Applying TAM (Technology Acceptance Model) to testing MT acceptance

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Overview

- Context
- TAM
- Our research
- Customized TAM
- Limitations of TAM
Our research: End users’ acceptance of machine translation in a MOOC Environment
Audiovisual Translation “is now one of the most vibrant and vigorous fields within Translation Studies”. (Díaz-Cintas & Anderman, 2009)

<table>
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<tr>
<th>Mid-1990s</th>
<th>Emergence of AVT research in Europe (Dong, 2012)</th>
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<tbody>
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<td><strong>In China</strong></td>
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<td>1896</td>
<td>Emergence of AVT after film was introduced to China (Deng, 2016)</td>
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<td>2003</td>
<td>Prosperity of AVT after the advent of Age of Networks (ibid.) Especially when shareware emerged</td>
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<td><strong>Now</strong></td>
<td>➢ Over 2000 fansubbing groups registered on Weibo (a popular Chinese SNS) ➢ Number of voluntary subtitlers? Everyone can be!</td>
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### MOOCs

**2008**

“MOOC” coined by Dave Cormier (2008, online)
Massive Open Online Courses
E.g.: Coursera, Udacity, edX...

**2013**

- Coursera has over 30 university partners, 2.8 million registered students, 1.4 million course enrolments every month (Cusumano, 2013)

### In China

**Early 2013**

- Chinese universities started to join MOOCs
- 4 universities joined edX, 6 universities joined Coursera

**2014**

- 2 universities joined FutureLearn
- Over 50 MOOCs offered by Chinese universities on international platforms (Yuan & Liu, 2014)

**Now**

Around 20 Chinese MOOC platforms (unclear)

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

“We must not paint the picture of 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 is the need of MT users?
What can affect user experience of MT?
Do end users accept MT content?
...

In the Information Systems (IS) community, TAM is the most popular model among those proposed to explain and predict the acceptance of a system.

Fred Davis first proposed TAM in his doctoral thesis in 1985.

He proposed that system use can be explained or predicted by user motivation, which, in turn, is directly influenced by an external stimulus consisting of the actual system’s features and capabilities.

Base on the theory of reasoned action (Fishbein and Ajzen, 1975) and other related research studies, after some modification, Davis proposed the “final” version of TAM in 1996.
First TAM (Venkatesh & Davis, 1996)

- Perceived usefulness (PU)
- Perceived ease of use (PEOU)
TAM 2 (Venkatesh & Davis, 2000)
Extended TAM (Venkatesh, 2000)

Anchors
- Computer Self-Efficacy
- Perceptions of External Control
- Computer Anxiety
- Computer Playfulness

Adjustments
- Perceived Enjoyment
- Objective Usability

Technology Acceptance Model
- Perceived Usefulness
- Behavioral Intention to Use
- Perceived Ease of Use
Why TAM?

It’s general.
It’s relatively uncomplicated.
It’s usable cross-culturally.
Our research

- Pick a MOOC
- Raw MT subtitles & full post-edited MT subtitles
- Recruit participants
Research questions and assumptions

RQ: What is the level of acceptance of MT for MOOCs?

Is TAM a useful model for measuring acceptance of MT for MOOCs?

Assumptions:

The end users who are offered full PEMT subtitles has higher acceptance of subtitles than those who are offered raw MT subtitles.

PU influences the intention to accept machine translated subtitles. PEOU influences the intention to accept machine translated subtitles. Experience of MT and subtitles influences PU of end users.

…
TAM for end users’ acceptance of machine translation in a MOOC environment (EN-ZH)

- Experience
- Trust
- Subjective Norm
- Task Relevance
- Compensation
- Perceived Quality
- Perceived Enjoyment

Perceived Usefulness

Perceived Ease of Use

Intention to Accept Machine Translated Subtitles
Definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
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<tr>
<td><strong>Perceived Usefulness:</strong></td>
<td>The degree to which a person believes that machine translated subtitles would enhance his or her job performance.</td>
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<tr>
<td><strong>Perceived Ease of Use</strong></td>
<td>The degree to which a person believes that using machine translated subtitles will be free of effort.</td>
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<tr>
<td>Experience</td>
<td>The knowledge and experience a person has about MT and subtitles.</td>
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<tr>
<td>Trust</td>
<td>The subjective probability with which people believe that machine translated subtitles will adequately transfer the meaning of the source text.</td>
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<tr>
<td>Subjective Norm</td>
<td>The degree to which a person perceives that most people who are important to him or her think he or she should or should not use machine translated subtitles.</td>
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<tr>
<td>Task Relevance</td>
<td>The degree to which a person believes that MT and subtitles are applicable to his or her task.</td>
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<tr>
<td>Compensation</td>
<td>The degree to which a person believes that he or she has the ability to comprehend machine translated subtitles using additional inputs.</td>
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<tr>
<td>Perceived Quality</td>
<td>The degree of how good a person perceives about the quality of machine translated subtitles.</td>
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<tr>
<td>Perceived Enjoyment</td>
<td>The extent to which the activity of using machine translated subtitles is perceived to be enjoyable in its own right.</td>
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<tr>
<td>Intention to Accept Machine Translated Subtitles</td>
<td>A person’s behavioural intention to accept machine translated subtitles.</td>
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Perceived usefulness:
1. The subtitles allow me to easily understand the contents of the MOOC.
2. The subtitles enhance my effectiveness in completing a MOOC.
3. The subtitles are useful to me.

Perceived ease of use:
1. The subtitles are easy to understand.
2. Interacting with the subtitles does not require a lot of my mental effort.
3. I would find it easy to get the information I need from subtitles.
4. The subtitles are clear and understandable.
Self-report survey by Likert scale method

Subjective norm:
1. People who influence my behavior would prefer me to accept the machine translated subtitles.

Compensation:
I could comprehend the subtitles…
1. If there was no one around to tell me what to do as I go.
2. If I could call someone for help if I got stuck.
3. If I had a lot of time.
4. If I had just the built-in help facility for assistance.
## Limitations of TAM (Lee et al., 2003)

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<th>Explanation</th>
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<td>Self-reported usage</td>
<td>Did not measure the actual usage</td>
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<tr>
<td>Single Information system</td>
<td>Use only a single information system for the research</td>
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<td>Single subject</td>
<td>Only one organization, one department, MBA students</td>
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<td>One time cross sectional study</td>
<td>Mainly performed based on cross-sectional study</td>
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<td>Measurement problems</td>
<td>Low validity of newly developed measure, use single item scales</td>
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<td>Single task</td>
<td>Did not granulize the tasks, and test them with the target IS</td>
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<td>Low variance scores</td>
<td>Did not adequately explain the causation of the model</td>
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<td>Mandatory situations</td>
<td>Did not classify mandatory and voluntary situation, or assume voluntary situation</td>
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<tr>
<td>Others</td>
<td>Small sample size, short exposure time to the new IS, few considerations of cultural difference, self-selection bias</td>
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References are available on request

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