Deliberative Governance: Developing a Digital Platform
Report on Preliminary Findings

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This study, funded by the MOE Academic Research Fund (AcRF) (Tier 2), is a collaboration between NUS' Department of Communications and New Media, Institute of Policy Studies and School of Computing. The project is a multi-phase study that brings together new media technology, policy studies and public communication to examine the impact of online deliberation, and its theoretical and implementation issues for policymaking.

1.   Aims of the Study

This study adopts a multi-disciplinary approach involving communication, human-computer interaction and policy studies. The project investigates citizen participation in policy discussion on a digital deliberation platform to understand how citizens perceive the effectiveness and legitimacy of online deliberation in policymaking, and to develop a platform that will enable policymakers at various levels to understand and incorporate citizen participation. The project also examines various design features of a digital platform that influence the mechanisms of deliberation and ultimately shape participants' perception of deliberation.

1.1.   Policy Issue

The policy issue selected is the Singapore population. Given the complexity and breadth of population issues, we worked with the National Population and Talent Development Division (NPTD) to narrow the focus to three sub-issues — *Fertility*, *Foreign Workforce* and *New Immigrants*.

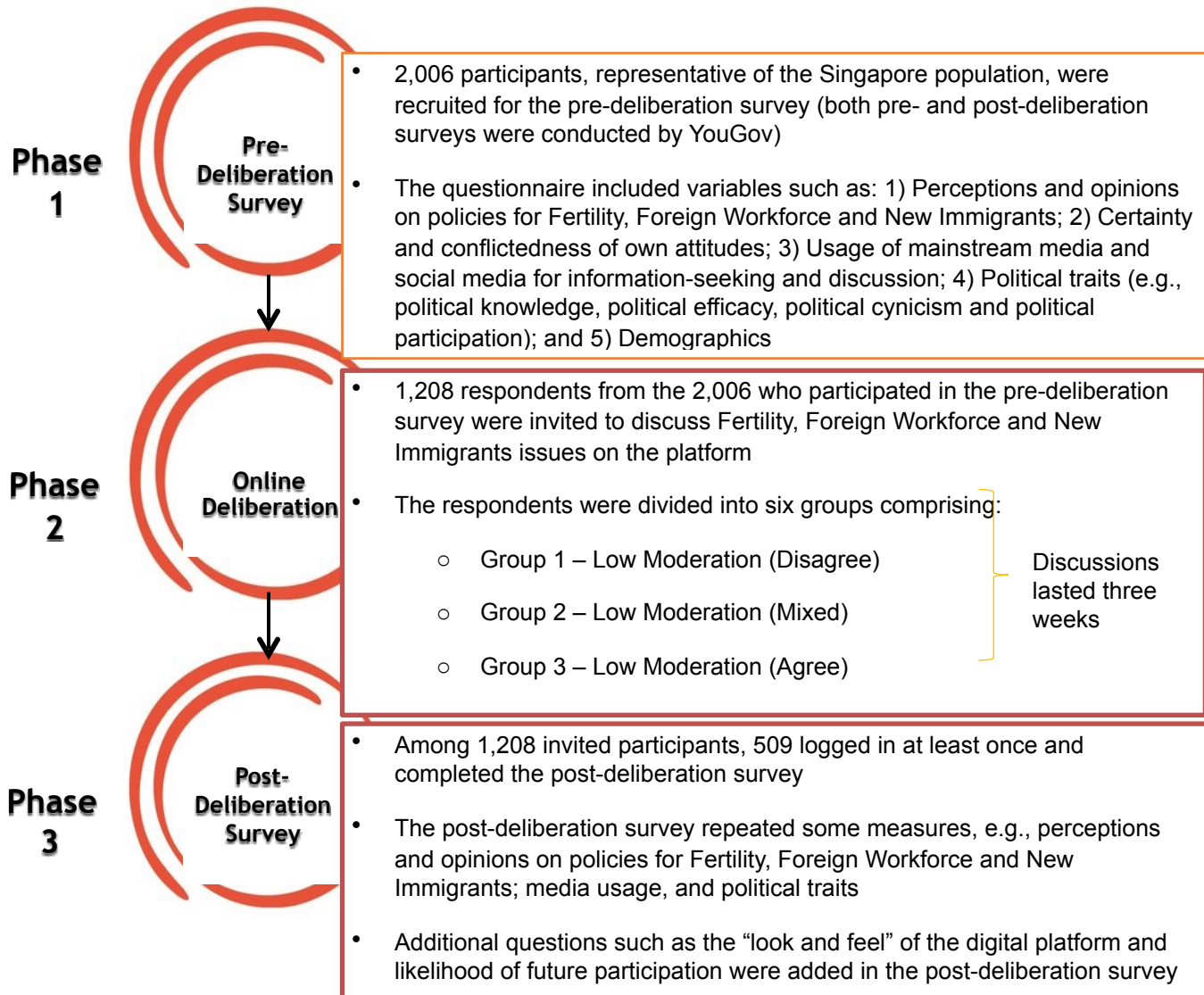Launched in 2014, the multi-phase project involves:

1. Identifying a policy issue and understanding the opinion distribution among the citizens through a survey with a sample representative of the Singapore population

2. Designing a digital platform that is suitable to the issue public and feasible to the examination of the cognitive and social mechanisms

3. Implementing a digital deliberation procedure that is controlled for theoretical purposes

4. Evaluating the outcomes (both policy decisions and personal perceptions) of online deliberation

The contributions of this study are two-pronged — it makes theoretical and methodological contributions to the study of deliberation, and presents the implications for policy communication, policy design and civic platform design.

This report presents initial findings on people's attitudes towards population policy issues and the effects of online deliberation on their attitudes (as presented to the Strategy Group, NPTD and Ministry of Communications and Information in July 2016). It also includes findings on the effect of online deliberation on people's use of mainstream media and social media for seeking information on population issues.
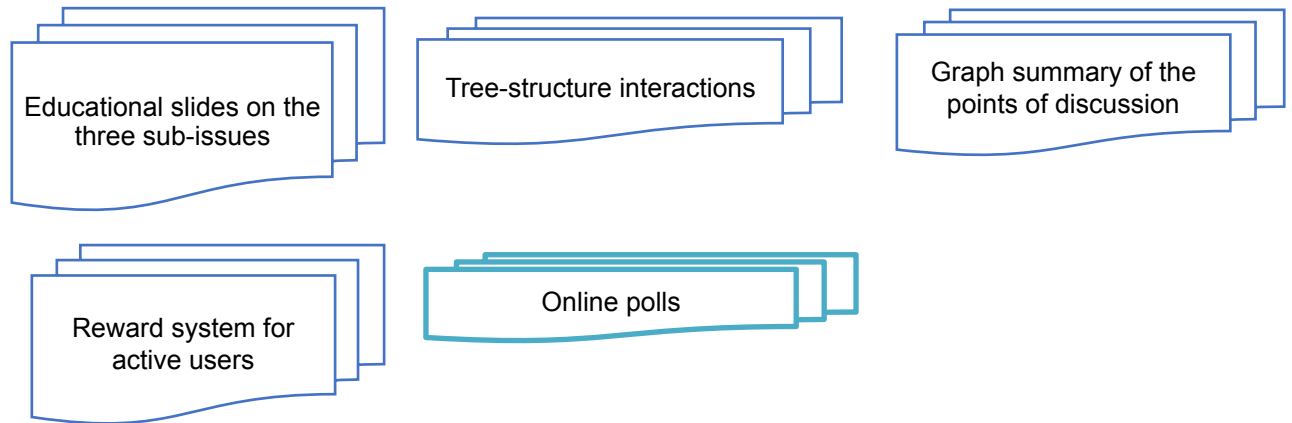
2.   The Process

There are three phases to the research project:

Phase 1

Pre-Deliberation Survey

- 2,006 participants, representative of the Singapore population, were recruited for the pre-deliberation survey (both pre- and post-deliberation surveys were conducted by YouGov)

- The questionnaire included variables such as: 1) Perceptions and opinions on policies for Fertility, Foreign Workforce and New Immigrants; 2) Certainty and conflictedness of own attitudes; 3) Usage of mainstream media and social media for information-seeking and discussion; 4) Political traits (e.g., political knowledge, political efficacy, political cynicism and political participation); and 5) Demographics

Phase 2

Online Deliberation

- 1,208 respondents from the 2,006 who participated in the pre-deliberation survey were invited to discuss Fertility, Foreign Workforce and New Immigrants issues on the platform

- The respondents were divided into six groups comprising:

  - Group 1 – Low Moderation (Disagree)

  - Group 2 – Low Moderation (Mixed)

  - Group 3 – Low Moderation (Agree)

Discussions lasted three weeks

Phase 3

Post-Deliberation Survey

- Among 1,208 invited participants, 509 logged in at least once and completed the post-deliberation survey

- The post-deliberation survey repeated some measures, e.g., perceptions and opinions on policies for Fertility, Foreign Workforce and New Immigrants; media usage, and political traits

- Additional questions such as the "look and feel" of the digital platform and likelihood of future participation were added in the post-deliberation survey

3.   The Deliberation Platform

The online platform for citizens includes various features that engage participants at different phases (a separate interface was designed for policymakers):

Educational slides on the three sub-issues

Tree-structure interactions

Graph summary of the points of discussion

Reward system for active users

Online polls

4.   FINDINGS

4.1.   Profile of Participants

The demographics of those who logged in to the deliberation platform once or more are:

- Gender (n = 509)
  - Male 56%
  - Female 44%

- Age group (n = 509)
  - 21-29: 26%
  - 30-39: 29%
  - 40-49: 25%
  - 50-59: 15%
  - 60+: 5%

- Ethnic group (n = 509)
  - Chinese 86%
  - Malay 6%
  - Indian 6%
  - Others 2%

- Housing type (n = 509)
  - HDB 1-3 room 16%
  - HDB 4 room 34%
  - HDB 5 room/Executive 31%
  - Private 20%

- Household income (n = 491)
  - None - $1,999: 7%
  - $2,000 - $4,999: 24%
  - $5,000 - $6,999: 19%
  - $7,000 - $9,999: 14%
  - $10,000 and above: 28%

- Education level (n = 509)
  - PSLE or below 2%
  - Secondary 11%
  - Post-secondary 8%
  - Diploma 20%
  - University/professional 58%

- Employment status
  - Full time worker 75%
  - Part-time worker 6%
  - Self-employed/business owner 5%
  - Full-time student 5%
  - Full-time homemaker 3%
  - Retired 1%
  - Unemployed 4%
  - Others 1%

Compared to the Singapore's national population, respondents who took part in the online deliberation were younger, lived in better housing types, had higher household income and were more highly educated. The sample also saw an over-representation of Chinese and under-representation of Malays.

This is a reflection of the profile of active online users. Research by media scholars points to a divide in terms of age and income, with the young, more well-educated and higher income groups having more access to technology and being more adept in using technology for various purposes.

Two other online surveys conducted by IPS (for General Election 2015 and National Day Rally 2016) showed a similar pattern.

4.2. Online Deliberation and Attitudes on Policies

Participants were required to answer similar questions on *policy support*, *perceived policy impact* and *perceived policy effectiveness* for the three sub-issues (Fertility, Foreign Workforce and New Immigrants) in the pre- and post-deliberation surveys.

We also included general attitude questions (e.g., which type of Foreign Workforce did people think make important contributions to Singapore, and if people accepted new citizens as fellow Singaporeans), and questions that assign responsibility for problem-solving (i.e., whose responsibility it is to solve problems related to Fertility, Foreign Workforce and New Immigrants).

We used the Likert scale (1 being "strongly disagree" to 5 being "strongly agree") to measure participants' responses, and paired sample T-tests to compare if there was a difference in participants' attitudes before and after online deliberation. The tables in the following sections present the mean scores for pre-deliberation and post-deliberation responses.

4.2.1. Policy Support

Topic	Question	Mean (Pre)	Mean (Post)	
Fertility	I support policies that reduce the cost of having and raising children	4.08 (SD=.856)	3.93* (SD=.932)	↓
	I support policies that enhance work-life harmony	4.32 (SD=.749)	4.09* (SD=.879)	↓
Foreign Workforce	I support the policy of slowing down the growth of the foreign workforce in Singapore	4.03 (SD=.887)	3.88* (SD=.920)	↓
	I support the Fair Consideration Framework policy	4.08 (SD=.854)	3.87* (SD=.878)	↓
New Citizens	I support the policy of bringing in new citizens	2.74 (SD=1.165)	2.97* (SD=1.125)	↑
	I support the policy of slowing down the growth of the new citizens in Singapore	3.92 (SD=.933)	3.82* (SD=.910)	↓
	I support the Mandatory Singapore Citizenship Journey	3.72 (SD=1.043)	3.65* (SD=.985)	↓

1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree, *p<.05

The support for all policies decreased significantly with the exception of the policy of bringing in new citizens, which saw participants moving away from disagreeing and closer to neither agreeing or disagreeing after online deliberation (i.e., the level of agreement increased slightly). An interesting finding is that the policies of slowing down the growth of Foreign Workforce and growth of new citizens saw reduced support.

4.2.2. Policy Impact

Topic	Question	Mean (Pre)	Mean (Post)	
Fertility	The policies reducing the cost of having and raising children will influence me to have children/more children	3.31 (SD=1.173)	3.24 (SD=1.133)	⬇
	The policies enhancing work-life harmony will influence me to have children/more children	3.48 (SD=1.131)	3.31* (SD=1.075)	⬇
Foreign Workforce	The policy of slowing down the growth of the foreign workforce in Singapore will influence my career	3.58 (SD=1.011)	3.45* (SD=.905)	⬇
	The Fair Consideration Framework will influence my career	3.57 (SD=1.012)	3.39* (SD=.885)	⬇
New Citizens	The policy of bringing in new citizens will influence me to help integrate them into the Singapore society	2.84 (SD=1.100)	3.06* (SD=1.002)	⬆
	The policy of slowing down the growth of the new citizens in Singapore will influence me to help them integrate them into the Singapore society	3.36 (SD=.925)	3.25* (SD=.936)	⬇
	The Mandatory Singapore Citizenship Journey will influence me to help integrate new citizens into the Singapore society	3.32 (SD=.978)	3.20* (SD=.988)	⬇

1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree, *p<.05

Similar to policy support, participants' perceived impact (of the policy on themselves) reduced after deliberation. With the exception of the policy of bringing in new citizens and its effect on participants' efforts in integrating them into the Singapore society, participants perceived that Fertility, Foreign Workforce and New Citizens policies would have less impact on themselves and on their behaviours after going through the online deliberation process. All the changes were significant with the exception of the policies of reducing the cost of having and raising children on participants' decision to have children/more children.

4.2.3. Policy Effectiveness

Topic	Question	Mean (Pre)	Mean (Post)	
Fertility	The policies reducing the cost of having and raising children are effective	3.18 (SD=1.033)	3.03* (SD=.995)	⬇
	The policies enhancing work-life harmony are effective	3.20 (SD=1.019)	3.07* (SD=.973)	⬇
Foreign Workforce	The policy of slowing down the growth of the foreign workforce in Singapore is effective	3.13 (SD=.969)	3.12 (SD=.987)	⬇
	The Fair Consideration Framework is effective	3.08 (SD=1.027)	3.13 (SD=.931)	⬆
New Citizens	The policy of bringing in new citizens is effective	2.87 (SD=1.080)	3.07* (SD=1.016)	⬆
	The policy of slowing down the growth of the new citizens is effective	3.06 (SD=.975)	3.09 (SD=.972)	⬆
	The Mandatory Singapore Citizenship Journey is effective	3.00 (SD=.999)	3.50* (SD=1.1015)	⬆

1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree, *p<.05

The impact of online deliberation on participants' perception of policy effectiveness was more mixed compared with policy support and perceived policy impact. After deliberation, participants felt that New Citizens policies (especially the policy of bringing in new citizens and the Mandatory Singapore Citizenship Journey which saw significant increases) were more effective. On the other hand, the perceived effectiveness of Fertility policies reduced.

4.2.4 Other Attitudes

Topic	Question	Mean (Pre)	Mean (Post)	
Fertility	It is the Government's responsibility to solve the problem of low fertility rate	3.47 (SD=1.056)	3.60* (SD=.979)	⬆
	It is the responsibility of the broader community, including employers, to solve the problem of low fertility rate	3.67 (SD=.977)	3.58 (SD=.933)	⬇
	It is my responsibility to solve the problem of low fertility rate	3.41 (SD=1.062)	3.26* (SD=1.026)	⬇
Foreign Workforce	It is the Government's responsibility to improve relations between locals and foreigners	3.75 (SD=.941)	3.87* (SD=.816)	⬆
	It is the responsibility of the broader community, including employers, to improve relations between locals and foreigners	3.94 (SD=.854)	3.84* (SD=.827)	⬇
	It is my responsibility to improve relations between locals and foreigners	3.64 (SD=.984)	3.52* (SD=.943)	⬇
New Citizens	It is the Government's responsibility to integrate new citizens into the Singapore society	3.79 (SD=.965)	3.89* (SD=.847)	⬆
	It is the responsibility of the broader community, including employers, to integrate new citizens into the Singapore society	3.72 (SD=.976)	3.70 (SD=.932)	⬇
	It is my responsibility to integrate new citizens into the Singapore society	3.29 (SD=1.079)	3.29 (SD=1.044)	⬌

1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree, *p<.05

When it came to solving population challenges (the government, the broader community, including employers, or self), after deliberation, participants felt more strongly that the government should bear the responsibility. This was observed in all three population issues. The opposite effect was observed for the broader community and self.

Question	Mean (Pre)	Mean (Post)	
Marriage is a key priority	3.60 (SD=1.060)	3.66 (SD=1.076)	↑
Having children is a key priority	3.52 (SD=1.108)	3.61 (SD=1.066)	↑
Foreign *professionals* (e.g. doctors, lawyers, university lecturers, managers) make important contributions to Singapore	3.54 (SD=1.047)	3.35* (SD=1.032)	↓
Foreign *mid-level skilled workers* (e.g. nurses, technicians, physiotherapists) make important contributions to Singapore	3.66 (SD=.966)	3.70 (SD=.924)	↑
Foreign *mid-level skilled service staff* (e.g. waiters, retail shop sales assistants) make important contributions to Singapore	3.43 (SD=1.107)	3.48 (SD=.979)	↑
Foreign *unskilled workers* (e.g. construction workers) make important contributions to Singapore	4.09 (SD=.929)	4.09 (SD=.841)	
Foreigners are a threat to my job security	3.41 (SD=1.117)	3.38 (SD=1.028)	↓
I accept new citizens as my fellow Singaporeans	3.19 (SD=1.056)	3.29* (SD=1.024)	↑

1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree, *$p<.05$

We asked respondents general attitude questions for each sub-issue. Only two responses saw significant changes — agreement for foreign professionals making important contributions to Singapore reduced, and agreement for the acceptance of new citizens as fellow Singaporeans increased. For Fertility attitudes, while agreement that marriage and having children are key priorities went up after deliberation, the increase was not significant.
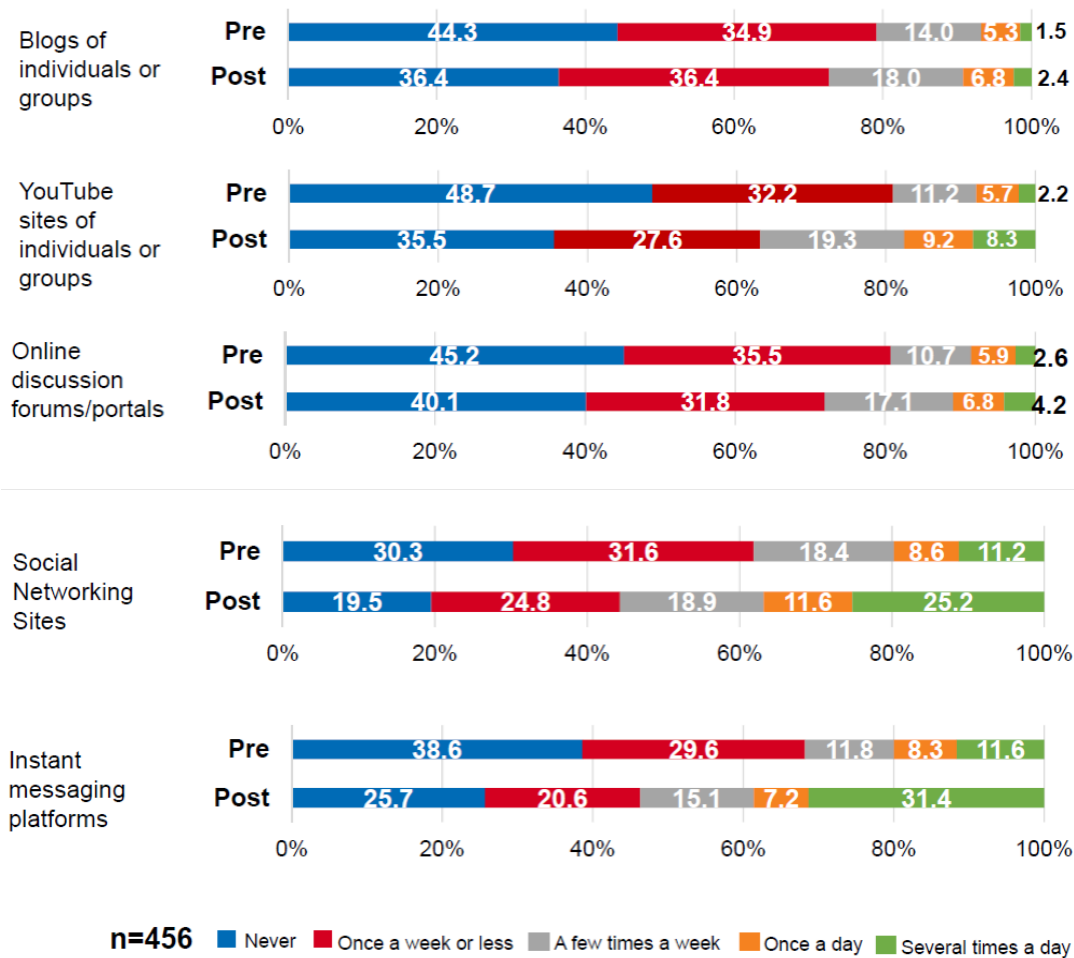
On the issue of Foreign Workforce, different attitudes for different types of foreigners were observed: Participants valued contributions made by foreign mid-level skilled workers and mid-level skilled service staff more after deliberation (though the effect was not significant), while the opposite was observed for foreign professionals' contributions.

4.3. Online Deliberation and Media Use

In both pre- and post-deliberation surveys, participants were asked to indicate how often they used social media (blogs of individuals or groups, YouTube sites of individuals or groups, online discussion forums/portals, social networking sites and Instant Messaging platforms) and mainstream media (print newspapers, television, radio and websites of mainstream media websites) for information on population issues. The response scale ranged from 1 being "never" to 5 being "several times a day".

4.3.1. Social Media Use

"How often did you use social media for information or news regarding population issues?"

Blogs of individuals or groups

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	44.3	34.9	14.0	5.3	1.5
Post	36.4	36.4	18.0	6.8	2.4

YouTube sites of individuals or groups

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	48.7	32.2	11.2	5.7	2.2
Post	35.5	27.6	19.3	9.2	8.3

Online discussion forums/portals

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	45.2	35.5	10.7	5.9	2.6
Post	40.1	31.8	17.1	6.8	4.2

Social Networking Sites

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	30.3	31.6	18.4	8.6	11.2
Post	19.5	24.8	18.9	11.6	25.2

Instant messaging platforms

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	38.6	29.6	11.8	8.3	11.6
Post	25.7	20.6	15.1	7.2	31.4

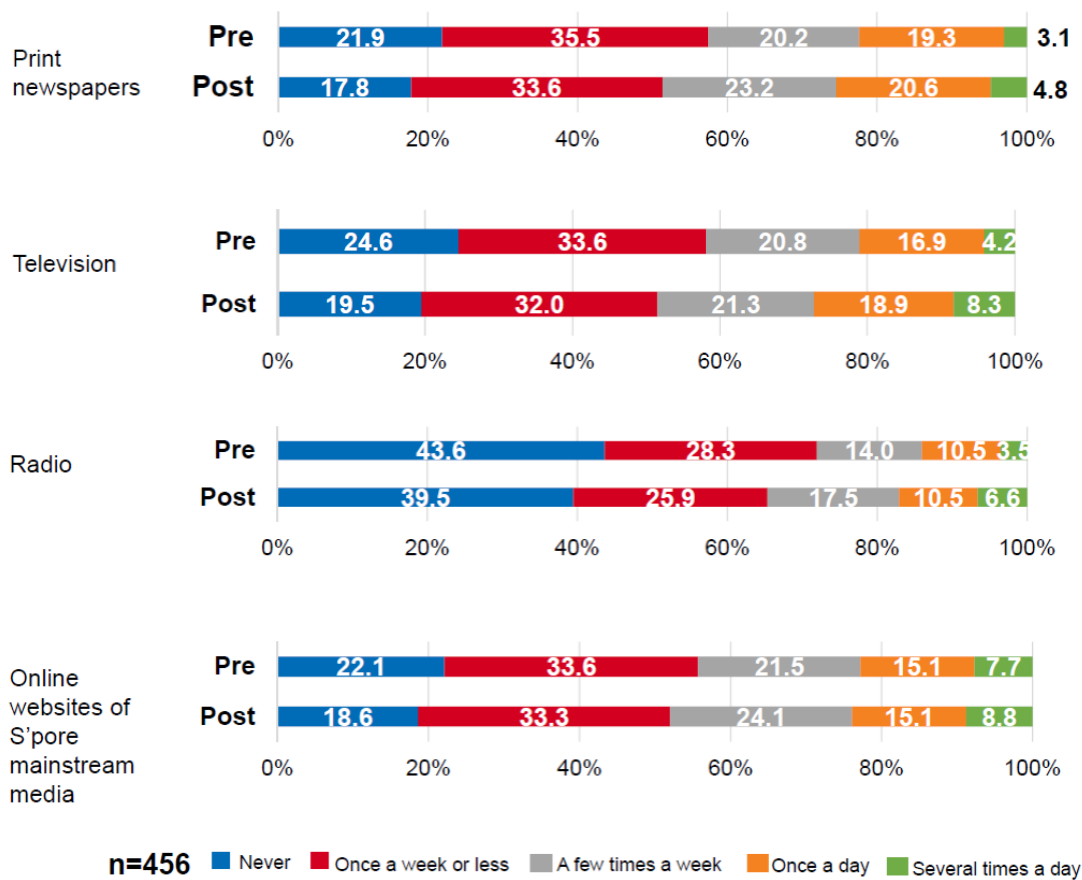n=456 ■ Never ■ Once a week or less ■ A few times a week ■ Once a day ■ Several times a day

Media usage to seek information on population issues increased for all five social media platforms. Social networking sites were the most used platform before and after deliberation (with 69.7% and 80.5% of the participants using the platform pre- and post-deliberation, respectively). The least used social media platforms pre-deliberation were YouTube sites of individuals or groups, and the least used platforms post-deliberation were online discussion forums/portals.

Instant Messaging platforms saw the highest increase in usage after deliberation (12.9 percentage points more), followed by social networking sites (10.8 percentage points more). However, when comparing the intensity of use post deliberation, 55.7% of the participants used social networking sites a few times a week, once a day or several times a day, compared to 53.7% for Instant Messaging platforms.

4.3.2. Mainstream Media Use

"How often did you use mainstream media for information or news regarding population issues?"

Print newspapers

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	21.9	35.5	20.2	19.3	3.1
Post	17.8	33.6	23.2	20.6	4.8

Television

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	24.6	33.6	20.8	16.9	4.2
Post	19.5	32.0	21.3	18.9	8.3

Radio

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	43.6	28.3	14.0	10.5	3.5
Post	39.5	25.9	17.5	10.5	6.6

Online websites of S'pore mainstream media

	Never	Once a week or less	A few times a week	Once a day	Several times a day
Pre	22.1	33.6	21.5	15.1	7.7
Post	18.6	33.3	24.1	15.1	8.8

n=456 ■ Never ■ Once a week or less ■ A few times a week ■ Once a day ■ Several times a day

Similar to social media usage, media usage for seeking information on population issues increased for all four mainstream media platforms. Online websites of mainstream media were the most used platform before and after deliberation (with 77.9% and 81.4% of the participants using the platform pre- and post-deliberation, respectively). The least used mainstream media platform pre-and post-deliberation was radio.

Television saw the highest increase in usage after deliberation (5.1 percentage points more), followed by radio (4.1 percentage points more). However, when comparing the intensity of use post-deliberation, television and online websites of mainstream media were tied, with 48% of the participants using both media a few times a week, once a day or several times a day.

When we compared media usage between social media and mainstream media post-deliberation, online websites of mainstream media were the most popular source of information (used by 81.4% of the participants), followed closely by television and social networking sites (both were used by 80.5% of the participants). With the exception of online discussion forums/portals (which saw the same increase in usage as television), social media saw a greater increase in usage compared to mainstream media after deliberation.

5. Summary

In conclusion, online deliberation did not exert a uniform effect on people's attitudes towards population issues as the impact depended on the issue type. Support and perceived impact for all policies decreased except for the policy of "bringing in new citizens", and perceived effectiveness of all New Citizens policies increased while it reduced for all Fertility policies. The findings point to an interesting shift in people's attitudes towards the policy of slowing down the growth of foreign workforce, one from agreement (with slowing down growth) to ambivalence. Different attitudes towards different types of foreign workforce were also observed, with more favourable reception for mid-level skilled workers and service staff. When it came to the issue of New Citizens, our findings hint at people's recognition of the need to bring in new citizens, as indicated by the shift in response from disagreement to ambivalence. Further analysis (content analysis) by the researchers of the online discussions may shed light on the reasons for the survey findings.

The process of online deliberation also exerted an impact on people's information-seeking. The use of both social media and mainstream media saw an increase in usage post-deliberation. While online websites of mainstream media were most used by people for population-related information, Instant Messaging platforms and social networking sites saw the highest increase in use. This finding highlights the importance of personal networks as sources of information, similar to what we had established in the IPS study on media use during General Election 2015.

One limitation of online deliberation is that it is biased towards those who are younger, the more educated and those from the middle-upper class. Again, this is more likely to be a reflection of the population who are active online. The implication for policy communication is that outreach must be targeted at disenfranchised social groups. Face-to-face focus groups can be used to complement online deliberation for future deliberation exercises.