Evaluating Technology in Healthcare: Testing the usability of a clinical trial query tool using think-aloud methods

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Overview

I. Healthcare technology tool

II. Think aloud method and screen recorder software

III. Opportunities

IV. Challenges

V. Other uses of this method

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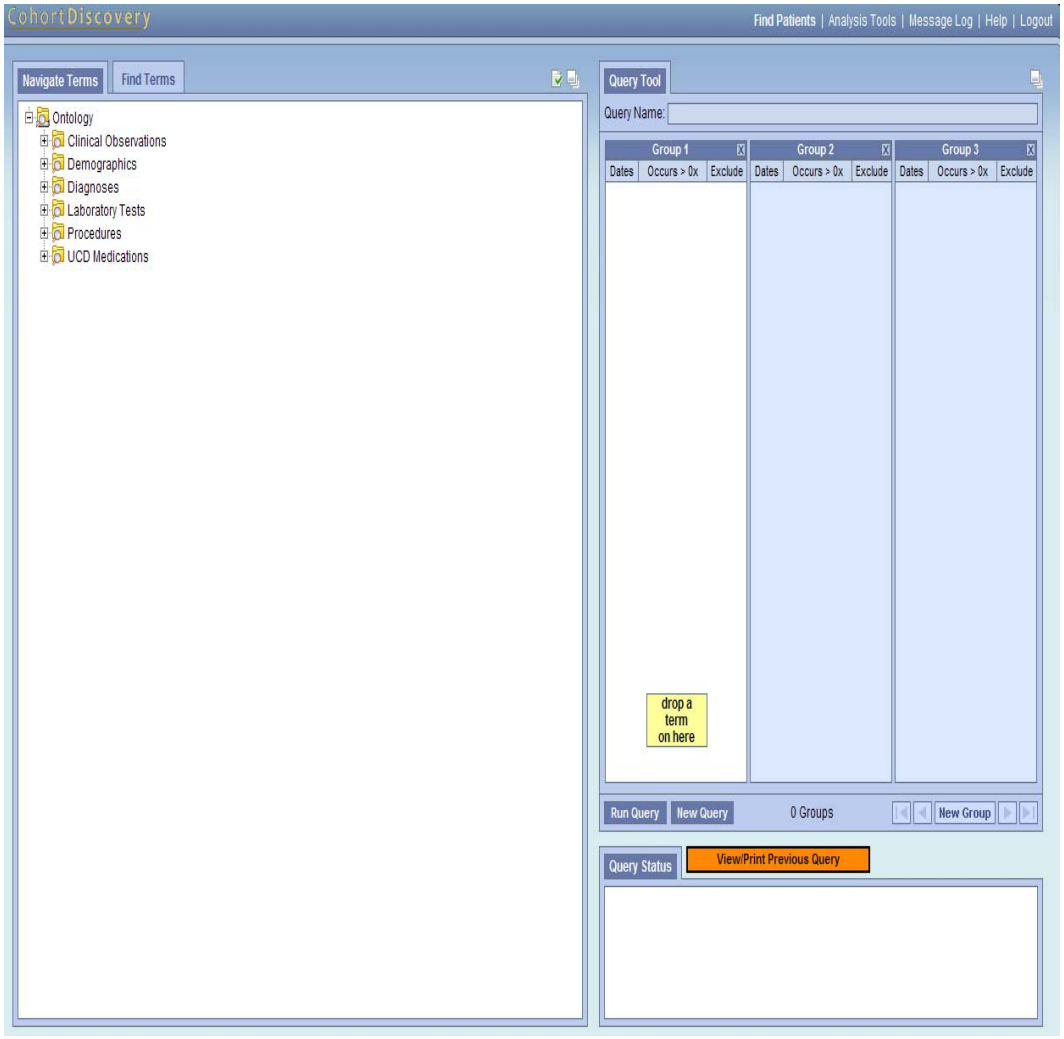
Evaluation of: i2b2 Cohort Discovery Tool



- Software to help health researchers find potential research subjects for clinical trials
- Search de-identified electronic health records

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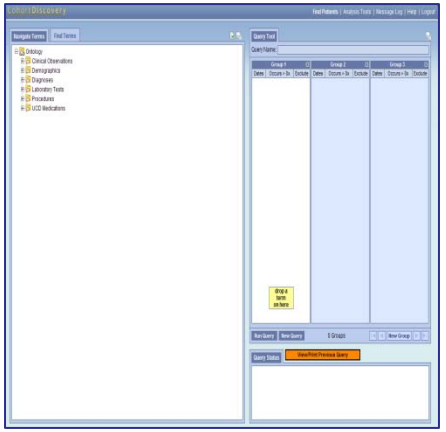
PATIENT INFORMATION

Medical Records

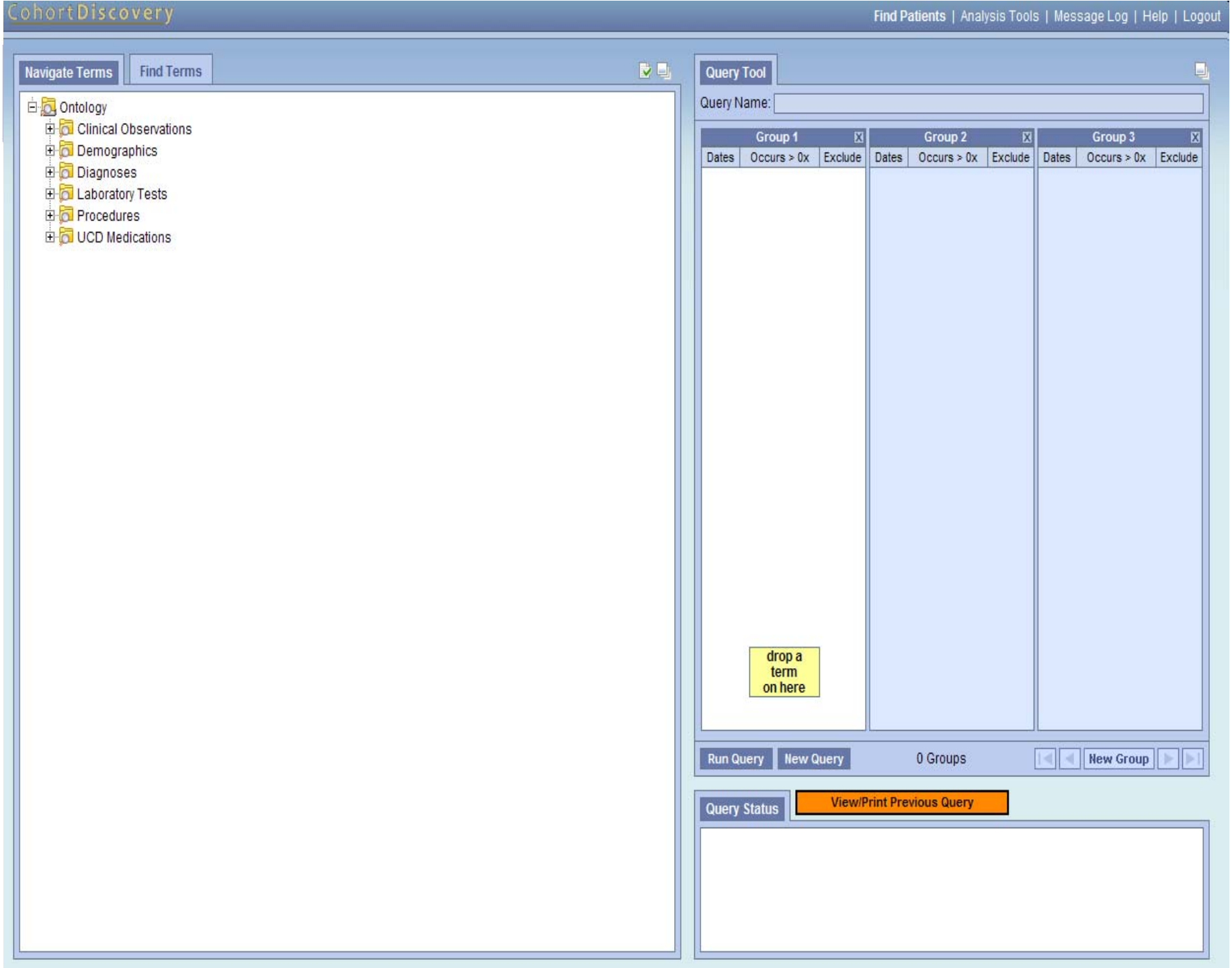
Labs

Billing

Data Warehouse



Researcher


CohortDiscovery
Find Patients | Analysis Tools | Message Log | Help | Logout
Navigate Terms
Find Terms
Ontology
Clinical Observations
Demographics
Diagnoses
Laboratory Tests
Procedures
UCD Medications
Query Tool
Query Name:
Group 1
Group 2
Group 3
Dates
Occurs > 0x
Exclude
drop a term on here
Run Query
New Query
0 Groups
New Group
Query Status
View/Print Previous Query

Evaluation Objective

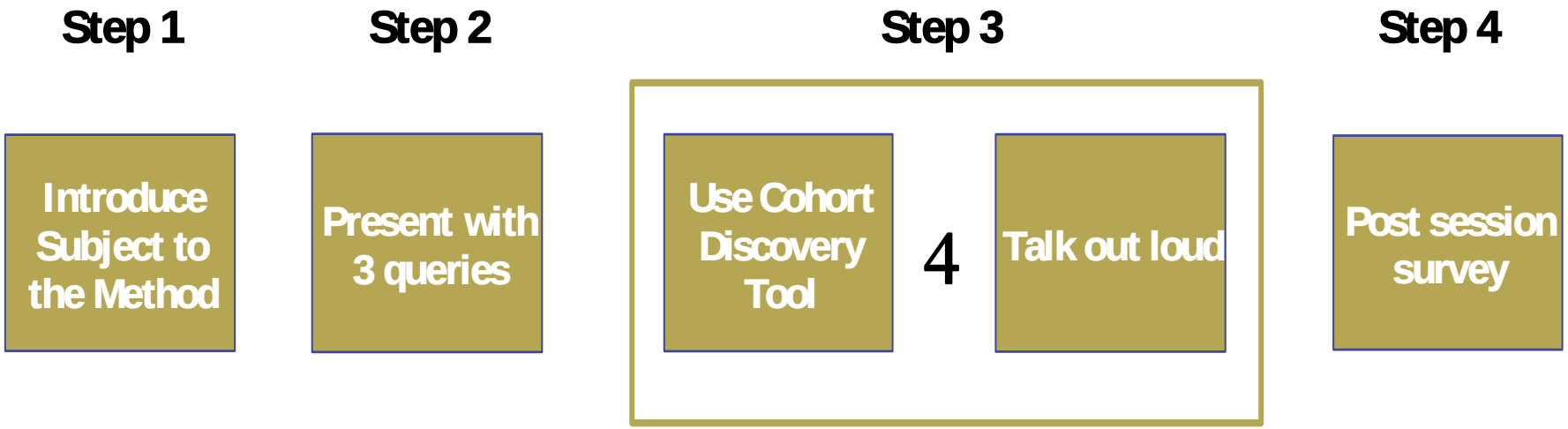
Inform the development of the tool

- Understand how the tool was being used
- Identify problems in design and use

Think-Aloud Method

"Thinking aloud may be the single most valuable usability engineering method."**

4-Step Process



**J. Nielsen, Usability Engineering. Cambridge, MA: AP Professional, 1993.

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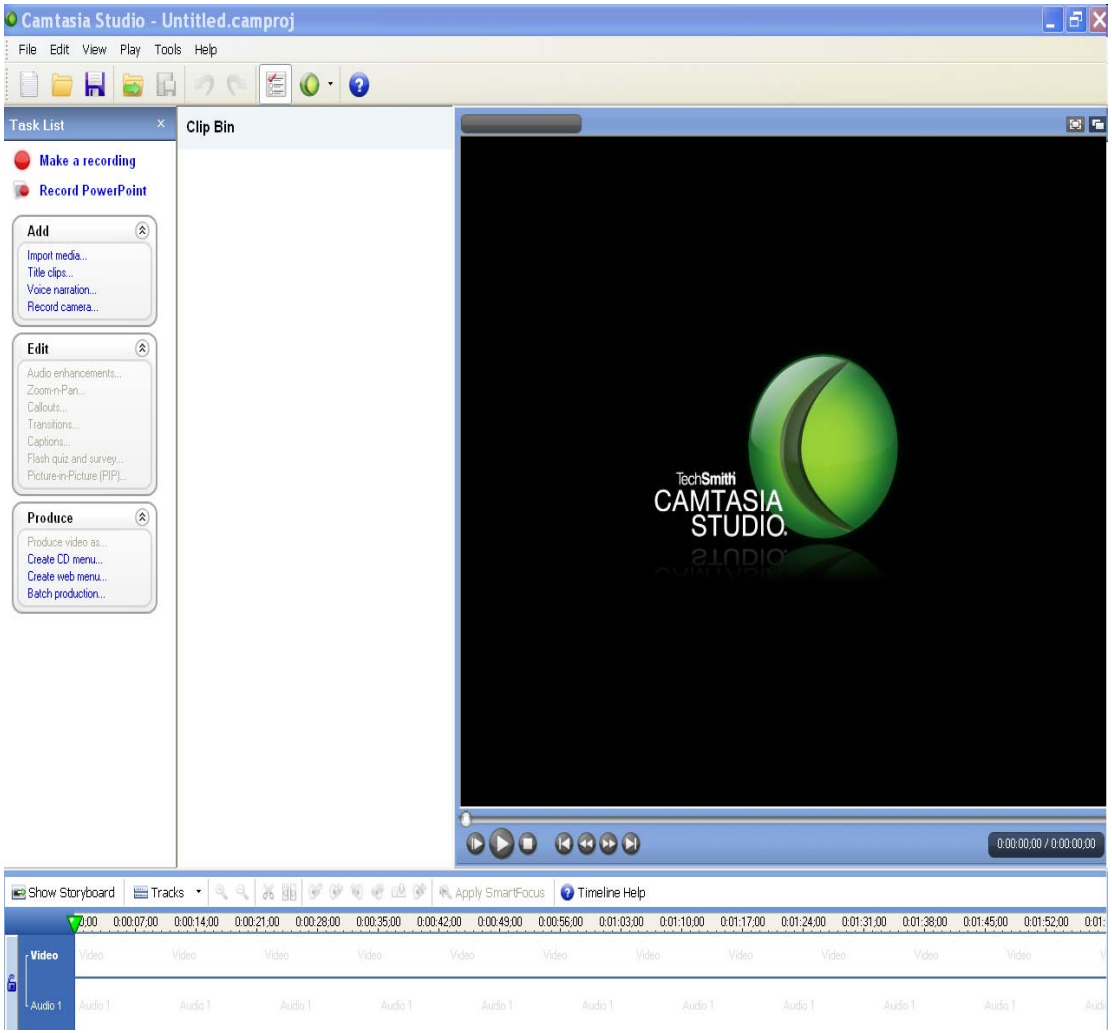
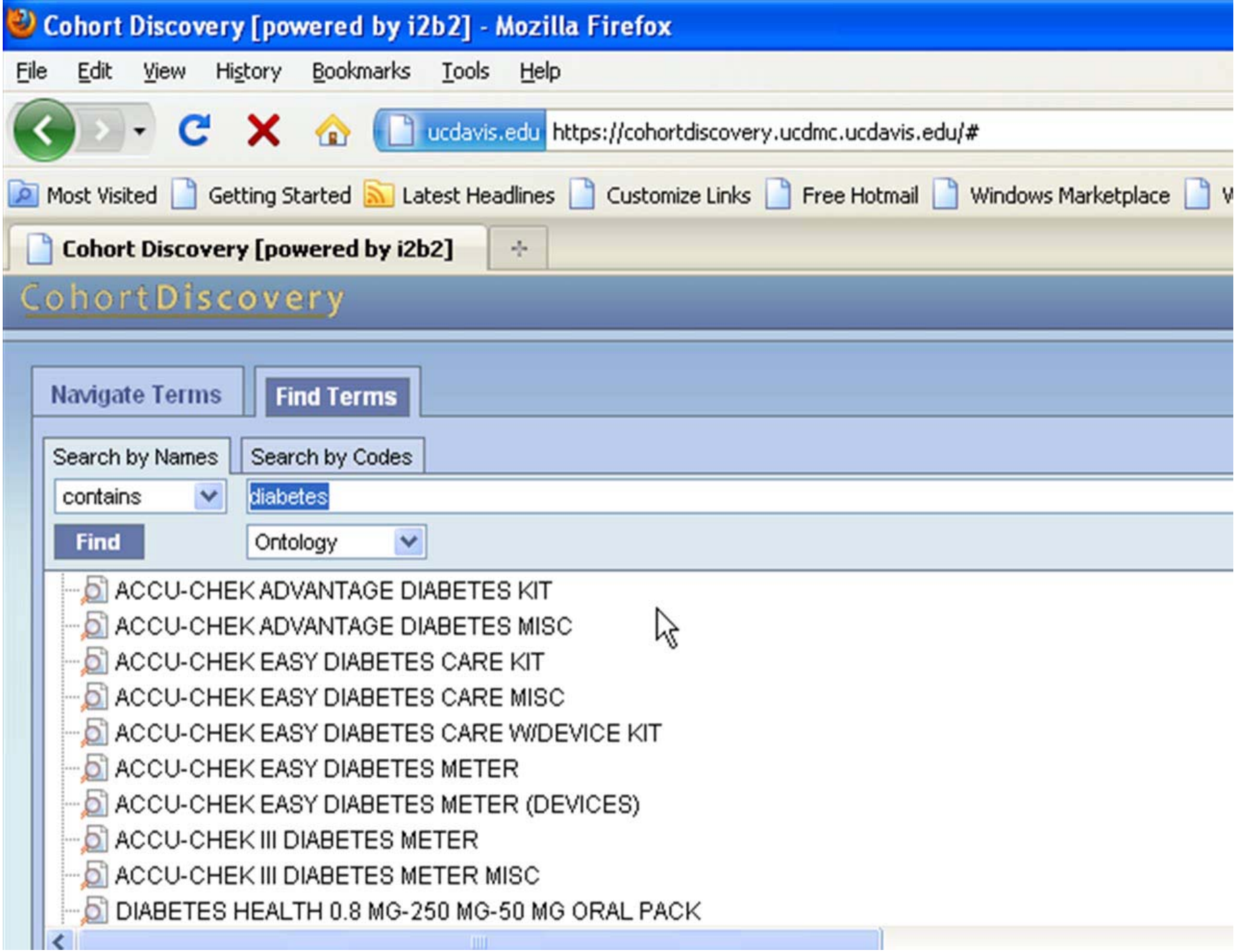
For Evaluation: Camtasia Studio



- Screen recorder tool used to capture video and audio
- Similar programs include BSR, Captivate, My Screen Recorder and others


Cohort Discovery [powered by i2b2] - Mozilla Firefox
File Edit View History Bookmarks Tools Help
ucdavis.edu https://cohortdiscovery.ucdmc.ucdavis.edu/#
Most Visited Getting Started Latest Headlines Customize Links Free Hotmail Windows Marketplace
Cohort Discovery [powered by i2b2]
CohortDiscovery
Navigate Terms
Find Terms
Search by Names
Search by Codes
contains
diabetes
Find
Ontology
ACCU-CHEK ADVANTAGE DIABETES KIT
ACCU-CHEK ADVANTAGE DIABETES MISC
ACCU-CHEK EASY DIABETES CARE KIT
ACCU-CHEK EASY DIABETES CARE MISC
ACCU-CHEK EASY DIABETES CARE W/DEVICE KIT
ACCU-CHEK EASY DIABETES METER
ACCU-CHEK EASY DIABETES METER (DEVICES)
ACCU-CHEK III DIABETES METER
ACCU-CHEK III DIABETES METER MISC
DIABETES HEALTH 0.8 MG-250 MG-50 MG ORAL PACK

Opportunities

- Identify underlying logic that may not be conscious
  - For example, speed bumps and work arounds video
- Identify non-cognitive responses

Opportunities (cont'd)

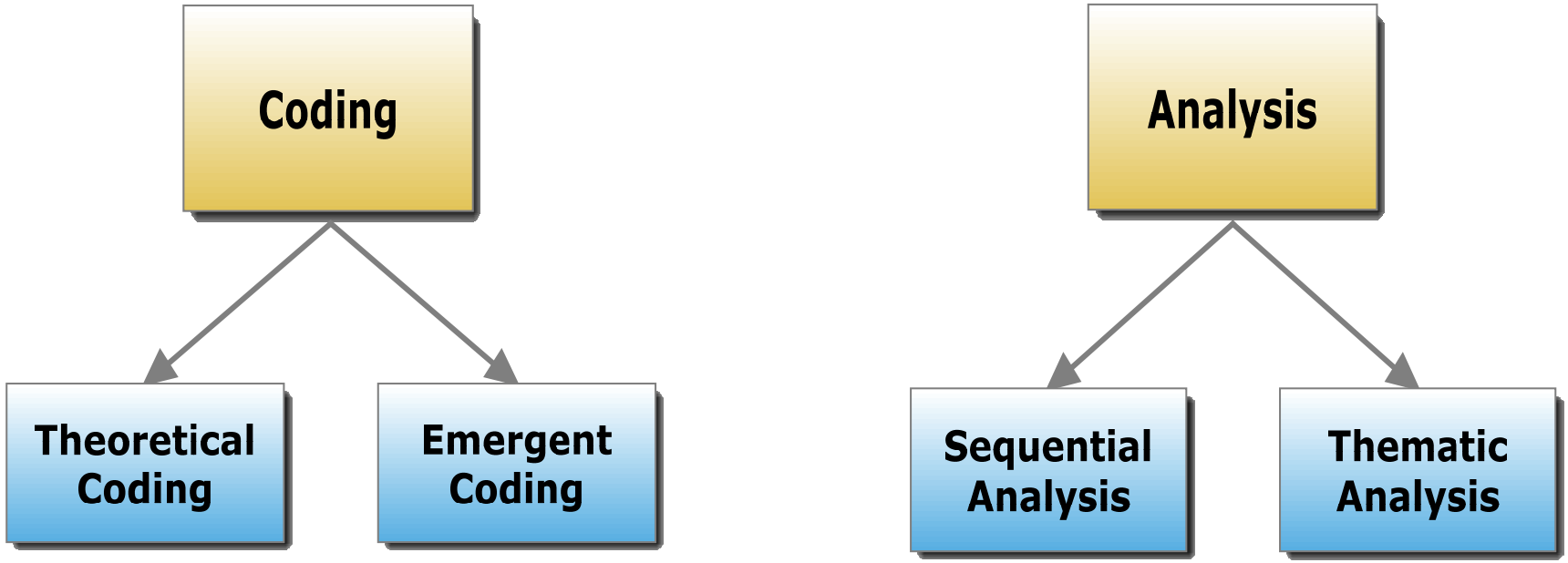
- Observe active learning video

- Capture difficult to identify processes, such as uncertainty video

Challenges

- Coding and analysis
  - What to code and how to code

Coding & Analysis



Challenges (cont'd)

- Measurement
  - Measuring efficiency, accuracy, and satisfaction

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Efficiency

Accuracy

Gold Standard

Satisfaction

Post-think aloud questionnaire

Critiques of Think Alouds

- May change activity

- Not consistent among different types of learners

Uses of Screen Recording and Think Alouds in Evaluation

- Evaluation
  - Piloting web-based surveys
  - Evaluating development or use of databases and other programs
- Communication
  - Share information with key stakeholders
  - Train program staff on database use

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