

Background

Research indicates that perceived support and access to teaching resources increases self-efficacy, or confidence in one's own ability to teach [TmH02, S04], which has been shown to improve student achievement and motivation in the classroom [AW86, R92]. We investigate how and to what extent a wiki for TAs can provide this support.

Description

In large introductory courses, laboratory sections are taught by two types of TAs: graduate student instructors (GSIs) and undergraduate instructional aides (IAs), many of whom are inexperienced teachers. To ensure high quality of lab instruction (without high costs involved) we focus on a **wiki web site for GSIs and IAs**, which was created for two large, introductory-level electrical engineering (EE) courses for EE and non-EE majors. The wiki allows for the accumulation of experience, technical knowledge, and advice, and provides asynchronous communication among instructors for the exchange of information and ideas. Example wiki pages are shown in the figures to the right.

Research questions:

- How do GSIs and IAs use the wiki?
- How does their use of the wiki impact their teaching experiences?

Methods

1. Surveys

Pre- and post-surveys of GSIs & IAs
 Fall 2008: pilot survey
 Winter 2009: 5 grad, 3 undergrad
 Fall 2009: 7 grad, 3 undergrad

2. Focus Groups

Focus group with GSIs & IAs (Winter 2009, planned for Fall 2009)

3. Wiki Usage Statistics

Ashton, P. T. & Webb, R. B. (1986). Teachers' sense of efficacy, classroom behavior, and student achievement. In P. T. Ashton and R. B. Webb (Eds.), *Teachers' sense of efficacy and student achievement*. 125-144.
 Ross, J. A. (1992). Teacher efficacy and the effects of coaching on student achievement. *Canadian Journal of Education*, 17(1), 51-65.
 Shaughnessy, M. F. (2004). An interview with Anita Woolfolk: The educational psychology of teacher efficacy. *Educational Psychology Review*, 16, 153-176.
 Tschannen-Moran, M. & Hoy, A. W. (2002). *The Influence of Resources and Support on Teachers' Efficacy Beliefs*. Paper presented at the annual meeting of the American Educational Research Association, April 2, 2002. New Orleans, LA.

WELCOME TO THE EECS 215/314 LAB GSI WIKI

Our goal is to record and retain the experiences and insights of the intro lab GSIs. Use the pages below to share teaching tips and reflections, and to post errors and suggestions for the next iteration of the lab manual.

Also, please make a note in the computer section (which exists under each lab page) every time an unexplained error occurs with the LabView.

- [Information for Instructors about Supplementary Materials](#)

EECS 215 EXPERIMENTS

- [DC Lab](#)
- [AC Lab](#)
- [Op Amp Lab](#)
- [Transients Lab](#)
- [Filter Lab](#)
- [Audio Lab](#)

EECS 314 EXPERIMENTS

- [DC Lab](#)
- [AC Lab](#)
- [Transients Lab](#)
- [Filter Lab](#)
- [Op Amp Lab](#)
- [Temperature Controller Lab](#)

The wiki home page links to a separate page for each lab

GSI & IA Feedback

"[The Wiki] helped me to anticipate what could go wrong so I could help [students] easier. It also helped so I knew for sure what the outcome [of the lab] should be."

"[The Wiki] makes grading smoother and it gives a good summary of what to put on the chalkboard for students. It makes lab introductions smooth."

"It would be nice if we had an avenue for discussing 'Well, what is the concept that is behind this lab?'"

"If [the wiki] were spread to the discussion [in addition to the lab], then it would be more conducive to reflecting on how you teach and what method worked for helping the students understand a specific concept and so on."

TRANSIENTS LAB (EECS 314)

STUDENT FILES

- [Cover Page](#)
- [Streamlined In-Lab Procedure](#)

An example lab page with recent TA contributions highlighted

INSTRUCTOR COMMENTS

TIME FOR COMPLETION

- Seven groups did not finish in the 2hr time period. -IE F'08 Sec 21,23

SPECIFIC NOTES

1. Lab experiments Part 1 – Students may want to note which potentiometer position corresponds to (slowest response) and which corresponds to (fastest response) while measuring (In-Lab pp. 6-7), as they may not be able to determine which waveform is the "slowest" or "fastest" response in future measurements simply by looking at the waveform.
2. Can't activate both cursors simultaneously – instead students will have to move one cursor at a time.
3. Remind students not to change the circuit after measuring the voltage on capacitor. They only read this in the lab manual after they've dismantled their circuit
 Added Feb. 11th

INSTRUCTOR FILES

Added April 1st

- Many students W09 did not understand reach the conclusion they were supposed to for their experiment. A brief introduction as to why they'll see certain waveforms will help. [Lab 3 Clarification](#)

FREQUENTLY ASKED QUESTIONS

1. How can I tell from the waveform which is the fastest and which is the slowest?
 Added Feb. 11th

Key Findings

- The wiki was particularly helpful to first-semester TAs, while TAs that were repeating the course already knew many of the tips about the labs.
- TAs believe that they collectively possess important information and experiences, but few have posted comments, noting reasons that include lack of awareness of the wiki and lack of motivation to visit the wiki as a returning instructor. The figure above shows wiki contributions from Winter 2009.
- TAs suggested that it would be helpful if the wiki had a teaching reflection component (which is in place for Fall 2009), in addition to practical tips and advice.
- New TAs find the information on the wiki useful, but returning TAs need incentive to contribute their knowledge.