# Online Deliberation Platform Guide for Policy Makers

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## Introduction

The NUS Online Deliberation platform was developed by NUS Online Deliberation Project team under the supervision of Associate Professor Weiyu ZHANG. It was used to allow Singaporeans to discuss specific policies regarding Singapore.

For the purpose of the research project, we created six different instances of the platform with roughly two hundred registered users on each platform. The six instances differ in terms of level of moderation (low vs, high) and composition of participants (mainly those who agree vs. mainly those who disagree vs. mixture of agree, disagree, and neutral). The same issues were discussed simultaneously on the six platforms:

1. Singapore's Fertility Issue – week 1
2. Foreign Workforce in Singapore – week 2
3. Immigration: New Citizens in Singapore – week 3

The six platforms are the same in terms of usage and this guide will present how to use the platforms and the exclusive policy makers page on the platforms.

## Basic Demographics of All Participants (N = 509)

**Descriptive Statistics**

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| age age | 509 | 21 | 77 | 38.88 | 11.431 |
| Valid N (listwise) | 509 |  |  |  |  |

**gender Gender**

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 Male | 285 | 56.0 | 56.0 | 56.0 |
|  | 2 Female | 224 | 44.0 | 44.0 | 100.0 |
|  | Total | 509 | 100.0 | 100.0 |  |

**race Race**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 Chinese | 439 | 86.2 | 86.2 | 86.2 |
| | 2 Malay | 28 | 5.5 | 5.5 | 91.7 |
| | 3 Indian | 31 | 6.1 | 6.1 | 97.8 |
| | 4 Other | 11 | 2.2 | 2.2 | 100.0 |
| | Total | 509 | 100.0 | 100.0 | |

**Q6 What is your highest education level?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 2 Primary | 2 | .4 | .4 | .4 |
| | 3 Lower Secondary | 6 | 1.2 | 1.2 | 1.6 |
| | 4 Secondary | 58 | 11.4 | 11.4 | 13.0 |
| | 5 Post-secondary (Non-tertiary): General & Vocational | 43 | 8.4 | 8.4 | 21.4 |
| | 6 Polytechnic Diploma | 104 | 20.4 | 20.4 | 41.8 |
| | 7 Professional qualification and other diploma | 39 | 7.7 | 7.7 | 49.5 |
| | 8 University first degree | 199 | 39.1 | 39.1 | 88.6 |
| | 9 University postgraduate diploma/degree | 57 | 11.2 | 11.2 | 99.8 |
| | 97 Others, please specify | 1 | .2 | .2 | 100.0 |
| | Total | 509 | 100.0 | 100.0 | |

**Q7 May I know what is your housing type?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 HDB 1 or 2 room | 9 | 1.8 | 1.8 | 1.8 |
| | 2 HDB 3 room | 72 | 14.1 | 14.1 | 15.9 |
| | 3 HDB 4 room | 172 | 33.8 | 33.8 | 49.7 |
| | 4 HDB 5 room / Executive / HUDC | 156 | 30.6 | 30.6 | 80.4 |
| | 5 Executive Condo / Private Condo / Apartment | 78 | 15.3 | 15.3 | 95.7 |
| | 6 Landed Property | 17 | 3.3 | 3.3 | 99.0 |
| | 97 Others, please specify | 5 | 1.0 | 1.0 | 100.0 |
| | Total | 509 | 100.0 | 100.0 | |

## Q8 How much is your familys gross monthly household income from work?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 No working person / Retiree household | 9 | 1.8 | 1.8 | 1.8 |
| | 2 Below $1,000 | 5 | 1.0 | 1.0 | 2.8 |
| | 3 $1,000 - $1,999 | 22 | 4.3 | 4.3 | 7.1 |
| | 4 $2,000 - $2,999 | 33 | 6.5 | 6.5 | 13.6 |
| | 5 $3,000 - $3,999 | 43 | 8.4 | 8.4 | 22.0 |
| | 6 $4,000 - $4,999 | 41 | 8.1 | 8.1 | 30.1 |
| | 7 $5,000 - $5,999 | 39 | 7.7 | 7.7 | 37.7 |
| | 8 $6,000 - $6,999 | 52 | 10.2 | 10.2 | 47.9 |
| | 9 $7,000 - $7,999 | 37 | 7.3 | 7.3 | 55.2 |
| | 10 $8,000 - $8,999 | 44 | 8.6 | 8.6 | 63.9 |
| | 11 $9,000 - $9,999 | 26 | 5.1 | 5.1 | 69.0 |
| | 12 $10,000 - $10,999 | 58 | 11.4 | 11.4 | 80.4 |
| | 13 $11,000 - $11,999 | 8 | 1.6 | 1.6 | 81.9 |
| | 14 $12,000 - $12,999 | 16 | 3.1 | 3.1 | 85.1 |
| | 15 $13,000 - $13,999 | 7 | 1.4 | 1.4 | 86.4 |
| | 16 $14,000 - $14,999 | 13 | 2.6 | 2.6 | 89.0 |
| | 17 $15,000and above | 38 | 7.5 | 7.5 | 96.5 |
| | 99 Refuse to answer | 18 | 3.5 | 3.5 | 100.0 |
| | Total | 509 | 100.0 | 100.0 | |

## Q8b What is your current occupation?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 Full-time worker | 382 | 75.0 | 75.0 | 75.0 |
| | 2 Part-time worker | 30 | 5.9 | 5.9 | 80.9 |
| | 3 Self-employed / Business owner | 27 | 5.3 | 5.3 | 86.2 |
| | 4 Full-time student | 24 | 4.7 | 4.7 | 91.0 |
| | 5 Retired | 7 | 1.4 | 1.4 | 92.3 |
| | 6 Full-time home-maker or housewife | 17 | 3.3 | 3.3 | 95.7 |
| | 7 Unemployed | 19 | 3.7 | 3.7 | 99.4 |
| | 97 Other | 3 | .6 | .6 | 100.0 |
| | Total | 509 | 100.0 | 100.0 | |

## Signing In

Upon clicking on one of the link, the following page should appear:
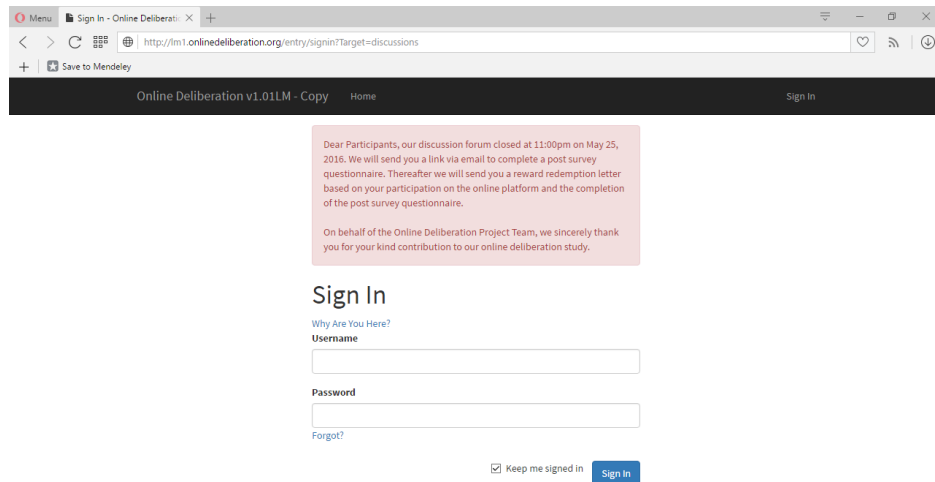


On this page, you will be prompted to input your **Username** and **Password**.

## Discussions and Visualizations

On the next page, you should see something similar to this:
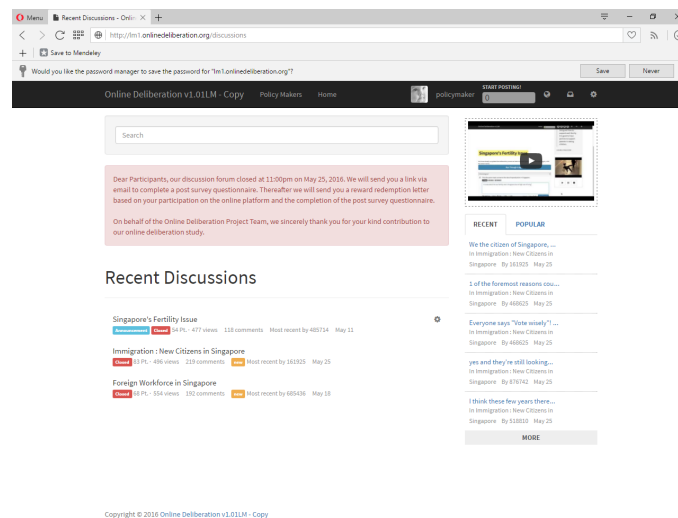


On this page, you are free to browse through any discussion. Each discussion starts with a graph that either gives a brief summary of the discussion made by the moderators (on platforms hm1, hm2 and hm3) or presents all the first layerposts of a discussion (lm1, lm2 and lm3).

For more information about how an ordinary user can use the platform, please refer to the help page on the platform, by clicking on :
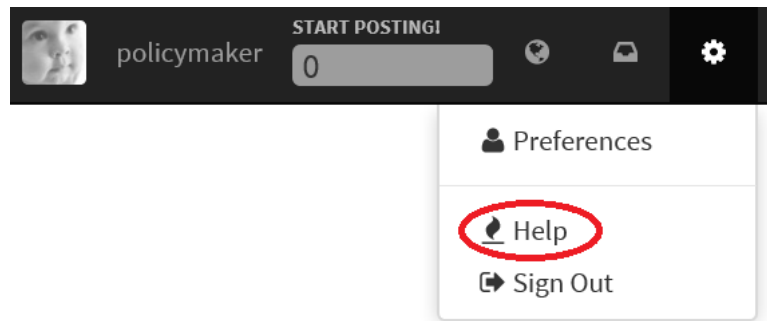
Please note that policy makers cannot edit or change any of the posts and graphs. If you want to make changes, you need to log in as moderators.

## Policy Makers Page

More importantly, we developed a specific page for Policy Makers to download posts and perform some analyses on the posts. To access this page, simply locate the "**Policy Makers**" tab on the upper part of any page of the platform:
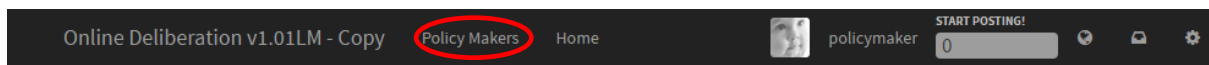


After clicking on the link, you should see the following page:
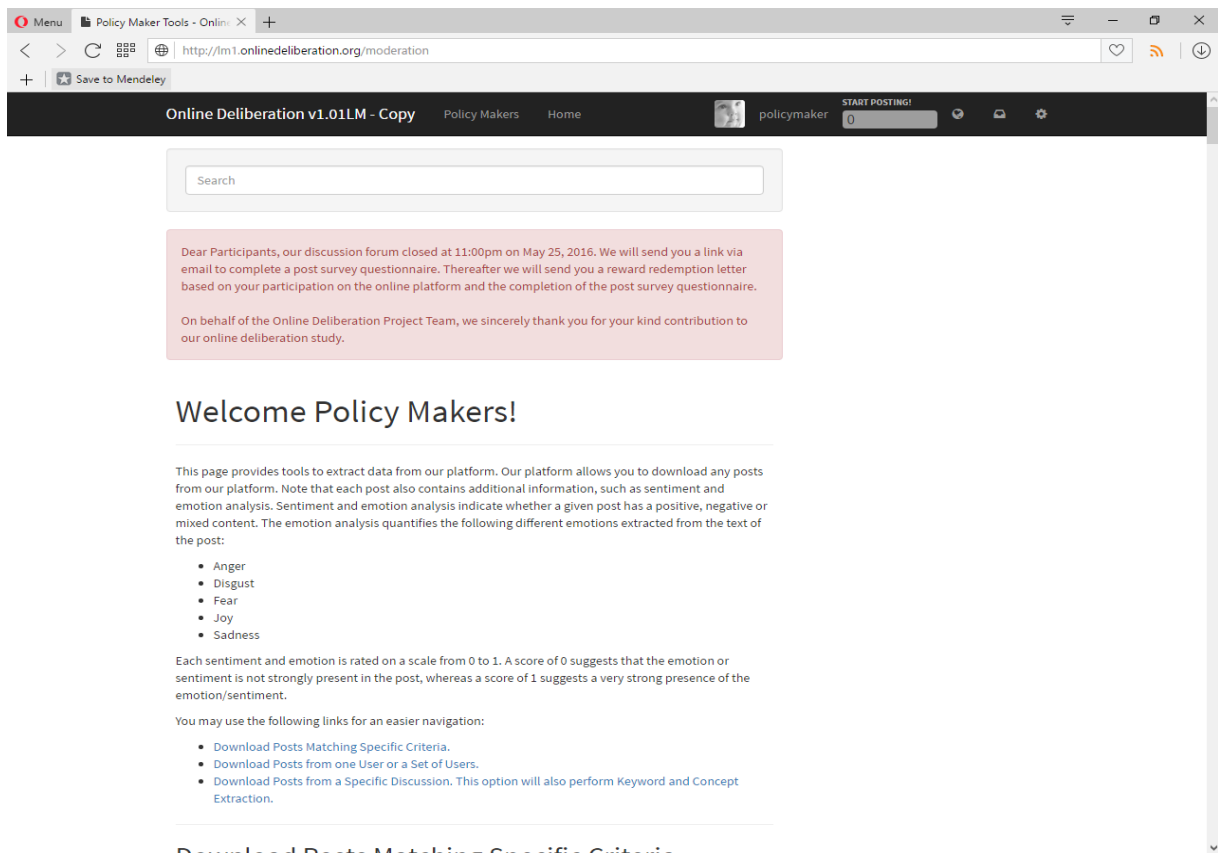


From here, you can perform three different operations as highlighted on the picture above.

1. Download all the post matching a set of specific criteria

2. Download all the posts from a specific user or from a group of users
3. Download all the posts from a specific discussion

If you choose option 1 and 2, downloading posts will also perform a sentiment and emotion analysis. The third option performs a keywords and concept extraction. <mark>All these features are provided using the Alchemy API (http://www.alchemyapi.com/), now part of IBM Watson.</mark>

## Sentiment Analysis

The **sentiment analysis** tells whether a given post is overall **negative, positive, neutral** or **shows mixed feelings**. The scores given are between 0 and 1 (for positive posts) or 0 and -1 (negative). A score closer to 1 or -1 shows a stronger sentiment.

## Emotion analysis

The emotion analysis will assess the presence of five different emotions within a post. Once again, the scores are between 0 and 1, with 1 showing a strong presence of an emotion and 0 showing the absence of it.

The five supported emotions are:

1. Anger
2. Disgust
3. Fear
4. Joy
5. Sadness

## Keywords and Concepts Extraction

Ultimately, our system can also extract a list of keywords and concepts. A **Keyword** is a word or small phrase extracted from the text of a discussion, while a **Concept** is an abstract summary of a discussion with a list of words. Concepts are usually a higher level description of Keywords.

## Performing a Search on Specific Criteria

If you click on the "Download Posts Matching Specific Criteria" link, you will be able to input values for different criteria.

You may search for posts according to the following criteria:

1. Age of the poster
2. Gender of the poster
3. Ethnic group
4. Work/occupation
5. Education level
6. Housing type
7. Income
8. Specific discussion
9. Containing a list of specific terms or words
10. Posted in a specific time interval
11. From specific users

All these criteria are **optional**. For each criterion, you may select multiple values.

Example:

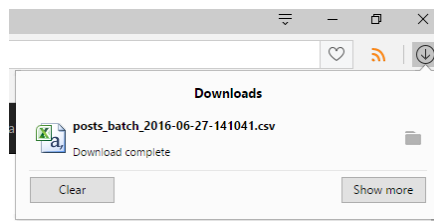Let us select all the posts from Chinese Females who are 50 years old and plus.



Note: all the other criteria should NOT have any selected values if you only want to search for the above group. You can now click on "Download". If you want to change your selection criteria, simply click on "Reset".



After clicking on Download, your computer will download a file containing the results of the search. It can be opened with Excel.



The file should look like this:

The first part of the file is a summary of your research (note: the max age is set by default at 255, and the default time interval is the largest possible).

The second part contains the data themselves.

Each line is a post. The first nine columns contain information about the user who posted:

- UserID is a unique ID that is used by our system
- UserName is the name of the user on the platform that other people can refer to
- Age is the age
- Gender can have three values: f (female), m (male) and u (undefined)
- Job is the occupation or current work
- Ethnicity is one of the four possible ethnicities: Chinese, Malay, Indian, Other
- Income is an income range in SGD
- Housing is the type of house the poster lives in
- Education is the highest level of education achieved

The next two columns give information about a specific Discussion

- DiscussionID is a unique ID that identifies each discussion
- DiscussionName is the title of the discussion

The next two columns give information about the Post itself

- CommentID is a unique identifier for a Post
- ParentCommentID is the name of the parent comment (as our platform features tree-based hierarchies)

The next three columns are the results of the sentiment analysis:

- SentimentType is either positive, neutral or negative
- SentimentValue is the sentiment score (between -1 and 1, as explained in the Sentiment Analysis section)
- SentimentMixed indicates whether this posts shows mixed feelings (value of 1) or not (value of 0)

The next five columns contain the emotion analysis. Each shows the intensity of each of the five considered emotions. See Emotion analysis section for more details.

Ultimately, the last CommentBody column contains the text of the post itself.

## Search by Keywords

Let us now consider that you want to find every post from a Chinese lady older than 50 years old and that contains either Singapore OR Singaporeans.

Simply go back on the Policy Makers page and find the "With posts containing" subsection.

Set the value of the next fields to:

With posts containing:

at least one of the following keywords

singapore singaporeans

If you want to select the posts containing BOTH terms, change the value to "all the following keywords".

## Download Posts from one User or a Set of Users

You may also want to download all the posts from either one specific user or a group of users that you noticed on the platform. To do so, simply go back to the Policy Makers page, and click on the "Download Posts from one User or a Set of Users" link.

You will see a large table containing information about every registered users on the platform.

| UserID | UserName | Age | Gender | Job | Education | Housing | Income | Last Active | Comments | Download posts |
|--------|----------|-----|--------|-----|-----------|---------|--------|-------------|----------|----------------|
| 1 | admin | 18 | u | | | | | 9:18PM | 5 | ☑ |
| 2 | System | 18 | u | | | | | - | 0 | ☐ |
| 3 | tester | 18 | u | | | | | March 11 | 0 | ☐ |
| 4 | 429140 | 32 | m | Unemployed | Secondary | HDB 4 room | $1000-$1999 | May 4 | 0 | ☐ |

To download all the posts from a user, simply click on the small checkbox in the 'Download Posts" column. In that example, I only choose to download the posts from "admin". **Note that the download button is at the end of the table!**

After clicking on download, an Excel file will be available, with a structure similar to the one under the search by criteria section. The columns are the same, please refer to the Performing a Search on Specific Criteria section.

## Download Posts from a Specific Discussion

Finally, you may also want to automatically extract the keywords of a specific discussion. To do so, please go back to the main page and click on the "Download Posts from a Specific Discussion" link.

You may choose a specific discussion:

### Download Posts from a Specific Discussion

Select one discussion from which you want to extract the keywords and concepts:
**Keywords can only be extracted from ONE specific discussion.**
**You can only select ONE DISCUSSION at a time!**
**Keywords are words extracted from the text, while concepts are abstract descriptions/summaries of the discussion.**

In discussion:

Foreign Workforce in Singapore

Download    Reset

In that example, I am downloading the "Foreign Workforce in Singapore" Discussion".

The result is once again an Excel file. The second part of the file contains the posts of the discussion.

More importantly, the first part contains a list of concepts with their relevance. The relevance score is between 0 and 1 and reflects the confidence of the system that this specific concept is actually present in the discussion.

| | Concept | Relevance |
|---|---|---|
| 7 | Concept | Relevance |
| 8 | Old age | 0.95858 |
| 9 | Middle age | 0.898632 |
| 10 | Wage | 0.669176 |
| 11 | Singapore | 0.656758 |
| 12 | Working class | 0.573507 |
| 13 | Want | 0.557806 |
| 14 | Employment | 0.524451 |
| 15 | You Got It | 0.516707 |

In this case, it seems that "old age" is the most relevant concept present in the discussion (0.95 relevance), while Employment (0.52) is deemed less relevant.

**Warning: This tool is currently offered as a trial function as it has limitations (e.g., a long discussion will not be processed by the system; concepts may be incorrect in some cases as well, an example being the "You Got It" concept above).**