Do machine translations increase the usefulness of summaries of MEDLINE abstracts? An interface evaluation with medical students and physicians in Peru

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Abstract and Objective

Searching and reading MEDLINE citations and abstracts can be challenging for non-native English speakers. The objective of this paper is to evaluate the usefulness of an interface that incorporated an automatic machine translation of MEDLINE citations, short "bottom line" summaries and abstract from English into Spanish. Twenty one participants (5 physicians and 16 medical students) from a Peruvian medical school evaluated the perceived usefulness of the translations. Overall, Spanish translations were rated as "useful" to "very useful" (3.7/5, mode=4). We also found that more than a half of the participants (62%) and most of the suggestions were related to interface improvement (33.3%) already underway. Improving the search boxes and the translation were also suggested. A usability evaluation study with more participants and with special measurement instruments designed for web interfaces is planned.

Keywords:

MEDLINE, PubMed, TBL, Machine translation, Interface, Spanish, Peru.

Methods

Medical students and physician volunteers were recruited from the School of Medicine at Universidad Peruana Cayetano Heredia. They accessed a PICO Linguist search page in Spanish, available at: http://pubmedhh.nlm.nih.gov/tran/pico/pico.php?lang=spa. The search terms were then translated into English MeSH terms by NLM's BabelMeSH server (http://babelmesh.nlm.nih.gov/), then sent to PubMed via E-Utilities. Upon clicking a "Show/Hide" button, the article title, abstract or TBL ("the bottom line") [1], the English and Spanish translations were shown in parallel using Google Translate (http://translate.google.com/) via an API available from Google. Participants were then presented with a popup box to evaluate the usefulness of the Spanish translation using a 5-point Likert scale, from 1="Not useful at all" to 5="Very useful". Study participants' feedbacks were also obtained through in-person interviews. The participants provided comments and suggestions at the evaluation sessions.

Results

A total of 94 responses about the translation perceived usefulness were recorded on the BabelMeSH server from a total of 5 physicians, and 16 medical students. On the 5-point Likert scale, the average overall score was 3.68 (3.73 for abstract only [n=23] and 3.66 for TBL only [n=71]). The mode was ranked as "4" (n=52) for both abstracts and TBL. Self-reported MEDLINE searching skills were ranked as 3.45 (SD =0.52) for non-clinical students, 4 .2 (SD =0.84) for clinical students and 5 (SD=0) for physicians. Self-reported English reading proficiency were ranked as 3.63 (SD =0.92) for non-clinical students, 4.4 (SD =0.89) for clinical students and 5 (SD=0) for physicians. Main suggestions were related to improve the interface (n=13), search boxes (n=9), translation (n=7), to include a help section (n=6) and to include the full-text links for results (n=4).

Conclusions

The results seem to indicate that an automatic machine translation can be useful in the user's comprehension of bottom line summaries and abstracts. We also found that in more than a half of the participants, most of the suggestions were related to interface improvements. Participants also suggested improving the search boxes (i.e. including more limits) and the translation.

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References

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