

Using Technology to Improve Student Performance and Retention

**Adding individual tutoring to the
online educational experience**

Donald A. Chambless, PhD, PE

Advantages of Online Education

We are offering educational opportunity to people whose circumstances (work, family, handicap, time constraints, location, etc.) make it impossible for them to attend traditional classroom-based courses.

This is the huge importance of the work that we do as online teachers. But we have significant disadvantages that we face:

Disadvantages

- ❑ Faculty lose much of their ability to ensure academic integrity (who's actually doing the work?).

Ch 3	Ch 7	Ch 12	Ch 13	Ch 9
99.7%	100%	81%	92.1%	97%

Final

Proctored exam → 8.6%

Draw your own conclusions

Disadvantages

- ❑ Regular class meetings help set a pace for the course and reduce the tendency to *procrastinate*. Not infrequently, students even *admit* that they made the mistake of procrastinating.
- ❑ The student usually has little or no direct personal contact with the faculty member.

Disadvantages

- ❑ The faculty member can't see that a student doesn't understand.
- ❑ Attempting to answer a student's questions with a written explanation or video, etc. is often simply not sufficient.

The Elephant in the Room

In some situations there is simply no adequate substitute for direct student-to-teacher discussion (with oral and written explanations).

What can we do about this?

- We can talk with the students by telephone.
- We can meet students in the Wimba Classroom or at other free conferencing sites.

In some cases this may be good enough.

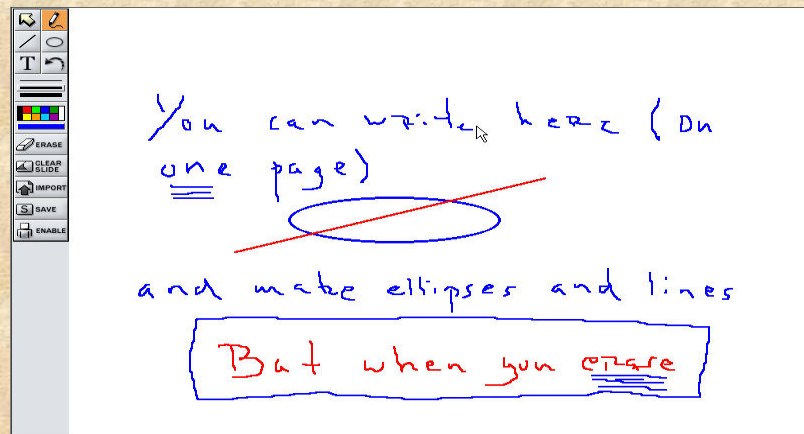
What can we do about this?

- But sometimes, the students need to be able to speak to us, hear us and most of all ...

be given an oral and written explanation in a one-on-one conference.

How can we write for our students?

Wimba's Classroom has a single page eBoard, but it's totally inadequate.



How can we write for our students?

There's not even a provision for erasing without wiping the entire board.



How can we write for our students?

- Usually tablet PCs (and some versions of Windows) come with Microsoft Journal and/or OneNote—these programs allow handwriting, but ...
- Microsoft Journal uses proprietary file formats, and you can't buy it (as far as I can tell) if it's not included in your Windows distribution.

How can we write for our students?

- You *could* buy OneNote (for about \$70), but it also uses proprietary file formats.
- I think there's a better solution. It's called:

JARNAL

So, let me tell you about Jarnal

- ❑ Jarnal is an open source program—it's free.
- ❑ It's written in Java so, in principle, it can be compiled for pretty much any computer.
- ❑ In particular, there are Windows and Mac versions.
- ❑ And one for Linux propeller heads (there's also Gournal and Xournal).

So, let me tell you about Jarnal

- ❑ It requires no installation, so your registry doesn't get further cluttered.
- ❑ It allows you to write on an inexpensive digitizing tablet in pens or highlighters with 10 colors and 4 widths.
- ❑ Or you could try writing with the mouse—not recommended!

Information about Jarnal

- ❑ Here's the Jarnal home page:

<http://levine.sscnet.ucla.edu/general/software/tc1000/jarnal.htm>

- ❑ **Warning:** Windows 7 has some built-in pen functions that conflict with Jarnal's operation—a little tweaking of Windows 7 is needed to get Jarnal to perform smoothly under Windows 7.

Information about Jarnal

- ❑ A series of excellent tutorials (including the special instructions for Windows 7) on Jarnal is available here:

<http://sites.google.com/site/danielkopsas/home/software-tutorials-1>

Who might use Jarnal?

- Any faculty member who assigns papers**
 - Jarnal Annotator will read any PDF file as a background and allow annotation of the paper using the pens and highlighters.
 - Students could be required to submit their papers in PDF form (conversion from Microsoft Word is easy and free).

Who might use Jarnal?

- PrimoPDF and *many* other free programs will convert Microsoft Word documents to PDF format (which, of course, is the definitive standard).
- Or there is free software available to front-end Jarnal that will convert a Word file to a PDF on the fly.

Who might use Jarnal?

- English teachers or tutors
 - Mathematics and science teachers or tutors
 - Accounting and economics teachers or tutors
- In short ...

Anyone who, from time to time, needs to write in real time discussions with students in order to teach well.

Let's look at Jarnal in action

Jarnal sessions with one or more students can be conducted in the Wimba Classroom using the AppShare utility.

This allows the instructor to both talk and write with the students in discussing problem-solving or making editorial comments on papers that the students have submitted.

Here's the way the session looks to the student:

Edit View Insert Format Tools Collaborate Help
 You can type in Jarnal if you want to.
 But the great thing is being
 able to write in real time.
 There are fine pens.
 And medium ones.
 And bold ones.
 And highlighters

of 1 | Text | Vera 28.0pt red Fine black pen 8.50" X 10.25" mem: 16%

Edit View Insert Format Tools Collaborate Help
 There are lots of choices of paper type and color
 But the great thing is being
 able to write in real time.
 There are fine pens.
 And medium ones.
 And bold ones.

of 1 | Vera 20.0pt black Fine black pen 8.50" X 10.25" mem: 21%

See if you follow this:

$$[4 \ 5 \ 3] \begin{bmatrix} 3 & 2 \\ 4 & 6 \\ -2 & 0 \end{bmatrix} = [26 \ 38]$$

The screenshot shows a digital whiteboard with a grid background. At the top, there is a menu bar with options: Edit, View, Insert, Format, Tools, Collaborate, Help. Below the menu is a toolbar with various drawing and editing tools. The main area contains the handwritten text "See if you follow this:" followed by the matrix equation shown above. The numbers in the equation are color-coded: 4, 5, and 3 in the first row are blue, green, and red respectively; 3, 2, 4, 6, -2, and 0 in the second matrix are red, green, green, red, blue, and red respectively; and 26 and 38 in the result vector are blue.

Let's look at Jarnal in action

- Now let's look at the [Jarnal Annotator](#). This allows a teacher to go over a paper submitted by a student in real time, marking the paper up as the instructor talks with the student. To the student, the session looks like this:

nal

Edit View Insert Format Tools Collaborate Help

We can explain that some words
+ don't exist.

I **losted** my password.

How many times have you
Your **going** to love this
seen this?

Where to begin?

My pc keep crashing and I cant afford to replace it yet and I try
to get to others pc's but sometimes its impossible.

Another nice feature

After completing your session with the student(s), you can save the entire session as a PDF file and email it to the students who participated in the session. Having this complete record of our discussion has been very important to a few of my students.

So what do the student's think?

The students in my classes who have been willing to have direct discussions with me in the Jarnal environment (more about that issue in a few minutes) are uniformly enthusiastic. Here's some of the feedback I have gotten:

So what do the student's think?

The online help was great!

So what do the student's think?

I think **EVERYONE** should have instruction through the virtual classroom. *This ability to speak with you and see you work problems like we are in a classroom is VERY HELPFUL.*

Without that I would have had a very hard time trying to figure out the problems I struggled with.

So what do the student's think?

My problem is that very few of my students are willing to take advantage of this opportunity for personal help with my courses—typically about 3 percent (that's right: *three percent*) accept my offer of help.

I monitor the Discussion Board, and when I see a student describing difficulty with the course, I offer to help. Here are the kinds of responses I typically get:

So what do the student's think?

I am sorry but Chapter 3 is no joke . I have never felt so helpless. I am trying to read and memorize the symbols and the laws and the rules. As for me Anybody who can tackle this segment needs to give me some pointers...

This student declined my offer of help.

So what do the student's think?

I'm having problems with all concepts of truth tables. I know this course is gonna be hard so I'm seeking a tutor? Is there a easy way to maneuver this process?

This student declined my offer of help.

So what do the student's think?

I'm so confused sometimes I don't know what to ask. Thanks for the examples. I can at least look at them until I get some understanding.

This student declined my offer of help.

So what do the student's think?

Some of this I understand, but when I try to work it out I get confused.

This student declined my offer of help.

So what do the student's think?

I could continue to show you about 30 such failures to respond from last term alone.

My students are generally simply not willing to work with me individually (maybe they're intimidated?), so I tried offering twice a week problem sessions for the entire class.

So what do the student's think?

Usually, about 3 percent (that's right: three percent) of my students attend the problem sessions.

What is wrong with this picture?

Suggestions, questions?

Donald Chambless
dchambless@Troy.edu