

Dedoose Case Study

Dedoose — the first of its kind mixed-methods research system is standardized on WebORB for .NET as the backbone of this cut-



dedoose

ting-edge Rich Internet Application. Dedoose offers an improved way to do both qualitative and quantitative research and the software is deployed as a service, which helps end-users avoid costly desktop installations and maintenance contracts.

Business Overview

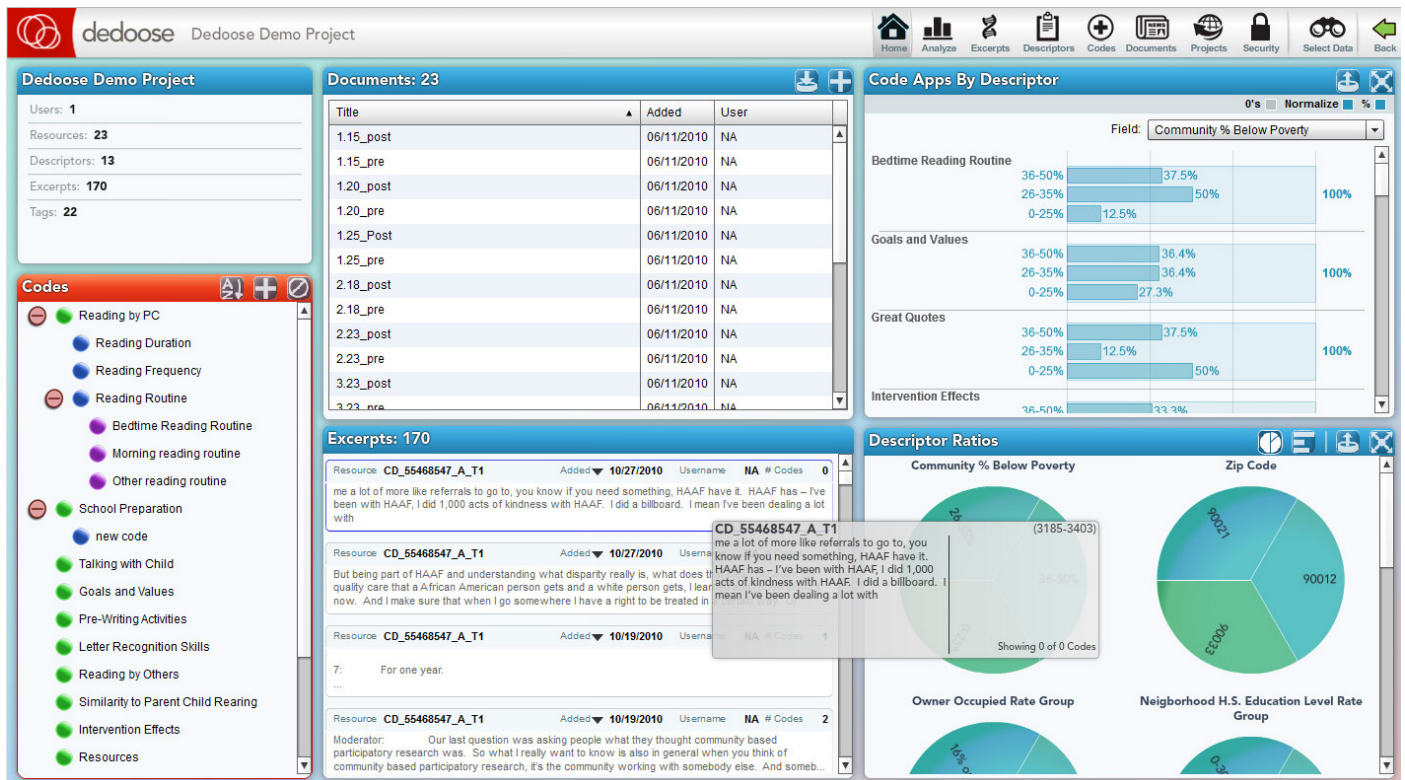
Dedoose is in the business of collecting massive amounts of qualitative and quantitative data (mixed-method data). We deal with extremely large datasets and the relationship between complex objects and their hierarchical structure. The idea for Dedoose, the application, came when Drs. Thomas Weisner and Eli Lieber, Dedoose co-founders were working on a very large, particularly challenging research project that was geographically distributed. At that time, Weisner and Lieber were responsible for training design, designing various research protocols, training the field work team to do data analysis and then integrating the qualitative and quantitative data. Considering the lack of mixed-method research technology, the difficulty of performing those tasks and lack of easy collaboration is why Dedoose was created.

Traditional solutions are typically quantitative or qualitative, but not mixed and they consist of desktop software that is usually installed by a member of the IT team and come with a hefty maintenance contract. Desktop software is not collaborative either, so the richness of the research has traditionally been limited.

Application Overview

Scientific methods are the “how to” parts of data collection and analysis. Qualitative methods are by nature relatively open-ended and include interviews, observations, and notes. These data are typically analyzed through content analysis and organization into categories to show the diversity of and connections between ideas. Quantitative methods include measurement scales, checklists, and weights and are generally analyzed with statistical techniques. Mixed methods are creative efforts to blend these traditions with the hopes that research will benefit from the strengths inherent in both qualitative and quantitative approaches. This blending can take many forms and, accordingly, the data analysis strategies must also be adaptive.

Dedoose was designed and built for one primary purpose—to facilitate the management and analysis of the data that come from mixed methods research. Dedoose serves a growing number of researchers and research teams using mixed methods by making it fast, easy, and inexpensive to do the things mixed methods researchers need to do.



The biggest differentiator for Dedoose is that it is an online application offered as a service. As a result, subscribers receive the benefits that online applications offer, such as access from any computer anywhere in the world; the ability to collaborate with other researchers anywhere and access to a full-featured mixed-methods application for a low monthly cost. Furthermore, according to Jason Taylor, Dedoose Chief Architect and co-Founder, “If someone asks for a feature update, oftentimes we are able to push it out the very next day.”

The Problem

The Dedoose team had to deal with how to manage extremely large datasets and the relationships between complex objects and their hierarchical structure, then be able to deliver query results fast and in a format that was easily understood. At the core of the Dedoose technology exists 8 main objects, consisting of over 100,000 datasets for some projects. Even some of the documents that users upload to their Dedoose account consist of over 30,000 pages. According to Taylor, “Our datasets are so large that we had to develop our own data grid, because whenever we threw 300,000 items

at the Flex controls, it would choke at 10,000 elements.”

Additional challenges included figuring out how to support multiple types of computer users. Some were Mac users and others were PC users. They even had researchers who weren't particularly comfortable with computers at all.

Dedoose's success criteria consisted of delivering an application that offered platform independence, collaboration, ease of use, mixed-methods data integration, low cost and data transparency. Additionally, the Dedoose application had to be different from the desktop software provided by significantly larger solution vendors. The collaboration and usability aspects the Dedoose team envisioned had to offer huge improvements over existing bulky offerings and the data visualization features had to enable researchers to more easily expose patterns in the qualitative data— something that had been difficult to discover, much less even think about using other solutions.

The Solution

While Flex provided the Dedoose team the usability and interactivity they were looking for on the client interface, they needed something solid on the back-end that would enable rapid communication between their Flex client and backend database. Taylor stated, “I looked at FluorineFX in the past, which was truly a nightmare. Not only did Fluorine lack the enterprise features we needed, it was also very difficult to work with. I wasted quite a bit of time trying to get that to work for my team and me and found it not to be a good solution for my business or any business that needs to do rapid development and scale their enterprise for that matter. WebORB on the other hand has a robust set of features, is commercially supported and can handle my large datasets. In my mind, there is NO better way to build a Rich Internet Application in Flex and .NET than to use WebORB.

WebORB's productivity tools alone enable us to go head-to-head against larger development teams if we need to, but honestly, we don't even see them as competitors. Our Rich Internet Application blows whatever larger corporations offer out of the water and it's because of our tooling — solutions like WebORB that make this possible. We can get a phenomenal amount of work done with just a very small team. In fact, our team of two developers has produced an application far more complex, compelling and intuitive than anything else out there using WebORB.”

Features Implemented

Remoting — Dedoose uses WebORB's remoting feature to deliver massive amounts of data quickly and with very little overhead.

Real-time Messaging — Dedoose leverages WebORB's real-time messaging framework

for online chat and notification systems. WebORB enables Dedoose to instantly push messages out to their clients anytime a new update is implemented. Typically the message to their clients calls for a simple screen refresh.

Data Management — Dedoose uses WebORB Data Management for Flex mainly for rapid prototyping.

Streaming Media — Dedoose will incorporate WebORB's streaming technology in future iterations.

Management Console — Dedoose relies heavily on WebORB's management console, which is home to functionality such as code generation, service browser and invocation test drive. According to Taylor, "The code generation is second to none and we couldn't live without it!"

Custom Serializers - The ability to utilize custom serializers with WebORB saved the Dedoose team quite a bit of time.

Closing Remarks

"I love WebORB and Midnight Coders. I could not have started or launched my business without them. That's how important they are to my business. Midnight Coders makes it easy for startups like mine to get to market cost effectively and I highly recommend them and WebORB to any company building Rich Internet Applications." — Jason Taylor