Improving Access to Medical Literature Using Multilingual Search Interfaces

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Abstract and Objective

The vast majority of the internationally-published medical and scientific literature is published in English. However, most of the world's population speaks English as a non-native language, if at all. This linguistic situation creates a barrier to access for clinicians and scientists throughout the non-Anglophone world, and first manifests itself during the literature search process. This poster describes a multilingual search system that seeks to address the linguistic barrier using a combination of machine translation and linguistic support features. The poster also describes user-centered evaluation methods for multilingual interfaces.

Keywords:

Information storage and retrieval, Bibliographic databases, Translations, Information dissemination, Access to information.

Introduction

Non-native English speakers face a multitude of challenges when using bibliographic database search systems, beginning with the task of constructing an effective query and continuing through the rest of the search process. Existing medical search interfaces that have sought to address this problem have focused on query specification[1]; however, user studies indicate that search result analysis is a more appropriate place to assist users[2]. This poster presents a bibliographic search system that provides result translation and other linguistic support to Spanish-speaking users of the National Library of Medicine's MEDLINE database.

Methods

In this system, all user interface elements are fully localized to Spanish. Our search system does not seek to use machine translation (MT) to *replace* the English reading task; rather, we wish to use MT to *support* the user in this task. For this reason, the system described in this poster implements a variety of interaction modes, most of which present the user with a combination of translated and original-language text. The system uses commercial MT tools such as Google Translate to translate result titles and abstracts, and uses the UMLS metathesaurus to translate result MeSH headings. The system also uses Google Translate to perform search-term highlighting within the translated results. The system also provides users with various linguistic support features, including term glossing and Spanish-language clustering of results by MeSH heading.

Results

Evaluation of interactive information retrieval systems is not an easy task, as most traditional IR evaluation methodologies are system-oriented and do not take user experience into account. Since, in this case, user experience is the system's *raison d'être*, user-centered evaluation approaches such as those descried by Petrelli[1] must be used. We may ask several sorts of questions about the performance of a multilingual search interface: does it enable the user to perform an equivalent search task *faster* or *more efficiently* than they would have been able to do using a monolingual interface? Does it enable the user to perform *different* search tasks than those that they would have been able to perform using a monolingual interface? Do users *prefer* a multilingual interface to a monolingual one?

Conclusion

The system presented in this poster uses machine translation and effective user interface design to make English-language articles easily accessible to Spanish speakers. Our hope is that such systems will increase utilization of medical and scientific literature by individuals who, up until now, have been disinclined to do so due to language-related difficulties.

References

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