# I N S T R U C T I O N A L

# ARCHITECT ™

## Instructor's Guide: Pre-service Teachers

This curriculum is designed for delivery in a face-to-face environment using primarily a Problem-Based Learning (PBL) approach. Through our experiences, we have found it is crucial to present the face-to-face workshop in a computer lab where everyone has their own computer with Internet access. Ideally the lab will be set up with an instructor's station so the facilitator demonstrate systematic keystrokes and mouse movements.

This *Instructor's Guide: Pre-service Teachers* assumes that the instructor is familiar with the following three subjects:

- The Instructional Architect. For a quick review, please visit "How to use the IA" link from ia.usu.edu. There is also an online course available on the USU OCW's website that provides more detailed information.
- The relevant state core curriculum standards. Although this workshop isn't about state core curriculum standards, it is important to tie the state core curriculum standards to the goals of the workshop. For instance, workshops that occur in Utah use UEN.org.
- The National Science Digital Library found at NSDL.org.

Typically we have spent two days (usually 1 ½ hour sessions each) in a computer lab for this unit. The first day is spent introducing the IA (giving them a big picture of where we are headed), reviewing the state core curriculum standards, explaining the NSDL, and then providing a more in-depth look at the Instructional Architect. Hopefully there is time at the end of the class for the students to begin working on their IA projects. The second day is spent working again on their IA projects which provides a good opportunity to troubleshoot any technology problems and to provide more information on the more advanced IA topics.

The *Instructor's Guide: Pre-service Teachers* covers the following topics:

- The Instructional Architect (IA) – Using a PBL approach
- Tying the IA to state core curriculum standards
- Introduction to the National Science Digital Library (NSDL)
- Introduction to the Instructional Architect (IA)
- Register and guide through the creation of a simple IA project
- Gather resources
- Create their own IA projects
- Implementation Activity and Reflection Paper

**The Instructional Architect (IA) – Using a PBL approach**
- To give students a sense of authenticity, I reverse engineer a real-world problem that is relevant to the course content. If it is a math methods course for elementary education majors, I would find an IA project by a teacher, determine the objective and state core standard (if not explicitly stated), and determine what hole in the curriculum the teacher was targeting. Some examples of IA projects I might use include the following:
- Equation of a Circle
  http://ia.usu.edu/viewproject.php?project=ia:2680
- The Egyptian Adventure
  http://ia.usu.edu/viewproject.php?project=ia:3736
- Counting by ones, twos, and tens
  http://ia.usu.edu/viewproject.php?project=ia:4018
- To Kill a Mockingbird
  http://ia.usu.edu/viewproject.php?project=ia:1809
- Myths
  http://ia.usu.edu/viewproject.php?project=ia:2828
- Patterns
  http://ia.usu.edu/viewproject.php?project=ia:1650
- Graphing Rivers
  http://ia.usu.edu/viewproject.php?project=ia:2864
- Hawaii Family Trip
  http://ia.usu.edu/viewproject.php?project=ia:2042

**Tying the IA to state core curriculum standards**
- It is important that participants are familiar with relevant state core objectives. At this point in the workshop, I spend some time demonstrating Utah Education Network (UEN – uen.org) and allowing participants time to explore the website. I would suggest directing your pre-service teachers to a similar website for your state's core curriculum.

**Introduction to the National Science Digital Library (NSDL)**
- Give an introduction to the NSDL, that it is a portal to other libraries, etc. In the fall of 2007, there were over 900 participating libraries. AMAZING!!! And all designed for educational purposes. There is a great section for your participants called First-time Users. Also, explain the difference between Search and Browse. Browse by collections is a pretty cool feature if it is working.

**Introduction to the Instructional Architect (IA)**
- Student Login: Give the participants a demonstration of an Instructional Architect project by having them login as your student. Emphasize that they will be setting up a similar account for their students to use. This gives participants the "big

picture." I have my students login as <u>Dawson101</u> and use one of my projects that is most applicable to the group. Give the participants time to explore and experiment with the online learning resources you have included. Providing exciting resources, which are targeted to your audience, will help motivate the participants and increase the quality of the projects they will create at the end of the workshop.

▪ <u>Browsing</u>: Demonstrate the option of browsing existing Instructional Architect projects using the <u>Search Keyword</u> option, <u>Author's Last Name</u>, <u>Title</u>, etc. Allow students to explore on their own.

## Register and guide through the creation of a simple IA project

▪ <u>Registration process</u>: Complete the registration process found at ia.usu.edu. Remember, registration is free and allows users to save their projects on the IA server for future modification. You can use IA as a guest, but there are no guarantees that projects will remain intact.

▪ When teaching participants how to create an Instructional Architect project, it is beneficial to model the process. I have done this by opening two browser windows; one window with the Instructional Architect project I created for the workshop and one window with a blank Instructional Architect project. Walk the participants through the steps sequentially, alternating between the completed and evolving project, as they recreate the project together. This is a good way for participants to see how all the pieces fit into the whole.

## Gather resources

▪ Walk participants through the different ways to gather resources (search NSDL, browse IA projects, and add your own resources). Be sure you are familiar with the navigation for moving resources and creating folders.

## Create their own IA projects

▪ At this point, I turn the pre-service teachers loose to begin working on their assignment (see Implementation Activity and Reflection Paper below).

▪ In the workshop model for in-service teachers, we have them share their projects via the projector at the end of the workshop. This is extremely effective way to wrap up the session. Something similar could be incorporated into the pre-service teacher's course if that seemed appropriate. Sharing their projects has quite a few benefits: 1) it encourages the students to take the workshop seriously, 2) students create projects they are proud of and use high-quality online learning resources, 3) it allows the other students to see what resources are available, and 4) you promote collaboration and sharing among students.

## Implementation Activity and Reflection Paper
(this was an actual implementation activity used in a Math Methods course at USU)
1. Make an IA project for each of the content strands for the grade level of your practicum. There will be a total of 5 different IA projects (Geometry, Measurement, Data Analysis and Probability, Number & Operation, and Algebra)

2. Implement a least one of these IA projects in your classroom practicum. You may have to talk to the computer lab teacher to make this happen. I suggest that you do this as soon as you get into your practicum.

3. Write a 2- to 3-page reflection paper about this experience. Make sure to answer the following questions in your reflection.

   - What IA project did you use with students? Note: provide the URL or the student login information for me to see your projects. How did it work in your classroom?
   - How did you feel about the overall experience of this activity?
   - What were the students' motivation level/feelings towards your IA project?
   - Compare this approach to using worksheets in class.
   - How could you use the IA in your classroom in the future?
   - What would you do differently? What would you do the same?