

# CaTER: University of Michigan's Web Portal for Clinical and Translational Empowered Research

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## Abstract

Numerous biomedical resources (e.g. websites to help find clinical trials) are being developed and used by basic science, clinical, and community researchers worldwide. A common approach to integrate such resources is by organizing them in a single classification scheme so users can quickly navigate to the resources they need. However, a preliminary analysis of biomedical resources at the University of Michigan revealed that the resources can be organized along multiple dimensions such as audience, purpose, or institutional affiliation, suggesting that no single classification scheme is sufficient. These findings led us to prototype a faceted search interface, where users can search and browse resources based on multiple attributes obviating the need for a single classification scheme. Such an approach should enable users to quickly find, and use biomedical resources on CTSA portals.

## Introduction

The Web has spawned a large number of biomedical resources (e.g. websites to help find clinical trials) that are used by basic science, clinical, and public health researchers. To enable the fluid exchange of information amongst these researchers, we are developing CaTER (Clinical and Translational Empowered Research), a web portal that will integrate large numbers of biomedical resources, and enable researchers to rapidly find the ones they need. Here we describe our design for a flexible, extensible faceted classification scheme to organize the biomedical resources at the University of Michigan.

## Method

We used an affinity diagram [1] to construct a classification scheme for 25 biomedical resources. Three biomedical researchers grouped post-it notes (containing names of the resources and of potential users) on a whiteboard to collaboratively explore ways to classify the different resources.

## Results and Design Implications

Our analysis revealed that the resources could be classified in many different ways, with no single approach that would be sufficient for all users. This

was because each resource had multiple attributes on which the resources could be searched. For example, the Engage Registry (used to find clinical trials) can be classified by the intended audience (Patients), by its purpose (Find clinical trials), or by its parent institution (MICHR). The user's prior knowledge and goals determines which of the above schemes is appropriate. Therefore, no single resource classification scheme is universally sufficient.

The multi-dimensional attributes of resources suggested that CTSA portals could benefit from a *faceted search* interface which enables users to find resources based on different attributes. In this approach, each resource is classified based on facet values. For example, Engage Registry was classified as *Patient*, *Find clinical trials*, and *MICHR* for the facets *Audience*, *Purpose*, and *Institution* respectively. An interface then allows users to search for relevant resources by selecting specific facet values (e.g., *Patient* on the *Audience* facet).

Figure 1 shows a prototype of the above approach using the Flamenco open-source system [2]. As shown, a user can select from different facet values (e.g., Patient), each of which has an associated number showing how many resources share that facet value (e.g., 11). Each selection narrows the number of resources that match the inputs. The facets and their values are stored in a database which can be updated for each new resource. Future research should determine if the above approach is useful and usable to quickly find biomedical resources in CTSA portals.

AUDIENCE		PURPOSE	
Bench Researcher (2)	MICHR/CTSA Administration (6)	Apply for IRB (1)	
Clinical Researcher (9)	Patient (11)	Find Biomedical Analytical Tools (2)	
Clinician (11)	Public Relations (6)	Find Clinical Trial (3)	
Community (4)	Sponsors (6)	Find Evaluation Tools (1)	
		Find Grant (4)	
		Find Research Project (3)	
		Find Researcher (2)	
		more...	
INSTITUTION			
CCMB (1)	NCIBI (1)		
Life Sciences Institute (6)	OVPR (3)		
Medical Education (1)	School of Information (1)		
Medical School (1)	UMHS (1)		
MICHR (6)	University of Michigan (3)		

Figure 1. A faceted search interface to enable users to find resources based on different attributes.

## References

1. Beyer, H., Holtzblatt, K. *Contextual Design*. Morgan Kaufmann, San Francisco, CA, 1998.
2. Hearst, M., Elliott, A., English, J., Sinha, R., Swearingen, K., & Yee, P. Finding the Flow in Web Site Search. *Communications of the ACM*, 45 (9), 2002, 42-49.