Company Profile

Eduweb® is on a perpetual quest for the sweet spot where learning theory, multimedia technology, and fun meet.

Since 1996, Eduweb has developed online learning interactives and educational web sites for museums, zoo, and other educational organizations. Our broad experience in museum and K-12 education enables us to produce exciting and innovative educational experiences for the Web based on sound pedagogical practices and current learning theory. As content developers first and foremost, we draw on our deep subject knowledge of art, history, and science to fashion compelling and meaningful activities for our audiences. Our project leaders have advanced training in art, biology, education, geography, museum studies, and public communication of science and technology. As technologists, our expertise ensures that our products are robust and meet or exceed technical specifications and accessibility requirements. Collectively, Eduweb team members have many decades of experience in programming educational software for a variety of platforms.

We collaborate closely with each of our clients during all phases of design and production to ensure that the final product fulfills the client’s aesthetic vision, communication and educational goals, and technical parameters. Each project merits a unique solution based on the client’s content, audience, and educational goals.

Our services cover the full range of web development activities, from needs assessment and concept development to research and writing, to visual design, illustration and animation, to audio recording and production, to programming and web production. Eduweb takes measuring the quality and impact of its projects seriously and has conducted evaluation programs independently and in collaboration with outside evaluators.

Our clients include Colonial Williamsburg, the JASON Foundation for Education, the John G. Shedd Aquarium, the Museum of Science and Industry, the New York State Historical Association, and the Space Telescope Science Institute.
Selected Awards and Accolades

2005 Pirelli INTERNETional Award
Best of the Web: Educational Use
  *Museums and the Web 2000, 2001, 2004*

Gold MUSE Awards
  *American Association of Museums 2002, 2004*

Silver MUSE Awards
  *American Association of Museums 2002, 2003*

Bronze MUSE Award
  *American Association of Museums 2005, 2006*

Jim Blackaby Ingenuity Award
  *American Association of Museums 2006*

101 Best Web Sites for Elementary Teachers
101 Best Web Sites for Secondary Teachers
  *International Society for Technology in Education*

"Outstanding, clever and stimulating"
  *American Library Association*

"Excels at engaging children in unique interactive learning situations."
  *USA Today*

Cool Site of the Day
  *The Original Cool Site of the Day*

Client Testimonials

“Eduweb provided a unique combination of technical expertise, understanding of the web audience, commitment to high-quality content and true artistry.”
  Keith Winsten, Curator of Education
  Chicago Zoological Society

“Museum staff are enchanted by the imaginative—and appropriate—ways in which Eduweb brings works of art to life. They are highly gifted educators with a repertoire of creative strategies that engage diverse learners.”
  Kate Johnson, Chair, Education Division
  The Minneapolis Institute of Arts

“Eduweb has a unique ability to design interactive web experiences that are content driven, focused on appropriate user skill sets, and complement national history learning standards. Our education initiatives win national awards with Eduweb’s creativity being an integral part of the team effort.”
  Dale Van Eck, Associate Producer
  The Colonial Williamsburg Foundation

“How do you make the Renaissance relevant and meaningful to today’s middle school students? Eduweb clearly understood the challenge. They helped define the big idea, establish objectives, develop the themes, and define a humorous personality that would bring the Renaissance into the 21st century. We are delighted with the results.”
  Lise M. Dubé, Director of Education
  Allentown Art Museum
### Clients

#### Art
- Allentown Art Museum
- Berman Museum of Art
- Brooklyn Museum
- Frank Lloyd Wright Preservation Trust
- Minneapolis Institute of Arts
- National Museum of Wildlife Art
- Picturing Women Project
- Sanford
- Solomon R. Guggenheim Museum
- Weisman Art Museum

#### History and Culture
- Chicago History Museum
- Colonial Williamsburg
- Discovery Channel
- Electronic New Jersey International Monetary Fund
- Lincoln Log Cabin State Historic Site
- Montana Historical Society
- New Jersey Historical Society
- New York State Historical Association
- Split Rock Studios
- South Dakota State Historical Society
- Stax Museum of American Soul Music

#### Science
- Bell Museum of Natural History
- Biosphere 2 Center
- Chicago Zoological Society
- The Children's Museum of Indianapolis
- Cornell Lab of Ornithology
- The JASON Project
- John G. Shedd Aquarium
- Immersion Presents
- Minnesota Zoo
- Mississippi Valley Archaeology Center
- National Museum of Dentistry
- National Pest Management Association
- Space Telescope Science Institute
- ZAMWorks!

#### Engineering & Technology
- Arizona Science Center
- California Alliance for Jobs
- DuPage Children's Museum
- Museum of Science and Industry
Development Philosophy

Our process is informed by current learning theories, drawing on educational theorists such as Hein, Gardner, Kolb, and Egan, among others. The basis for all our development work is constructivism—the notion that learning, as Hein (1998) says, “is not a simple addition of items into some sort of mental data bank but a transformation of schemas in which the learner plays an active role and which involves making sense out of a range of phenomena.” While constructivism describes the internal learning process and does not necessarily require active learning methods, many educators believe that such methods are effective ways to engage learners and to support and deepen that internal meaning-making process. Our online learning activities offer opportunities for just that kind of active engagement and exploration.

Further informing our efforts to explore and refine the best ways to put that theory into practice are several other theories of learning. Howard Gardner’s multiple intelligences and David Kolb’s learning styles’ outline the great diversity of cognitive approaches that people use to make sense of the world. Their work encourages us to offer more diverse ways for users to engage and interact with content, stretching the Web beyond the convergent/logical learning that comes easiest to computer-based activities. We are also inspired by Kieran Egan’s theory of developmental “kinds of understanding.” By focusing on the powerful abstract preoccupations which characterize particular phases of human development, he suggests conceptual approaches that will be highly appropriate and effective in engaging a learner’s interest and imagination.¹

While we are constantly looking to advances in multimedia and Internet technology to increase the sophistication of our products, our mantra as digital educators is simple: What we do must both excite a generation of children raised on video games and fast-paced television and offer them a cognitive and creative experience that goes beyond what traditional media and hands-on experiences can easily accomplish.

Drawing on our experience with a wide range of educational Web development, we have categorized six common types of online learning experiences:

- **Interactive Reference.** Explore a topic on your own, through informative words and pictures. Choose the links that interest you to find out what you want to know.
- **Creative Play.** Draw a picture, write a story, make a movie, etc. Create something original based on the things you learn.
- **Guided Tour.** Join an expert to explore a topic that he or she knows and loves. The guide leads you on the path they choose.

¹ For more on the ways that theory informs our process, please see “Practicing What We Teach: how learning theory can guide development of online educational activities.”

http://www.eduweb.com/research.html
• **Puzzle/Interactive Mystery.** Put on your thinking cap and solve a puzzle or mystery. Put the clues together to discover the right answer.

• **Role-play.** Choose your own adventure—pick a character, play a role, make decisions, and see what happens. You choose your path through the story.

• **Simulation.** Run a model of the real world and see what happens when you change things. The choices you make determine the results.

Our research indicates that no single activity type appeals equally to all ages and genders. Adults prefer clearly structured sites that allow them to readily access information they are already interested in or seeking. Children, on the other hand, prefer experiences that contain the motivation to continue through some clear goal or payoff. Girls often like interactive stories and role-playing games, whereas boys tend to prefer open-ended creative play activities. We are currently exploring these questions more rigorously with a research grant from the National Science Foundation and apply our findings from this research to the development of this project.

**Engaging Audiences**

Whether online or in person, an engaging and effective learning experience requires strong motivation to learn. That motivation may be entirely intrinsic to the individual, in which case only those with existing motivation will have a successful experience. Or the website may reach out to users and actively foster motivation. The keys to motivation, according to educational psychologist Jane Healy, are an “emotional connection, challenge, and payoff.” With those in mind, we often structure an activity as a Goal-Based Scenario (GBS). As described by educational theorist Roger Schank, GBSs “provide motivation, a sense of accomplishment, a support system, and a focus on skills rather than facts.” (Schank 1992) They create an environment for critical thinking and provide both a challenge and a payoff. If designed properly, they can also connect with pre-existing knowledge and help forge an emotional connection with the subject matter.

**Development Process**

We are strong advocates of a collaborative development process with our clients, and firmly believe that such a process results in a superior end product and user learning experience. We recommend one or more face-to-face meetings for concept development, followed by frequent contact through email, conference calls, and onsite meetings (if budget or circumstances permit) throughout production. To facilitate long-distance collaboration, we use a password-protected project site for every project, where we keep an updated schedule and task lists, and share documents, designs, and prototypes. We use our own Information Architecture process tailored to educational multimedia development that produces a Design Document with clear development milestones and approval points that build coherently toward a final product.

**Testing**

We are devout believers in the importance of user testing and have worked with top evaluators in the museum field, including Minda Borun, Selinda Research Associates, and the Institute for Learning Innovation. We
also conduct user testing ourselves, applying what we have learned from the experts when the evaluation budget is limited. We have access to youth from several nearby schools and can easily arrange informal front-end evaluation sessions and several rounds of small-scale testing with the target audience. We have found this method of qualitative testing with small numbers of users to be a highly cost-effective way to evaluate the overall impact of a site on users, identify areas that require revision, and subsequently test the revisions.

We assume that the project team will conduct focus groups during the planning process, and so we have not budgeted for that. Once we are far along in production, we would likely conduct several rounds of formative testing. The first would test components in beta stage with half a dozen girls for initial feedback and identification of usability issues. (Web usability guru Jakob Nielsen has found that four users will identify 80% of the usability problems in a web site.). Subsequent rounds would test revised components for more in-depth examination of the user experience, identification of any new or remaining usability issues, and insight into engagement, satisfaction, and learning.

Quality Assurance
In the decade since the Web became widely popular, web sites have increased greatly in complexity and sophistication, requiring extensive bug testing to ensure a quality user experience. We conduct quality assurance ourselves, capitalizing on our experience and knowledge, but we also employ fresh eyes to help us scrutinize each site and ensure that we deliver a quality product. We stand by after the site launch to make final adjustments if issues are identified by museum staff or members of the public.

Accessibility
We firmly support accessibility goals and make them a key consideration in site planning and development. However, we also recognize that web multimedia formats such as Flash are not yet fully accessible, yet offer ways to engage users that are superior to what we can do with HTML. For example, in our comparison evaluation of the Flash and HTML versions of The Renaissance Connection, we found that different types of users responded in different ways to each version, but for the target audience, the Flash version had a greater affective impact (and longer contact time) than the HTML version (See Schaller et al. 2004 for details).

Applying what we learned from this evaluation to this project, we expect that the affective aspects are of vital importance to the user’s experience, and thus justifies the use of Flash. However, we can also make much of the content available to users without Flash.
Eduweb Team

David T. Schaller, Principal
As the founding partner of Eduweb, Dave Schaller is responsible for the overall creative direction of the company and the perpetual quest for the sweet spot where learning theory, Web technology, and fun meet. Since the mid-1990s, he has had a hand in all aspects of Web development, from HTML coding to information architecture. Recent Eduweb projects that particularly bear his touch are The Renaissance Connection, Harvest of History, and U-505 On-line Activities. His extensive experience with a wide variety of media and subject matter has strengthened his ability to absorb quickly the educational content and goals of each project. He typically works on projects from conceptualization to launch, guiding their development closely so they embody the clients’ goals and offer an engaging and educationally sound experience. Currently he is also Principal Investigator of a National Science Foundation-funded study into children’s learning styles and online interactives.

Dave has fifteen years of experience in natural history and social science interpretation, working in print, exhibit, and Web media. He has written extensively on the natural and cultural histories of New Zealand, Ecuador, and Alaska, using both fiction and non-fiction to communicate his fascination with these subjects. As an exhibit developer in the mid-1990s, Dave worked on museum exhibits about a wide range of topics from Civil War history to natural science and outdoor recreation. He holds an M.A. in Geography and Museum Studies from the University of Minnesota and a B.A. in Humanities from Macalester College.

Susan Nagel, Educator
Susan is a licensed K-12 art teacher with years of experience teaching elementary, middle school and adult students. At a time when computers were relatively new in the elementary art classroom, Susan incorporated technology into her curriculum both as a teaching tool and an outlet for her students’ creative play. As a graduate student, she developed a hypermedia project about portraiture, which served a forerunner of Eduweb’s approach to interactive education.

Susan has taught fellow educators how to incorporate Web technology into their curricula at Hamline University in St. Paul. She has also taught art instruction to post baccalaureate students at the University of Minnesota and served as a curriculum development consultant for Independent School District 196 in Minnesota. Since joining Dave Schaller at Eduweb, she has served as project manager and lead content developer for many of our art projects including the award-winning A Brush with Wildlife. Susan has a B.A in American history from Carleton College. She completed the postbaccalaureate program in art education, earning her K-12 teaching license, and later her M.Ed. from the University of Minnesota.

Steven Allison-Bunnell, Senior Writer & Producer
Steve brings a powerful combination of subject knowledge, media experience, and technical skills to every project. Steve gained Old Media experience as a science writer for television, print, and radio, and became a Web producer in 1995 when he was founding Nature and Science Editor of the Discovery Channel Online. He has also written for discovery.com, britannica.com, and the US Forest Service. At Eduweb, Steve has conceived, written, and produced
interactive projects about soil ecology for DiscoverySchools.com, mollusk biology and climate change for the Biosphere 2 Center, and various ecosystems around the world for the JASON Project. With a B.A. in biology from the University of Oregon Honors College and a Ph.D. in Science and Technology Studies from Cornell University, he combines a subtle appreciation for the nature of the scientific enterprise with a deep knowledge of the natural world. Steve is just as at home in museums as he is on the Web, as his dissertation examined the ways natural history museums translate and encode nature into their exhibits.

**Steve Wagner, Graphic Designer and Illustrator**
Steve is responsible for the look and feel of most Eduweb projects. His versatility with visual styles gives our work a freshness and friendly appeal enjoyed by kids and adults alike. From the somber, 19th century style of Discovery Channel’s *Understanding Slavery* to the Monty Pythonesque design of *The Renaissance Connection*, Steve strives to create rich, captivating graphics while maintaining easy navigation and fast performance on the Web. He has a strong talent for visualizing abstract concepts, as demonstrated by his animations for *Kids’ Design Network (KDN)* for the DuPage Children’s Museum and *The Artist’s Toolkit* for the Minneapolis Institute of Arts. He designs our Web interfaces for maximum appeal and usability, creating custom illustrations, charts and graphs, Flash animations and interactives, Web videos, and 3D animation. Steve has a B.S. in graphic design with a Fine Arts minor from the University of Minnesota.

**Clayton Black, Software Engineer**
Clayton develops sophisticated data-driven learning tools and games that expand Eduweb’s technical reach in exciting ways. In the past year he developed the videomaker application used in the *From Cave Art to Your Art* and *Harvest of History* web sites, and the painting tool in the Basquiat online exhibition. He is skilled at creating complex, flexible Flash and Director applications using XML, CGI, and database back-ends. He has also written several Director XTRAs, such as an AVI constructor and a speech recognition tool, and built content management solutions using PHP/MySQL or ASP/SQLServer. Clayton got his start in the mid-1990s as a C++ programmer on MECC’s *Oregon Trail* and has spent much of his time since working on data-driven simulations and educational software. He has a B.A. from the University of Minnesota.

**Paul Gardner, Web and Multimedia Developer**
Paul draws on his deep knowledge of Flash, HTML, and Cascading Style Sheets to implement our web sites. He has years of experience pushing Flash to satisfy the demands of our content developers. He is also skilled at creative cross-browser solutions that comply with W3C standards and ADA accessibility requirements. Paul has produced many of our sites for clients ranging from the Allentown Art Museum to the Space Telescope Science Institute. Paul holds a B.F.A. from the University of Minnesota.
About Eduweb

Project Sampler

We have developed over one hundred educational Web sites, games, simulations, and learning modules since 1996. Our entire portfolio is available online for review at www.eduweb.com

Interactive Reference

Black Holes: Gravity’s Relentless Pull
Client: Space Telescope Science Institute
http://www.hubblesite.org/go/blackholes
Services provided: Concept development, content development, visual design, illustration, animation, programming, and production.

This Web site explores the astronomy and physics of black holes, perhaps the most extreme and mysterious objects in the Universe.) We knew that the topic has broad appeal, but most existing sites are either too technical or too simple. We developed a body of in-depth content and then designed several paths into that content. "Journey to a Black Hole" is a fully interactive experience, rich in animation and audio features, to entertain and educate at the same time. The "Black Hole Encyclopedia" provides access to the same content in a more traditional topical format, more suitable for experts and information seekers.

Winner, Top Prize and Physics Category, the 2005 Pirelli INTERNETional Award for science multimedia.

Street to Studio: The Art of Jean-Michel Basquiat
Client: The Brooklyn Museum
http://www.basquiatonline.org/
Services provided: Interactivity design, content development, visual design, programming, production, and user testing.

Eduweb collaborated with staff at the Brooklyn Museum and its partner museums to develop this web site and kiosk program for a traveling exhibition about the artist Jean-Michel Basquiat. Designed specifically to introduce teenagers to Basquiat’s art, the site offers a variety of ways to explore this artist’s life and work. Through interactive explorations of Basquiat’s paintings, an interactive biography of his life, a digital painting tool, and online discussion forum, teens can gain insights into Basquiat’s life and worldview—while reflecting upon their own.

Winner, 2004 AAM Muse Awards: Jim Blackaby Ingenuity Award and Bronze Award for Art Interpretation
Role-Playing Stories

Be a Patron of the Arts
Client: Allentown Art Museum
http://www.renaissanceconnection.org
Services provided: Collaboration on concept development, scriptwriting, graphic design, illustration and animation, programming and Web production.

As one feature in the multi-faceted Renaissance Connection Web site, Be a Patron puts you in the shoes of a wealthy patron of the arts in Renaissance Italy. By exploring the role of patrons in this art world, users gain insight into the earthly logic that was responsible for the creation of heavenly art. They also develop personal affection for “their” artwork and greater interest in learning more about it. The site also uses irreverent humor to forge an affective connection with the target audience of middle school students.

Winner, AAM Muse Award 2004.
Finalist, Best of the Web, Museums & the Web 2004

Command the U-505
Client: Museum of Science and Industry
http://www.msichicago.org/exhibit/U505/onlineactivities/command
Services provided: Collaboration on concept and content development, interactivity design, visual design, illustration, animation, programming, production, and user testing.

This activity is one of several online interactives we developed about the museum’s World War II German U-boat. Players assume the role of skipper of the U-505 on its last day in combat, valiantly trying to sink American ships—and then, as the odds turn, merely survive. Evocative audio and imagery in conjunction with the role-play format effectively conveys the human experience of duty, courage, and survival during wartime.

In Search of the Ways of Knowing Trail
Client: Chicago Zoological Society (Brookfield Zoo)
http://www.brookfieldzoo.org/pagegen/wok/index.html
Services provided: Collaboration on scriptwriting, illustration and animation, graphic design, programming and Web production.

Brookfield Zoo wanted an online game to complement their new Ituri Forest exhibit opening in the summer of 2000. The focus was to be the many "ways of knowing" the forest—emphasizing a variety of cultural perspectives and knowledge. We collaborated with Education staff on the story and script, creating a walk through the rainforest with four local children as your guide. Through them, users learn about the forest through their eyes. We then created full screen illustrations and animations for a rich storybook look.
Creative Play

Architect Studio 3D
Client: Frank Lloyd Wright Preservation Trust
http://www.architectstudio3d.org
Services provided: Concept and content development, visual design, illustration and 3d modeling, programming, and production.

Architect Studio 3D offers a unique opportunity to explore architecture and the design process by designing a house online—and then touring it in 3D. With Frank Lloyd Wright as your guide, you first review the needs of your client and the particulars of the building location. Then start designing, taking your ideas from floor plan to final 3D model. Share your house design with the world in the online gallery, and discover Wright's own story and his innovative buildings.

Winner, AAM Muse Award 2005.

From Cave Art to Your Art: 30,000 years of new media
Client: Sanford
http://www.sanford-artedventures.com/play/caveart/
Services provided: Concept and content development, visual design, programming, production, and usability testing.

Cave painters first put charcoal to rock thirty thousand years ago. Ever since, artists have created new media to help them express themselves. Explore the ways that artists use art media and make a video showing what they've inspired you to create. Watch video clips showing artists at work, then make your own art and upload it to the web site. Add text and music, and you’re ready to watch your video.

You can even download it to your computer to share with friends and family!

The Art of Crime Detection
Client: Sanford Corp.
http://www.sanford-artedventures.com/play/crimedetection/
Services provided: Concept development, research and writing, illustration and animation, graphic design, programming and Web production.

This ArtEdventure, the latest is a series of interactive games we have been developing for Sanford since 1998, was inspired by discussions with Sanford staff about police sketch artists and left/right brain thinking. We researched these subjects and developed an online “PDArtist” tool, with which users can create their own composite portraits. In the course of the game, they use the PDArtist to create portraits of suspects in innocuous crimes (toilet-papering a house, pushing elevator buttons), but users have found it so much fun that they continue playing with it after finishing the game.
Puzzles & Mysteries

**Pest Detective**
Client: National Pest Management Association  
[http://www.pestworldforkids.org/learninggames.html](http://www.pestworldforkids.org/learninggames.html)

Services provided: Concept development, research and scriptwriting, illustration and animation, graphic design, programming and production.

This interactive mystery for elementary-grade students introduces children to animal ecology through the intriguing lens of pest behavior. Talking termites and other critters maximize the humorous elements while sound biology underlies the mysteries and their solutions.

**Mysteries of Apo Island**
Client: John G. Shedd Aquarium  

Services provided: Collaboration on concept development, research and scriptwriting, illustration and animation, graphic design, programming and production.

As part of the larger Shedd Educational Adventures development project, we created this interactive mystery about sharks. Our goal was to develop an open-ended mystery—one where users were not funneled inevitably toward the correct answers, but truly had to analyze and synthesize information to devise the solutions. Formative testing demonstrated that this was indeed challenging to middle school students, but also quite engaging for many of them.

**Mollusk Mystery: The Case of the Bleached Brain Coral**
Client: Biosphere2 Center (Columbia University)  

Services provided: Collaboration on concept development, research and scriptwriting, illustration and animation, graphic design, programming and production.

Eduweb was contracted to produce two onsite kiosks for the Biosphere 2 Center in Oracle, Arizona, and an animated video for the gallery. The learning goal for these packages was to connect mollusk biology and natural history to the climate change research conducted at B2C. We took a very technical, esoteric subject and made it lively, attractive, and understandable.
**About Eduweb**

**Simulations**

*Build-a-Fish*
Client: John G. Shedd Aquarium  

Services provided: Collaboration on concept development, research and scriptwriting, illustration and animation, graphic design, programming and production.

Also part of the Shedd Educational Adventures project, our goal for this simulation was for the learning to occur truly in the gameplay itself rather than through reading explanatory text, as is so often the case with educational interactives. Through intensive and repeated formative evaluation, we refined the interactivity and pruned the text to the bare minimum necessary to interpret the user's results, increasing the chances that students will both have fun and achieve the learning objectives.

*Engineering for Earthquakes*
Client: California Alliance for Jobs  
[http://www.newbaybridge.org/classroom/engineeringfor.html](http://www.newbaybridge.org/classroom/engineeringfor.html)

Services provided: Concept development, research and scriptwriting, illustration and animation, graphic design, programming and production.

This simulation challenges users to design a bridge that can survive a major earthquake. Part of a larger site about the new Oakland-San Francisco Bay Bridge, it is a simple but highly engaging interactive that demonstrates several critical design goals for educational software: highly-focused learning goals, streamlined functionality, and rewarding payoffs.

**Trading Around the World**
Client: International Monetary Fund  

Services provided: Collaboration on concept development, research and scriptwriting, illustration, graphic design, programming and production.

The technicalities of international trade may be a snooze for middle school students, but a fast-paced game that challenges the player to buy low and sell high is just the ticket. We took an onsite activity and programmed a trading model that matches the player with computerized traders from around the world. Prices respond to the overall health of the global economy, and players can see how commodity prices change over time.
Literature References


