

# Building and Using a Web Database in the Classroom With FrontPage

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**Subject:** Social studies, lifelong learning

**Audience:** Teachers, teacher educators

**Grade Level:** 8–12 (Ages 14–18)

**Technology:** Internet/Web, e-mail, database software

**Standards:** *NETS-S* 3–5; *NETS-T* I, II, V ([www.iste.org/standards](http://www.iste.org/standards)). *NCSS* II, III ([www.socialstudies.org/standards](http://www.socialstudies.org/standards)).

It's important to be comfortable with technology as well as your teaching practice. You need both strengths to draw from.



One of the greatest challenges in collaboration projects assigned to students is the management of information. These projects can involve a lot of paper handling by both teachers and students. In schools with high absenteeism, the key group member with the documents is often not present, which frustrates the rest of the group and prevents the project from moving forward. On a Windows computer with the Web, the simple form wizard in Microsoft FrontPage 2000 or 2002, and Microsoft Access, it's easy to build a collaboration interface that helps groups of students manage their information and helps teachers monitor their progress.

Last spring, I developed a WebQuery project for my U.S. History Online class. This project had collaboration at its center. Students were to work in teams to develop a research project that they would put on the Web. Some of the topics included: Women in the Work Force during World War II, The United States and the Holocaust, and The Rise of Labor.

Students would choose from a list of topics, and I would group them according to their interests. I developed a drop-down menu, and students would pick first, second, and third preferences. With the information feeding a database, a simple query was the only step needed to group them by preferences. One of the issues that developed for me was how to link groups with the same topics but in different classes. Because this class had a large digital component, we could easily share information with students in other class periods. A second issue I faced was how to develop an efficient way to report back to the students on their group's progress. My students have typically had difficulty knowing what to do next and how to structure their activities in large project assignments. I developed a form to address these issues.

This work log, created with a FrontPage wizard, will send the data into a Microsoft Access database on the Web server. Students and teachers can query the data from the Web (Figure 1). The teacher can also run queries to do systematic investigations of students' progress. For example, I would query the progress notes of all groups working on the same topic to compare progress and offer advice to all the groups. A merge e-mail, using Outlook, enabled me to e-mail feedback to my students directly. I could also build in a comments field, where the entries could be viewed when the students called up their record on the Web. The comments could also be included in the e-mail merge.

With the work log interface, I was able to overcome these obstacles and therefore had considerable success in



Figure 1. The WebQuery work log.

gleaning more and better projects from my students. In an anonymous end-of-the-year survey, my students rated enhancing collaboration skills as the most successfully achieved goal of the class.

In this article, I walk you through the basics of creating a simple submission form and show how I have used it to facilitate the collaboration efforts between my students and my oversight of their work as it develops. My students often had difficulty keeping track of information from previous group sessions. Typically the information was held by me or a reliable student so that it would be available the next time the group met. With the work log, the information was available through e-mail or Web query to all the students anytime they needed it. Should they want a hard copy, all they had to do was print a Web page or an e-mail message with the information.

Students didn't have to be present in the same space at the same time to work together. For example, students who were absent could log in to the Web site and find the record of their group's activity. Those students could make a contribution, and the other students and I would see it the next time we checked the log.

Keeping all of this in mind, it is still important for the students to have a few meaningful face-to-face meetings to establish a positive connection. If you teach in a racially and culturally diverse setting as I do, I recommend an ice-breaker activity for the first meeting.

### **Build the Interface**

You will need Microsoft FrontPage 2000 or 2002 and a Web host that supports FrontPage extensions with Active Server Pages. (Most commercial hosts do this, and on an NT or Windows 2000 server, it's very easy to set up.) Although the examples in this article are in FrontPage 2002, FrontPage 2000 uses almost identical procedures. You also need Microsoft Access 2000 or 2002. (FrontPage and Access are part of

Office 2000 and 2002.) Basic familiarity with Access is helpful. Otherwise, you can probably find someone at your school to help you.

One of the most exciting things about FrontPage is its database connectivity features with wizard interfaces. This enables the non-techies—as most of us harried classroom teachers are—to build interactive components for our simple Web sites.

The first step is to create the form. Open FrontPage and create a blank page with a suitable title. Go to the Insert menu and select Form. A box with submit and reset buttons appears.

Press enter on your keyboard a couple of times to move the buttons down. Note, you must keep all form components in the dotted box. You can format and move text and objects around just as you would any other Web page.

Select your first field. Type a name—"Group Number"—and from the Insert menu, choose Form, then Text Box.

Below the first field, add another, for example, "Project Topic." Remember, this must be done in the same dotted box; do not create another form. With the cursor to the right of this new field heading, click on Insert, Form, Drop-Down Box.

Hit enter, and on the next line, type "Progress Notes." Then go to the Insert menu and click Form, Text Area. You now have a simple submission form that students may use to track their progress. You will probably want to add more fields as your projects require. Just repeat the above steps until you have all that you need. Then, we can prepare the form by assigning properties to the fields, formatting their appearance, and connecting them to a database.

### **Connect the Data**

You need to define the properties of each field, format their appearance, and connect to an Access database on the Web server. This is also done without

any coding, using the WYSIWYG (what you see is what you get) FrontPage editor.

Assigning properties is the first step. Double-click on the first text box labeled "Group No." The Text Box Properties dialog box appears.

Change the values in the "Name:" field to Group\_No. (Note: you cannot have spaces in Web-based database field properties or start the name with a numeric value.) Connect words with an underscore.

Change the "Width in characters" value to four (Figure 2). If you want to make this a required field, click Validate and check Required.

For the Project Topic field, you will need to make choices for the drop-down menu. Double-click on that field box, and the Drop-Down Box Properties field appears.

Name it using the same convention as above, and click on "Add" to start building your selection list. You may wish to start your list with a - (dash) if you want a neutral selection to appear on the form.

For the scrolling text box, the procedure is the same: double-click on it, and name it appropriately. Change the width to 40 and number of lines to 5. To move the field title to the top, insert a return after "Project Notes" by going to the Insert menu, choosing Break, and clicking OK.

You can alter the background color as you would with any other Web page. Go: Format, Background on the menu bar and choose your color. The same applies for images and lines as well. It is, after all, a Web page (Figure 3).

Sending to the database involves a few more steps. The first is to right-click with the mouse within the form area (not on top of a field or text). On the menu that appears, select "Form Properties."

Select "Send to database," if it's not already selected, and click on the Options button. A new window appears.

Click on the "Create Database..."



Figure 2. The Text Box properties dialog box.



Students didn't have to be present in the same space at the same time to work together.

Figure 3. [Author, please help with the caption here]

button. FrontPage automatically generates an Access database for you with all the fields you defined in a folder labeled “fpdb” on the root directory. This is where your data will go. To view it, click on that directory to open it, and click on the database file and the table called “results.”

You should now save your work. When you click on File, then Save, you will note that FrontPage wants to save it as an active server page with an .asp extension. You must do this for the form to work. Just be sure that your hyperlinks to this form page use the .asp extension and not an .htm extension. Now you can preview your form

in your Web browser and enter some sample data. With each submission, a confirmation page appears letting you know the data has been successfully submitted.

FrontPage 2000 users can access the data by going to the fpdb (as in FrontPage database) folder in their Web browser and viewing the data that way. Using these .asp forms is also a great way to build your gradebook. For example, I create a registration form for my students to fill out on the first day of class. I get all of the information I need from them, submitted via the form, in the database and then export to my Access or Excel gradebook. It

saves me hours of manual entry of my 120+ students' information.

### Share the Data

This is where FrontPage 2002 clearly has an edge over the 2000 version. For FrontPage 2000 users, one way of disseminating the information is to export that database to your computer from the Web server and use Microsoft Outlook 2000 to run a merge e-mail from the database. As long as you ask the students to fill in their e-mail addresses on the form, you can designate that field when running the mail merge wizard in Outlook as the address to send to. You must have Microsoft Word selected as

your e-mail editor in Outlook to use the mail merge wizard. I use it to send reports at the end of each week, or a day or two before it would be needed by my students.

FrontPage 2002 users can take advantage of a new wizard that enables access to the data on the Web. Once the query interface is set up, you needn't repeat your work, as you do with the mail merge. You create a new file in FrontPage and use the "Insert Database" command to get started.

Step 1 of the Database Results Wizard will ask you what connection you want to use. Select the one we created above (new\_page\_1 is what it's probably named).

For Step 2, accept Results as the data table to draw from.

In Step 3, you need to click on the More Options button. This is where you designate the field the students will query to bring up their record. In this case, group number is the logical choice. The field should have a unique value to guarantee that the right person receives the information. For example, I share my gradebook with my students this way. To ensure confidentiality, the student must enter their 9-digit ID number (a number not available to other students). Next click the Criteria button, then Add. In the Add Criteria window, choose Group\_No from the drop-down menu (Figure 4). Click OK twice to return you to the Step 3 of 5 window. Click on Next. This will require an exact match of the value in the data field with what the user has entered in the query form on the Web site.

In Step 4, you have formatting options. If you don't like long scrolls to the right when viewing data, choose "List - one field per item" from the drop-down menu. Under List options, I recommend that you choose "table." I think tables give you the most control and prevent awkward formatting and line breaks.

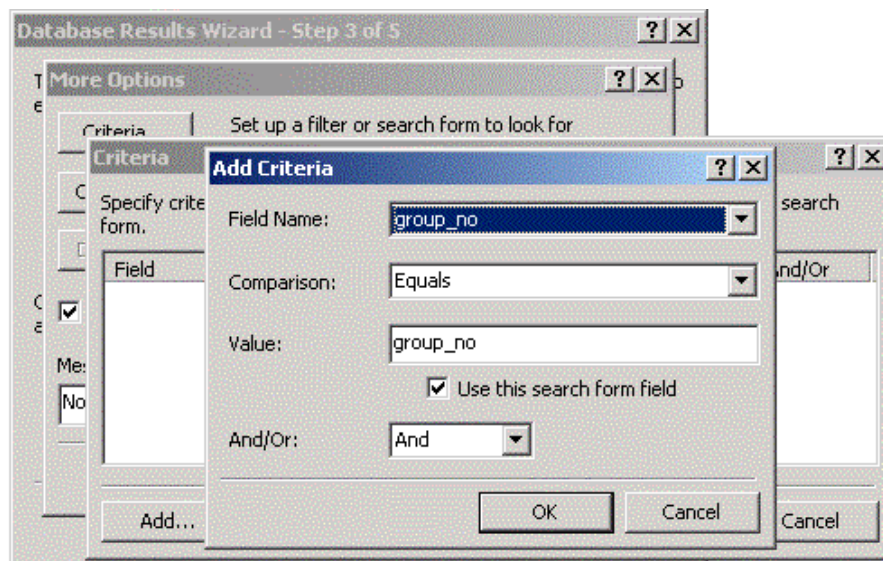


Figure 4. One of FrontPage 2002's wizards.

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In Step 5, it is very important that Add Search Form is checked. If not, there will be no field to enter search criteria. You can choose to break the records into groups if you are expecting a large number (more than 100) of records per group. Otherwise, use the default setting to keep all the records together. Click Finish, and your new page appears in the editor. You can also format this page as you did with the form above. However, be sure you don't touch the database code in the form fields and that you keep the database region out of the form box. You must also save this file as an active server page (.asp) for it to work.

You can now preview your form in your Web browser. Try querying for some of the sample data you entered with your collaboration form earlier. All you have to remember is one of the group numbers you used. You will notice that data appears sorted in chronological order, with time stamp and IP address in addition to user-submitted information.

#### **Work This into Your Curriculum**

It's an interesting space that lies between the discovery of a new technical skill and finding application for it in the classroom. My process has been that I have an educational vision and develop my class to reach that vision. In the meantime, I play with technology. Every so often, a light bulb goes off, giving me a new idea. It's important to be comfortable with technology as well as your teaching practice. You need both strengths to draw from. Otherwise, third parties (educational technology companies) are always trying to sell you their all-in-one solutions to technology. The teacher remains in a state of dependence on these Web shells that are often developed by non-educators. Too often, school districts spend a lot of money on these solutions with disappointing results.

Because I have always valued collaboration skills as part of my instructional mandate and have struggled with managing the flow of information in and between groups, this new method of using the Web-based database

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seemed like a great application. Because the data is available on the Web, it's also available for parents, mentors, and other educators to see.

The data is kept in a chronological format so the teacher and student can later examine the thought processes that took place throughout the course of the project to better understand teaching and learning. I have just begun to do this kind of inquiry, and I find that it has already enriched my teaching practice.

With my WebQuery project, students kept track of the following information in their work logs: group number, group topic, group members, progress notes, questions for me, and the URLs of Web sites found. The database automatically keeps track of dates for all activities. With 120 students in 40 groups, it was essential that I use the power of the database query to track progress. Some examples of queries involved finding out which groups discovered the same sources of information on the Web, which students were leaders (major contributors to the project), and what groups were having the same kind of problems in completing the task. In the last example, a number of groups had difficulty finding information on their topic. I sent these groups more refined instructions on how to conduct effective searches.

Queries could include these criteria:

1. "group topic" to show every groups' work on a particular topic for comparison,
2. specific "URL" to see what other groups have found similar information, and
3. specific content in the "help needed" field to focus just on what students are asking of me.

Nothing replaces walking around the lab and visiting the groups in person. That must still be done. However, with more class time taken for teaching to state exams, Web queries give the teacher a more efficient way to monitor group progress, even when the work is done from outside of the classroom, for example, at home.

These database wizards have empowered me as a teacher. They help me construct my own educational portal that is truly interactive, allowing me and my students to create Web content. What's new about this is that I was able to develop the means, the Web interface, to my own specifications and requirements. I depend less on already overburdened technical support personnel. This kind of independence—that is, teacher-designed and -driven technology solutions—helps our use of new media best serve the specific needs of our students.

I also have a written record of student progress on a given project. As an educator, I can examine the work flow and ideas as they develop over the course of the project. This can inform me about which aspects of the project work and which need revision.



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