Contributions to ComPADRE:
Web Design for Digital Resources

ComPADRE Vision:

To create and sustain a network of collections that provides learning resources and interactive learning environments and that positively influences physics and astronomy students and their teachers in both individual and collaborative settings.

The AAPT, AAS, APS, and SPS are building a series of education digital libraries, online collections of resources enabling physics and astronomy communities to find, share, and discuss teaching and learning materials. Included are a central database, the **Physical Sciences Resource Center** (PSRC, http://psrc.aapt.org) and **ComPADRE** (http://www.compadre.org) collections of materials focused on specific needs, courses, or groups.

These libraries are built to be tools for teachers seeking instructional materials, and for authors and developers of material who wish to distribute their work and receive feedback. Submissions and comments from users will make these collections more useful and of greater value. The following recommendations for authors and designers are meant to help the submission of web sites and materials to the PSRC, and are considered good web design.

Website Information and Design:

Digital libraries hold structured information, or "metadata", about materials, similar to resource catalogs of standard libraries. Authors who include this information on their sites will simplify the process of adding the material to the collection. More importantly, this information is useful for users of web sites and helps verify the validity of the content. Including this information is good practice in web site creation.

- **Title** – A clear page title can help users find materials, determine the site's applicability to their needs, and find the resource again.
- **Description** – A concise description of the site is vital for helping users understand its content and determine its usefulness for their purposes. This should include the grade level of the material, who is meant to use it (students, teachers, designers, etc.), and how it is meant to be used (reference material, demonstrations, tutorials, etc.).
- **Cost & Copyright** – It is important to provide users with information about any costs to use materials, and any other copyright or use restrictions on the material.[1]
- **Contributions** – Providing easy-to-find information about authors, publishers, editors, or other contributors of materials helps establish the credibility of the source. Including contact information along with names is also important.[2]

- **Dates** – Information about when pages were last updated help users determine the information's age and how the site is maintained.

Authors and designers should consider other design issues that are important for creating useful educational resources. These are considered in the acceptance of materials for the PSRC and ComPADRE collections, and are generally good design practice. Some of the most important issues are:

- **Accessibility** – As much as possible, materials should be made accessible to users with disabilities. [3]
- **Distractions** – Learning materials, particularly those meant for hands-on student use, should be focused so that students remain on task. Ads, pop-ups, and off-topic links can be particularly problematic.
- **Advocacy** – As in any reliable scientific discourse, materials and websites created to advocate particular points of view, especially on controversial subjects, should indicate this.
- **Design** – Careful, and generally limited, use of color, images, animation, and backgrounds is important for usable and professional-looking websites. [4]

Suggesting Materials:

Any registered user of the PSRC and ComPADRE collections can suggest items to be included in the library database. Submitters provide the topic, URL, Title, and description of the material. Optionally, they can also provide the rest of the metadata described above, and other information about the item.

Authors and designers who would like to submit multiple parts of their sites should contact ComPADRE directly. Tools and help are available for multiple submissions.

For more information contact: compadre@aapt.org or webmaster@compadre.org.

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[1] More information about copyright issues can be found at Creative Commons, http://creativecommons.org/; the UT Crash Course in Copyright, http://www.utsystem.edu/OGC/IntellectualProperty/cprtindx.htm; and the Stanford Copyright and Fair Use Center, http://fairuse.stanford.edu/.

[2] Some authors add extra characters to emails or phone numbers so that they are not machine readable but can be understood by users to avoid spam.

[3] An excellent resource on accessibility for science and math educators has been created by WGBH and the Access to PIVoT project, http://ncam.wgbh.org/cdrom/guideline/.

[4] Some design resources are the Web Design and Usability Guidelines from the National Cancer Institute, http://usability.gov/guidelines/; and Jakob Nielsen's usability website, http://www.useit.com/.