

# A Reception Study of Machine Translated Subtitles for MOOCs

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## Overview

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- § Context
  - § Why MOOCs?
  - § Why MT?
  - § Why reception?
- § Research question and hypothesis
  - § Methodologies
  - § Reception model
  - § Sub-hypotheses
- § Pilot study
- § What's next?

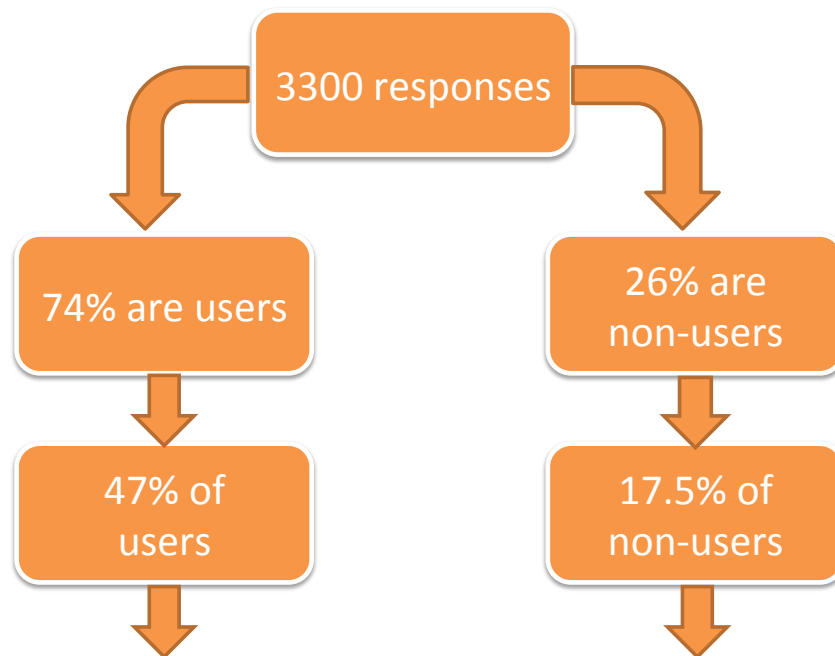
<b>2008</b>	“MOOC” coined by Dave Cormier (2008, online) Massive Open Online Courses E.g.: Coursera, Udacity, edX...
<b>2013</b>	Coursera has over 30 university partners, 2.8 million registered students, 1.4 million course enrolments every month (Cusumano, 2013)
<b>In China</b>	
<b>Early 2013</b>	Ø Chinese universities started to join MOOCs Ø 4 universities joined edX, 6 universities joined Coursera
<b>2014</b>	Ø 2 universities joined FutureLearn Ø Over 50 MOOCs offered by Chinese universities on international platforms (Yuan & Liu, 2014)
<b>Now</b>	Around 20 Chinese MOOC platforms (unclear)



Developed by Tsinghua University, largest Chinese MOOC platform, offers 504 MOOCs to 1,290,000 registered students from 126 countries (Ma, 2015)

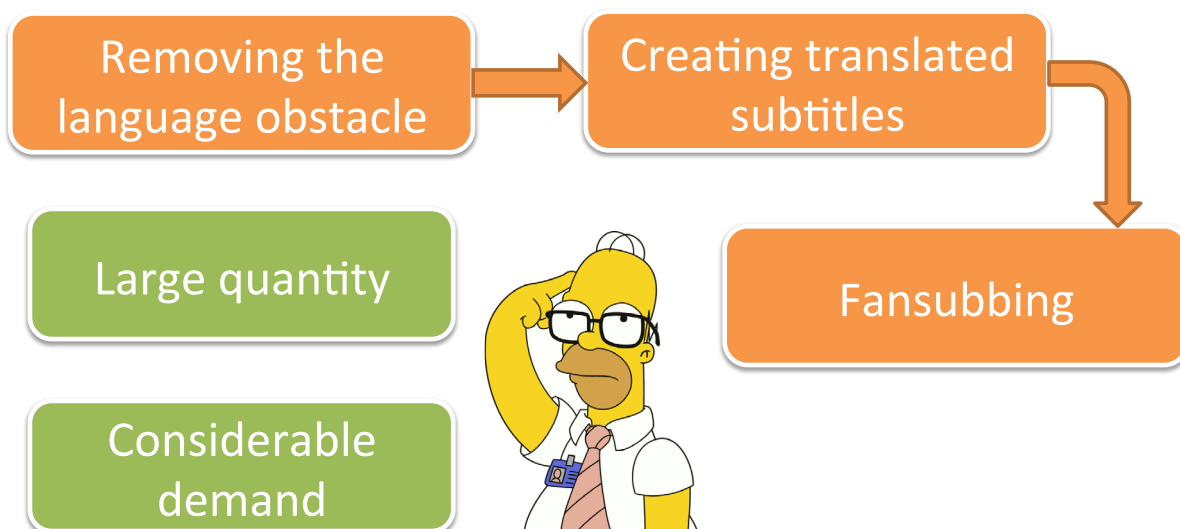


Survey by MOOC学院 (mooc.guokr.com) in 2014:



**Language was a barrier to learning via MOOCs**





# Machine Translation!!



## Why reception?

*“It is not the software but the human side of the implementation cycle that will block progress in seeing that delivered systems are used effectively.”*

-- Peter G. W. Keen (1991:1249)

### Questions:

What are the needs of MT users?

What can affect user experience of MT?

How well do end users receive MT content?

...



## Main research question:

Is there a difference in reception between participants who are offered raw MT subtitles and those who are offered full PEMT subtitles?

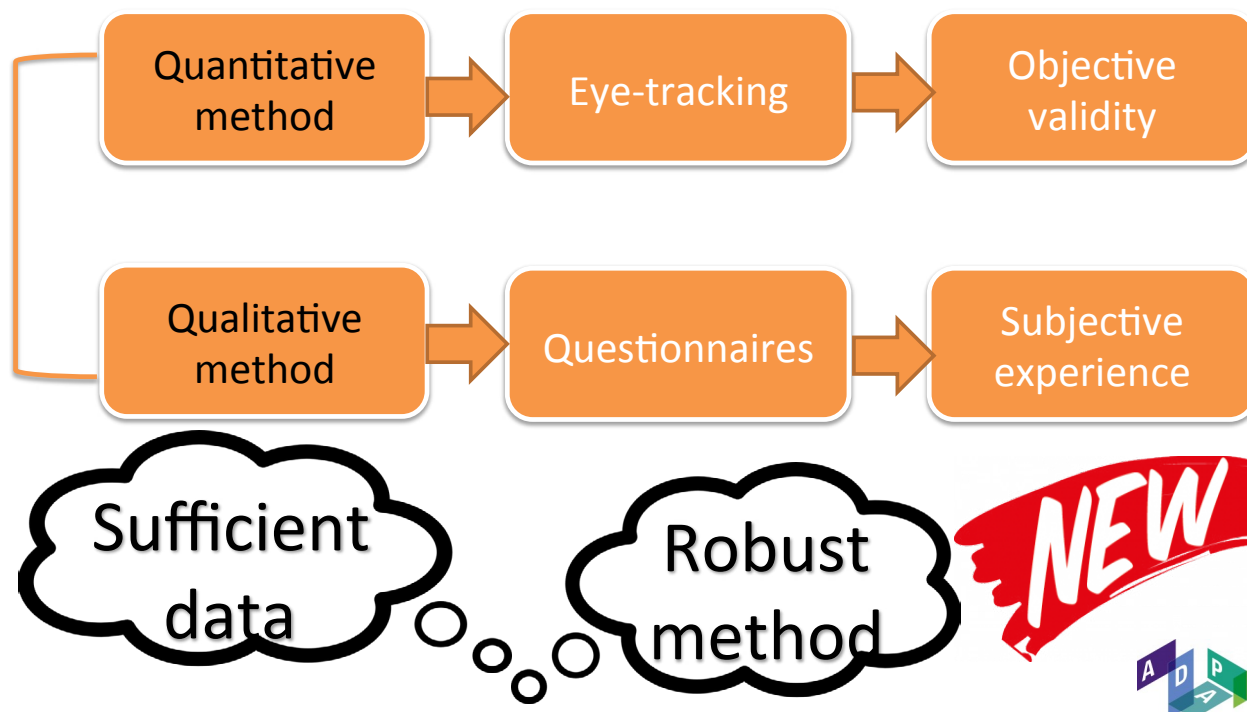
## Main hypothesis:

Participants who are offered full PEMT subtitles will score higher on our reception metrics compared with those who are offered raw MT subtitles.



# Methodologies

## A mixed-methods approach



Element	Related to	Reflected in	Measured by
<b>Response</b>	Perceptual decoding	Attentional processes	Eye-tracking
<b>Reaction</b>	Psycho-cognitive issue	Processing effort and comprehension	Eye-tracking and comprehension testing
<b>Repercussion</b>	Attitudinal issues and sociocultural dimensions	Attitudes and beliefs	Background survey and attitude questions

Based on Gambier's model (Gambier, 2009)



## Sub-hypotheses

### Response:

**Hypothesis 1:** Fewer subtitles are skipped when participants are watching full PEMT subtitles. (measured by visit count)

**Hypothesis 2:** Relatively more attention is allocated to the image area when full PEMT subtitles are displayed than when raw MT subtitles are displayed. (measured by fixation count and visit duration)

### Reaction:

**Hypothesis 3:** Comprehension score is higher with full PEMT subtitles. (measured by comprehension testing)

**Hypothesis 4:** Mean fixation duration is shorter when full PEMT subtitles are displayed.

### Repercussion:

**Hypothesis 5:** Attitudes toward machine translation are better among participants shown full PEMT subtitles. (measured by attitude questions)



- Ø DCU, May 2017
- Ø Video: “What is physical activity?” (6”59”) under the MOOC “Sit Less, Get Active” on Coursera.
- Ø MT system: Google Translate (EN-ZH)
- Ø Two versions of subtitles (Number: 114 & 115)



## Participants

- Ø MOOCs: university students, 18-25 years old
- Ø China: 50.94 out of 100, English Proficiency Index 2016 by EF



Ø Ideal participants: Chinese undergraduates with low English level

Ø Four Chinese participants (two groups)

<b>Gender</b>	1 female, 3 male
<b>Age</b>	22-33
<b>Education</b>	2 PhD students, 1 Post-doc, 1 final-year undergraduate
<b>English level</b>	1 intermediate 3 upper intermediate



**Step 1:** Pre-recruitment questionnaire & Online English test (Cambridge English Language Assessment)

**Step 2:** Watching MOOC video with eye-tracker (SMI REDn Scientific)

**Step 3:** Post-task questionnaire: comprehension testing (multiple choice) and attitude survey (five-point Likert scale)



## Results

- 😓 All hypotheses were NOT supported by the results.
  - Tiny sample
- 😓 A few questions could be answered by common sense.
  - Questionnaire needs to be modified
- 😓 Vagaries of participants' memories and concentration.
  - Irresistible force



## Main experiment in China!

**Larger sample:** over 30 Participants

**One more group:** human translated text added!

**Statistical methods:** ANOVA and t-test



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