



BEST PRACTICES IN
WEB DEVELOPMENT
INSTRUCTION



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Best Practices in Web Development Instruction

iThemes Education Program
WebDesign.com Press

Educator Tips from iThemes

This collection of “best practices” was gathered through interviews with web development and web design educators at all levels of education, including our own instructors at WebDesign.com. These are helpful tips to use when teaching students about the many aspects of web development. We encourage you to view some of the webinars at WebDesign.com to observe some of these best practices in action.

This guide is intended primarily for educators working in high schools, colleges, and technical/professional schools, though the principles can be adapted and applied for younger students as well.

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Benjamin Bradley	Tami Frascht
Cherish Flieder	Kevin Hendricks
Christy Sooter	Nina East
Kathy Gill	Kristen Wright
Steve Cunningham	Brad Ulrich

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Getting Started

It's important to start your class on the right foot. Here are some beginning ideas and tips to get you started.

Assume No Prior Knowledge

Assume students have no knowledge when they walk in the door. Often students will think they know a skill when they really haven't mastered it. One trick is to allow students to test out material they think they know. As they do the test they'll often realize when they don't have a full grasp of the material. This way they come to that understanding on their own, as opposed to resenting your assessment of their skill.

Rate Your Classes

The best way to help students keep pace is to make sure they're in the right class. Let your students self-select and self-police as much as you can. Rating your classes is a good way to let students know how much knowledge is required and whether or not a particular class will be a good fit. The more descriptive information you can provide, the better.

No Common Knowledge

Especially when working on computer skills, there is no such thing as common knowledge. There's no skill that everybody automatically knows. The old jokes about the CD-ROM tray as a cup holder exist for a reason—some people didn't know what it was. Instead of laughing at your students, help them by not assuming any common knowledge. There are no dumb questions. Often

there are multiple ways to do something, but there's no such thing as common knowledge.

Teach the Fundamentals

To really give students a solid foundation they need to learn the basics. A WYSIWYG editor is slick and easy, but starting there will often short-change students. Start with the nitty gritty code and teach students how the WYSIWYG editor does what it does. They'll have a stronger foundation going forward and be able to understand more. Even if there's an easier way to do it, learning how the hard way works offers an important foundation for future learning and excellence.

Where Are We Going?

It helps students to know where they're going. Give students a clear road map to your class so they know how much they'll be learning and can track their own progress. This minimizes anxiety about what's coming next and helps students stay focused. Adult learners are often goal-oriented and it helps to have clear goals. How is what you're teaching them going to help them achieve their goals? Make sure they understand what they are going to learn, how they are going to learn it, and why it's going to be valuable to them in both the short-term and the long-term.

Set Clear Expectations

If you have specific expectations for your class, make them known. If you're the grammar police, let your students know on day one. If you want projects delivered a certain way, make sure your students understand how to do it. Your students can't read your mind and nothing will be more frustrating for them than losing points because they didn't meet expectations you never voiced. This includes everything from assignments to classroom behavior. If you're doing online teaching, let students know how they can ask questions. If you're in a computer lab and students surfing the web drives you crazy, speak up. Younger or high school students may need more structure in order to excel, but providing some level of structure and expectations makes it easier for adult learners as well.

Accept It & Move On

There are some things students do that you just have to accept and move on. If students are going to surf the web instead of pay attention, that's their loss. If students want to procrastinate on a major project, they're the ones who have to pull the all-nighters to get it done. You could spend a lot of energy trying to punish that kind of behavior, or you could just focus on engaging and motivating your students in the first place.

Software Headaches

One issue that causes constant headaches is making the appropriate software available to students. Not only do you have to find something affordable, but you have to make sure the whole class is using the same version. Schools that have campus-wide licenses are in

luck here, as you can often point students to the library or computer lab to use the required software. Another approach is to go the web 2.0 route and use open source products like WordPress coupled with proven, professional themes and plugins.

(The [Student Edition of the Web Designer's ToolKit](#) from iThemes is an affordable option to ensure everyone has the same material. If you are interested in a site license for your school or department, please contact us at education@iThemes.com.)

Changing Technology

It can be hard to teach when what you're teaching is constantly changing. Of course it can also be exciting. The only real way to deal with the challenge is to constantly adapt and revise your curriculum with the changing technology. This will include the latest browsers, code changes, validation standards and more. It can be especially tricky if you're dealing with students on Macs and PCs at the same time. It's a constant juggling act. Requiring your entire class to be on the same system can help, but you're also limiting your class.

All of these technological changes can be an opportunity to teach your students how to roll with change. Everything they're learning will be changing and the only way to keep up with it is to be continually learning. If they're going to go into the web field they need to be prepared for this reality and ready to embrace it.

Engaging Students

One of the great challenges of teaching is how to keep students engaged. Below are a number of tried and true ideas. You likely know the basics, but it's always helpful to get a refresher - and you might learn something new.

Learning Styles

Different students have different learning styles. Some students are visual and they need to see something to understand it. Videos, graphs and charts are helpful in this case. Other students can get by just reading a text book and they'll absorb the knowledge. Some students need to hear what they're learning. Audio tracks, videos and lectures can be helpful with them. Still other students are experiential learners and won't really understand it until they get their hand on a mouse and dive in.

There are lots of different learning styles and you need to make sure your courses cater to as many styles at the same time as possible. You'll often be teaching the same thing over and over again, just in different formats. More than just hitting students' preferred learning styles, people learn better when they can absorb material through more than one sensory channel. Multiple ways of learning and reinforcing the content will lead to better retention of what they are learning.

Motivation

Students need to be motivated to learn. If you can discover their motivation you can tap into that and keep them moving forward. For adult learners this usually ties into their reason for taking a course—a new job opportunity, career change

or other work-related factor. For high school students it may be the challenge of exploring technology and building something for themselves. College students are typically very self-motivated, but helping them to connect the dots of your course and their future career always helps. If you can keep students motivated, you can keep them learning. Provide the right ratios of challenge and support to maximize student engagement.

Trial and Error

If you let people figure out a little at a time, they can be creative with it and apply what they know to things they don't know and start to figure it out for themselves. By learning to read parts of the code, students will be able to figure out other parts and work it out for themselves. Most people learn by trial and error. Getting something wrong isn't bad because it helps us move toward getting it right. (This may be especially true in web development!) Eventually students will hit that "aha" moment when the light bulb goes off and suddenly they know PHP.

Show Progress

A good way to keep students engaged during long classes is to remind them, on a frequent basis, of the progress they have made. Don't immerse students in code for 45 minutes straight. Do some work and then stop

to take a look at the live site and see what you've done. Stop to see how each tweak to the code changed things. These constant peeks at the live site will give a sense of progress. It will also help them to see how each minute change in the code changes what the actual website looks like – and reinforces the appropriateness of learning by trial and error. This sense of progress will keep them motivated and engaged over long class periods.

Higher Learning

To truly engage your students and help them move forward you want to push them toward higher learning. Lower learning is basic stuff that students need to know, like basic information or concepts. Higher learning pushes further and includes problem solving, decision making, critical thinking and creative thinking. Lower learning is knowing the `<p>` tag in HTML. Higher learning is using that knowledge to solve a problem. The more you can push students to actively think through and apply what they're learning, the more it will stick.

Practice What They Learn

Everything students learn needs to be reinforced with projects and activities that give them a chance to put what

they learn into practice. Many education institutions just offer the training but don't give the real world activities that help students master a skill. Doing so is a key to education.

Keep Students Engaged

Shake things up to keep your students engaged. It's easy to do the same thing over and over and it can become stale and routine. Your students can become bored and disengaged. Keep their interest by shaking up the schedule. Throw in a new activity, change the order of how you usually do things or find another way to make your lesson different.

Transference

The jackpot of learning is transference. This is when you know your students are getting it. Transference is when students take something they've learned and apply it in a new context. Maybe you taught them how to use CSS to style a header and a student takes that knowledge and uses it to modify the CSS for the body copy. You never taught them that skill in that specific setting, but they were able to transfer their knowledge. When you see students doing that, you know they're absorbing the material.

Teaching Methods

Ideas, tips and techniques to maximize your teaching style.

Work at Their Own Pace

When possible, let students work at their own pace. With so many different skill levels it's hard to actually lecture. If you let students work through material at their own pace they can work more efficiently and you can work directly with the students who need individual help.

Telling Stories

Use non-programming illustrations to explain how programming works. Stories and illustrations are how people remember things. Give word pictures, stories or illustrations that showcase how something works. Compare coding to a completely different activity and start to draw parallels. These images will stick with students better than straight code examples.

Don't Pre-Bake

Do your examples in real time. Don't pre-bake them to come out perfectly like some kind of cooking show. Walk through the project with your students and build it for real. This way they can see how it actually works, they can see any mistakes that pop up, they can see how you work and they can understand how it comes together. You'll give students confidence that they can do it, too. Start with the same basic install that your students will start with. If you're working on WordPress, use a clean install so it looks the same, or at least familiar (don't use a site that's loaded with plugins and extras and looks overwhelming to the novice user).

Foster a Community

If you foster a community of education, the community will begin to educate. If you make an environment where learning happens, where people help one another, where things are positive and supportive, then your students will begin to help each other. Pretty soon you won't have to answer every question because other students will jump in and help each other. That's a huge step. It helps the slower students keep up and gives the advanced students a chance to practice their skills and reinforce what they're learning. Everybody wins.

Repeat with a Twist

A lot of times you'll be asked to repeat something. Instead of saying it again the exact same way and losing half your class, teach the same point a different way. Show how to do the same task a different way using a different style or approach. For the person who asked you to repeat it, you're trying a different approach that might be more likely to sink in. For everybody who got it the first time, you're giving them a new way to look at it and taking them a step further. You're also not losing them with the same old example. It keeps things fresh and interesting and keeps the learning happening.

Give Students Time to Think

Another solid strategy is to give students time to think. You could just plow through your material and give students all the answers. Or you could

ask them questions. Let them process what you're talking about and give them a chance to formulate their own answers. You'll keep them engaged and

they'll be more actively processing what they're learning. It sounds incredibly basic, but it can make a big difference.

Connecting With Students

Tips for personal growth and ways to improve your teaching style for stronger student-teacher connections.

Be Human

Teachers are real people too. It's OK to crack a joke and tell personal (age appropriate) stories. Let your class in on who you are. It's an easy way to build rapport with students when they can see who you are. That connection will last over time. Maybe you weave stories from your own experience into your lesson. Maybe you play goofy pop culture clips that relate to your lesson. Find a way to relate to your students and connect with them.

Be Honest and Direct

When giving feedback to your students it's best to be honest and direct. Don't praise sub par work; challenge them to do better. It can often help to create an environment where students learn how to critique each others' work and give feedback to each other. This way you're not always having to give a student the bad news that they need to work harder. When you do need to deliver that type of news, it helps to do so in a way that's still positive. Instead of saying "That's not good," say, "That's not magical yet," or "You're not blowing me away yet." Learning how to accept critical review is going to be vital for these students in the future, so building that into the

classroom learning is going to be key. But build up to it slowly and make sure it's always constructive.

You'll probably need to teach students how to critique each others' work and provide constructive criticism. Set up some ground rules and model how you want them to do it.

Challenge Students

Set high expectations for your students. More often than not students will rise to meet those expectations. You have to challenge them and push them to reach for those goals. If you're satisfied with less then they'll be satisfied with less. When challenges are backed up by quality instruction and support, you'll be surprised at what your students can do.

Great Question!

A simple way to build rapport with your students is to make them feel like they've been heard. Make them feel like their input and questions are appreciated by giving a simple response like "That's a great question" or "I'm glad you asked." By allowing room for questions, by creating an atmosphere where they're welcome

and encouraged, students will feel more comfortable and will learn better. It will help avoid frustration – for you and for them.

It's OK to Fail

It often helps your students to relate to you when they see you fail. You make yourself more approachable and real. It also gives your students confidence. They see you get something wrong and fix it and they know they can do the same. When they run into the same roadblocks, they don't get overwhelmed because they've seen you do it.

Facilitating Instead of Teaching

As students become more and more tech savvy before they even enter a classroom, technology teachers are doing less and less traditional teaching. Instead of being a “teacher” of

technology, they often find that they're a “facilitator” of learning. Many students will quickly know more than the teacher. The role of the teacher changes from simply instructing students to guiding them and showing them where or how they can learn something. Instead of teaching them a software program or programming language, your job is to teach students how to learn.

Teaching the Teacher

Just as your students need to be prepared for changing technology, so do you. The teacher must always be teaching themselves so they can teach others. With your busy, demanding schedule, this can be hard to do. Use the resources in the [iThemes Education Program](#), specifically the training at [WebDesign.com](#), to keep your professional development on track.

Assignments

How to get more out of your assignments, class projects and tests.

Project-Based Teaching

Teach with a real world project in mind. Give your students something concrete to build. This will make the project more realistic and more motivating. It helps to see something real and understand how it can work in real life. This doesn't mean you don't teach over-arching concepts, but those concepts are learned through the small steps of the project. Students today, especially non-traditional students, are very outcome-oriented. They need to understand the practical nature behind what they're doing.

Give Choices

The more students can choose what and how they're learning, the more engaged they'll be. Give choices and students will take more ownership of their projects. Instead of assigning a specific project, offer three scenarios and let students pick the one they like best.

Frequent Feedback

A good way to motivate students is to evaluate early and often. Grade assignments and get them back to students quickly so they can see how

they're doing. A poor grade can be a powerful motivator, just as a high score can be. Knowing that they're being evaluated will also keep students focused—they can't slack off because they know they need to do the next assignment. Frequent feedback lets your students know if they're working hard enough for the class. It's also a good way to find out how well your class is absorbing the material and if you need to make any changes to your teaching style.

Test Time

Students always need to be tested. Whether you do projects or actual tests, you need a way to determine what your students have learned and what they've retained. A lot of web development work builds on previous knowledge, so it's vital that you ensure your students

are really learning what you're teaching to set them up for success. Testing is a tried and true method for a reason.

Work with Someone New

Giving students choice in a class project can be a good way to keep them engaged. When they get to pick the topic for their project, they're more likely to be excited about it. But one danger is that they can pick a topic they're too familiar with, or choose to work only with friends. That familiarity can be a downside—it doesn't prepare them for the real world when they won't always get to pick their clients. Instead of letting them work with their friends, encourage them to work with someone new. They can get a taste of the real world where not all of your clients are your closest friends.

Additional Pointers

There are differences in teaching high school students and college students.

Teaching High School Students

High school students need more activity than older students. In general, they won't just sit there and read a book. They need to do something more active. While most web development students are pretty self-motivated (it's not usually a required class that students are forced to take), high school students are often not paying for their courses or on a set time limit, so they have less incentive than other students. Keeping them engaged and appealing to different learning styles can help keep them on track and moving forward.

In general, high school students have more basic computer knowledge than older students. They've grown up with computers and are more comfortable with them, so they generally have a more solid grasp of the basics. High school students are less likely to be intimidated by new software and usually have a better handle on basics like file structure and where they saved a document. There are always exceptions of course, but that can be helpful especially at the start of a course.

College Students are Busy

The number one thing to keep in mind when working with college students is that there is no end to the distractions. College students are very busy, often taking heavy loads and many are figuring out life on their own for the first time, which means plenty of goofing off

along with the schoolwork.

Procrastination is a major problem. Thankfully young people between the ages of 18 and 24 have an incredible capacity to go without sleep (though they may try to catch up during your class).

Practical Tips

Some specific ideas and nitty-gritty reality to help you day in and day out.

Digital portfolio

Help your students create a digital portfolio of the things they're learning. Maybe they have a website or blog that lists the projects they've created or the skills they've tackled, with links to demonstrations. This gives them a repository of their knowledge, and as they grow they can look back at how far they've come. It can also build the habit for when they create their professional portfolios.

File Management

Teach your students the importance of file management. Give them some strategies for organizing their work—creating different folders for each client with more folders for each project. Talk about naming conventions and how they'll be able to find the right file when it's mixed in with hundreds or even thousands of others.

Tips for Remote Training

Remote training can be tricky. You don't have any visual feedback, so you need to be confident in what you're talking about, you need some way to receive

feedback (like a chat channel), and you need to have some level of personality. Your class needs to realize that you're a human, too. Recording remote training is always a good option because students have the option of going back and watching it at their own pace. One of the benefits of live training is that people can ask questions and get feedback.

Handouts

When you create handouts for your class always be sure to leave space on your handouts for people to take notes. You'd be surprised at how often students will want to take notes alongside your instructions.

Project Countdown

If your class is focused around a major project that's due at the end of the semester and is almost always met with procrastination—set up a timer. On your class website (you do have a class website, right?) put a timer counting down the days, hours and minutes until that assignment is due. That can be a

solid reminder throughout the semester that the clock is ticking.

Crickets When You Ask Questions

If you're asking questions and are met with silence, play with it. Have a sound file ready to play on your computer of crickets chirping. When you ask a question and get no response, ask it again and let the crickets chirp. If nothing else you'll get a laugh out of your students and break the ice. That's an opportunity to start over and re-engage your students. And if the cricket noise gets overused, switch to Jeopardy music.

Real World Skills

There are a lot of real world skills that students will lack because, if they are younger, they haven't hit the real world yet. Things like case sensitivity, file management and simple organization are tools most students will need to develop. It will take time for students to

learn basics like how to organize their files and naming structures, but you'll need to work with them to understand why these basics are important and how they'll make their lives easier. Well-organized layers in Photoshop is an especially good example. One teacher always asked her students if they died today could she pick up their project and know what they were doing.

Real World People

A great way to motivate students is to give them opportunities to interact with real world professionals. Letting them meet people who are getting paid to do what they, themselves, are learning is a great motivator. It shows your students what they're working toward and that it can be done. Give students a chance to ask questions. Taking a tour of an office and seeing a job in progress can always be exciting. Sometimes students need to hear something from someone who's not their teacher.

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If you are not already a participant in the iThemes Education Program, please consider joining us in our efforts to expand and improve web design education for the next generation of web designers.

You can check out the details about this free program at <http://ithemes.com/education>.

Do you have other “best practices” you use and are willing to share? If so, please [contact us](#).