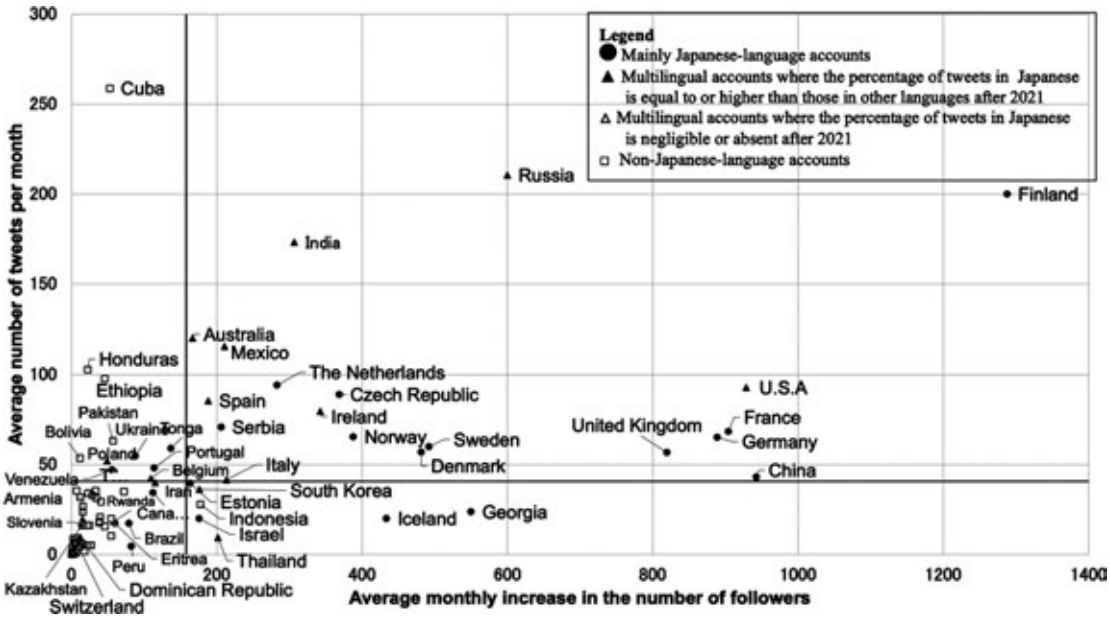

Figure 6: Average monthly increase in the number of followers and average number of tweets per month for Twitter accounts maintained by embassies in Japan (N = 89 countries) (prepared by the author, labels partially omitted)

Finland, in particular, is very active, with a high value for both parameters. In addition, the United Kingdom, Germany, France, and China, which have significantly higher average monthly increase in the number of followers than countries with a similar number of tweets, can thus be said to be particularly efficient tweeters.

Thus, the correlation between the average monthly increase in the number of followers and the number of tweets is indicated by the four indicators of active, inactive, efficient, and inefficient. These indicators can also be used to evaluate accounts relative to one another. For example, in the case of Russia (average monthly follower increase of about 600, tweeting 210.5 times per month on average) and its neighboring country of Georgia (average monthly follower increase of about 550, tweeting 23.7 times per month on average), the difference in the average monthly increase in the number of followers is only 50. However, in terms of the number of tweets, Russia tweets almost nine times as much as Georgia. Thus, compared to Russia, Georgia tweets more efficiently.

In terms of language, of the 26 "active" accounts that gain more followers per month than the average, and which tweet "efficiently" to more followers per month than the average, Indonesia is the only country with a non-Japanese-language account, while the other countries are deemed to be communicating with Japanese speakers, irrespective of their size or region. This suggests that the use of Japanese is one of the conditions for gaining followers by Twitter accounts maintained by embassies in Japan.

4. 6 Summary and discussion

From the survey results, digital diplomacy toward Japan was found to have the following characteristics.

1) More than 76% countries maintain a social media presence

Of the 156 countries with physical embassies and substantial embassy operations in Japan, 119 countries (76.3%) maintain a presence on major social media platforms. This is a result of a continuous increase in numbers since the late 2000s, when the Japanese populace began to use Twitter and other leading social media platforms.

The paucity of data makes it difficult to compare the situation of embassies in Japan with that of foreign embassies in other countries. One previous study on the use of Twitter by the foreign embassies of 30 countries in the United States noted that there are 168 embassies in Washington, D.C., but did not include information on the total number of embassies that used Twitter (Palash 2021). Another study of 114 countries with diplomatic missions in South Korea found that only five embassies (namely those of the United States, the United Kingdom, Canada, Australia, and Israel) were actively using social media. In this case, however, the analysis focuses on embassy websites and does not extend to include a detailed survey of social media use (Cha et al. 2015).

Nevertheless, the fact that more than three-quarters of countries with embassies in Japan maintain a social media presence suggests that social media is a tool that complements the current practice on the part of embassies in Japan. Furthermore, given the apparent absence of social media accounts for countries that do not have diplomatic missions in Japan or whose diplomatic missions are limited to consulates that do not maintain an actual embassy building, it

can be assumed that a condition for an active social media presence is the existence of a substantive base of operations.

2) More than half the countries maintain Twitter accounts oriented to the Japanese public

The situation in Japan is quite distinct from that in other countries, where English is used every day by the general public, and language issues arise when foreign organizations operate in Japan. A survey of account usage from a language-based perspective found that only 32 countries (36%) tweeted mainly in Japanese. In conjunction with the 19 other countries (21.3%) that use Japanese in combination with other languages, 51 countries (57.3%) could be identified as those posting content oriented to Japanese speakers at the time of the survey. Undoubtedly, the use of Japanese is necessary to convey messages to the Japanese public at large, which can thus be said to be the only countries able to use social media as a tool in public diplomacy vis-à-vis Japan.

In addition, the main language used by the embassy account has changed over the course of its operation in some countries. For example, Ukraine had been using multiple languages (English, Ukrainian, and Japanese) since the creation of its Twitter account in June 2014, but has been posting mainly in Japanese since April 2020. Such switches in language usage are conceivably due to some factors, such as changes in home government policy and the influence of the language skills of the responsible staff members. In the case of Ukraine, the timing of the switch coincided with the arrival of the current Ukrainian Ambassador to Japan, Dr. Sergiy Korsunsky. Responding to an e-mail interview, the Ambassador wrote, "Yes, we deliberately changed the language of the official Twitter account to Japanese. It is to show respect to the country we serve in and to widen the outreach to the people of Japan. As well the language of my personal Twitter account is Japanese since the first day, the same reason. So, yes, it was my digital media strategy to use Japanese as a language of communication. We still use English and/or Ukrainian on a FB page only. Sometimes I do it, too, when I want those who more probably speak English rather than Japanese to read my posts." With this response, the Ambassador's clear intention to use social media strategically in the context of public diplomacy toward Japan became evident.[5]

Even when Japanese is used as the primary language, in some cases, different languages are used depending on the timing or topic. Thus, the purpose of using social media is not limited to communication with Japan but can also target various other stakeholders, such as compatriots living in Japan, the embassy's home government, its home country's citizens, the embassies of other countries in Tokyo, or, through them, the governments of other countries. The verification of these possibilities will be left to another paper.

3) Major Western countries as well as many small and medium-sized countries that tweet in Japanese are conceivably operating their accounts strategically

A regional comparison of countries whose embassies in Japan maintain Twitter and Facebook accounts indicates that, in general, the United States and major European countries show a significant presence on several indicators. Many particularly large European countries

opened accounts relatively early, had numerous Twitter followers, and were counted among the "active" and "efficient" Twitter categories. The same is true for the United States. In contrast, many countries in other regions, such as Africa and the Middle East, show the opposite tendency.

Even so, as with the case of the Finnish embassy's numerous followers, certain online-specific trends can be seen that differ from these offline indicators. As shown in Figure 6, many small-and medium-sized countries show an above-average monthly increase in the number of followers. This increase increases the likelihood of tweets finding wider engagement and thereby growing their account's online influence. Social media is a medium in which the general public—that is, individuals—become carriers of information and have influence through interactions among an unspecified number of individuals (Kaji 2014). Therefore, depending on how they use it, social media can be an effective tool for small-and medium-sized countries to gain significant influence.

Note that all but one of the countries showing an above-average monthly increase in the number of followers tweeted in Japanese. Even among countries with a below-average monthly increase in the number of followers, the small nation of Eritrea, for example—the only country in Africa with a mainly Japanese-language Twitter account—had the highest total number of followers (6,940) and the highest number of followers per month (about 59.8) among the countries in the same region. Eritrea's strategic use of social media is apparent in the fact that it was an early adopter of Twitter, creating its account in November 2011.

5. Challenges and Prospects

5. 1 Significance of the research

This study is probably the first to analyze digital diplomacy toward Japan that addresses the activities of foreign embassies in Japan on social media. Accounts maintained by embassies in Japan were analyzed on two leading social media platforms, taking into account the entire period of their operation since their inception, which allowed the author to analyze a large number of countries from a long-term perspective. Table 1 summarizes the study results.

Using publicly available information, these embassy Twitter accounts were charted based on the relationship between their average monthly increase in the number of followers and the average number of monthly tweets. The established indicators can also be used for more detailed analysis in the future.

Since more than 70% of embassies in Japan have a social media presence, social media can be considered a channel that complements the current practice on the part of embassies in Japan. However, only a limited number of countries engage communicatively with Japanese society on Twitter in any practical sense. This study offers an illustrative example of how social media is used as a tool for the new public diplomacy.

5. 2 Future challenges

This study has clarified the presence of embassies in Japan on Facebook and Twitter, the degree of influence this potentially affords them within Japanese society, and the actual state of affairs regarding the operation of these accounts. However, further research needs to be conducted to verify how these apparent characteristics

Table 1: List of social media accounts by country (N = 156 countries) (prepared by the author)

Twitter and Facebook presence (69 countries)

Asia	Oceania	North America	Central and South America	Europe	Middle East	Africa
8	3	2	11	33	4	8
▲ India TF ▲ South Korea □ Maldives T (F:-2019) □ Mongolia F ▲Thailand TF □ Malaysia ● Bangladesh(T:-2017) □ Pakistan TF	▲ Australia TF ● Tonga ● Palau	● Canada TF ▲ U.S.A. TF	□ Ecuador □ Cuba T □ Chile ▲ Dominican Republic T □ Haiti (T: -2018) △ Paraguay TF ● Brazil TF ● Venezuela ● Peru F □ Honduras ▲ Mexico F	● Iceland TF ▲ Ireland T □ Azerbaijan □ Albania T ▲ Armenia F ▲ Italy T ● Ukraine TF ● United Kingdom TF ● Estonia TF ● The Netherlands TF ● Kazakhstan □ North Macedonia TF (T:-2020) △ Kosovo ● Georgia ● Slovakia ▲ Switzerland TF ● Sweden TF ▲ Spain TF △Tajikistan F (T:-2019) ● Denmark TF ● Germany TF ● Czech Republic ● Norway TF ● Finland TF ● Bulgaria ● France TF ▲ Belgium TF □ Belarus ▲ Poland TF ● Portugal ● Latvia TF △ Romania F ▲ Russia F	□ Afghanistan F ● Israel TF ▲Turkey F □ Jordan T	□ Uganda (F:-2015) □ Ethiopia ● Eritrea □ Tunisia △ Togo □ Benin ▲ Rwanda △ Lesotho (T:-2019)

Legend
- ● Mainly Japanese-language accounts
- ▲ Multilingual accounts where the percentage of tweets in Japanese is equal to or higher than those in other languages after 2021
- △ Multilingual accounts where the percentage of tweets in Japanese is negligible or absent after 2021
- □ Non-Japanese-language accounts

T : Verified Twitter accounts (with a blue tick)
F : Verified Facebook pages (with a blue tick)
4-digit number : Year of last update of the account in question (for accounts that have not been updated since January 2021)

Twitter-only presence (20 countries)

3	1	0	2	4	7	3
□ Indonesia T □ Sri Lanka ● China T	□ Marshall Islands (-2017)	N/A	● Jamaica □ Bolivia	●Uzbekistan □ Croatia ▲ Slovenia ●Serbia T	□ United Arab Emirates ▲ Iran ● Oman T □ Qatar T □ Kuwait □ Saudi Arabia T □ Bahrain	□ Algeria □ Kenya □ Senegal

Facebook-only presence (30 countries)

6	3	0	4	7	1	9
Cambodia F Singapore F Nepal The Philippines F Myanmar F Laos (-2019)	New Zealand F Papua New Guinea (-2019) Micronesia (-2017)	N/A	Argentina F Costa Rica Panama Nicaragua F	Austria Kyrgyzstan Bosnia-Herzegovina Malta Moldova Lithuania F Luxembourg (-2020)	Iraq	Egypt(-2020) Ghana (-2020) Guinea Zambia Djibouti Sudan (-2018) Namibia (-2019) Madagascar (-2019) South Africa

No confirmed Twitter or Facebook presence (37 countries)

3	2	0	5	6	3	18
East Timor Brunei Vietnam	Samoa Fiji	N/A	Uruguay El Salvador Guatemala Colombia Belize	Cyprus Greece San Marino Turkmenistan Roman Curia Hungary	Yemen Syria Lebanon	Angola Gabon Cameroon Ivory Coast Republic of the Congo Democratic Republic of the Congo Zimbabwe Tanzania Nigeria Burkina Faso Botswana Malawi Mali Mozambique Mauritania Morocco Libya

relate to other events. It will be necessary to analyze the use of social media by each country's embassy by taking into account the content of social media posts and the background of how accounts are used by each embassy, including with reference to the policies of their home governments, as well as activity on other social media platforms, such as Instagram and YouTube.

It would also be advisable to conduct further research into Japan's own externally directed communications. Social media accounts maintained by the MOFA and overseas diplomatic missions (including consulates) have proliferated in recent years, to the point that hundreds of accounts are now being maintained on multiple platforms (MOFA 2022). Further attention should be paid to how social media is being used by diplomatic actors and how this complements current diplomatic communications, with a view to clarifying strategies for utilizing social media constructively to achieve diplomatic goals.

Acknowledgments

I would like to express my gratitude to Dr. Sergiy Korsunsky, the Ukrainian Ambassador to Japan, and all those who encouraged me in writing this paper.

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Notes

1. Of the accounts on major social media platforms listed on the official embassy websites of 125 countries that were confirmed to be active in March 2022, 60 were on Facebook, 48 on Twitter, 22 on Instagram, and 13 on YouTube.
2. Some accounts were confirmed to have been opened after the start of the survey in April 2021 but closed by July 2021, and accordingly, excluded from the scope of this survey (i.e., Facebook pages for Uzbekistan, Slovenia, and Malawi, and both Twitter and Facebook accounts for El Salvador).
3. These domestic social media platforms have been in decline since 2010, being replaced by global platforms, such as Twitter and Facebook.
4. The numbers of followers and tweets for the accounts were collected on July 8, 2021. Because the computing environment used in the study displayed these numbers in units of 1,000 for accounts with 10,000 or more followers and tweets, these were the numbers that were recorded. In addition, the survey does not reflect any decrease in the number of followers resulting from the loss of followers or account closures prior to the time of the survey, or any decrease in the number of tweets due to the deletion of posts.
5. Dr. Sergiy Korsunsky was appointed Ambassador Extraordinary and Plenipotentiary of Ukraine to Japan in April 2020. After posing my question through the online event "Global Leadership Cafe #2: Lecture by Dr. Sergiy Korsunsky, current Ambassador of Ukraine to Japan 'Leadership in World Politics'" hosted by the Tokyo Institute of Technology on September 10, 2021, an answer was received on September 29, 2021.

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Editor's Notes

We are very pleased to announce the publication of Volume 15 of JSI (Journal of Socio-Informatics). In this volume, one peer-refereed original papers and one translated paper already published in a Japanese journal are included.

Since SSI is organized to promote and dispatch the studies of Socio-Informatics, JSI is open to any researchers and students who are interested in Socio-Informatics. New submissions for the next volume in 2023 are being invited. Please check the call for papers of JSI on http://www.ssi.or.jp/eng/index03.html.

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