

Case Studies for Uses of Adobe PDF Documents in Instruction

1. The traditional Handout

Professor Jones wishes to distribute reading materials to his students. To save paper, and thus printing costs, he decides to go with a digital handout. To ensure universal readability on all platforms and by all students, he chooses the PDF format, but he does not have time to learn the intricacies of yet another program. Professor Jones creates his handouts in MS Word, and easily converts to PDF format via the *PDFmaker* toolbar button.

1.a Complex Handouts

Jones' colleague Brown teaches computer science, and his materials are usually written in T_EX. He can still print his DVI files to PDF format, but to ensure proper font handling, he uses the *Distiller* printer, and ensures that Distiller finds his T_EX fonts by telling the application in which folder they are.

1.b Handouts and Copyright Issues

Brown's colleague Whitaker is sharing a preprint of his latest paper with his class, and he has also put it on his website. He is shocked to find that someone has plagiarized his work and decides to protect his intellectual property better. However, he wants to continue making his work available to the research community. In the future, all his PDF documents will be secured against printing and copying by setting the appropriate preference in Distiller or manually altering each file's security settings in *Acrobat*.

Whitaker soon finds out that these security settings are also useful when distributing materials created by third parties to his students, as the digital copyright act requires him to take precautions against unauthorized duplication of copyrighted material.

1.c Handouts for the Mobile User

Prof. Brown has to travel a lot and uses a laptop. His TA swears by a PocketPC, while many of his students use Palm devices. Someone has even acquired the latest tablet PC, while others proudly show off their Apple PowerBook. All of them want to carry the class handouts with them, and want to be able to quickly search for information, highlight important passages, and see all the details of the diagrams, all without carrying reams of paper along. Brown's new PDF handouts fit the bill perfectly. He recommends that students obtain the full Acrobat program via the cheap academic license, so they can annotate their PDF handouts.

2. Homework and Grading

Professor Jones has started using an online course management system and is requiring his students to turn in homework electronically. For term papers, a plain email is not sufficient, thus many students submit Microsoft Word documents and other formats to him. For some formats he has a hard time determining what they are, and can't really open them. From others he has gotten a macro-virus infection. He is utterly frustrated and decides to only accept PDF format for homework turn-in. He has made sure that all students have PDF creation facilities available to them, as the public campus labs have *Acrobat 6 Pro*, including *Distiller* and *PDFmaker* installed.

In the meantime, Jones has learned a bit more about Acrobat's capabilities. He particularly likes that he can simply make his grading comments on the PDF file and send it back to the students, who can read his comments with just the free *Adobe Reader* (formerly known as *Acrobat Reader*) from home.

2.a Multiple Graders

Next term, Jones will teach a large lecture class, involving multiple TA-graders. All of them are taught how to use Acrobat's commenting features, but Jones wants to supervise their grading and occasionally add his own corrections or comments to the homework. He asks the graders to send him the already commented files for review. When he adds his own comments, they are automatically distinguished as being his. He also made sure to use a different color than his graders, so his comments stand out for his students.

2.b Grading Convenience and Document Collaboration

Jones' department has decided to require all students to have Acrobat software, or be able to use it in the public labs. It is now considered standard software. This makes it possible for the graders to send only the extracted comments back to the students, and thus save a lot of bandwidth, much appreciated by modem users. They simply import comment files back into their original PDF document, and can still distinguish the comments' author.

This feature is soon put to better use: where small groups work on a project together, they can now quickly send each other suggested alterations and additions, to be incorporated into the central write-up by one designated person in the group. With Acrobat 6 Pro, one just converts the PDF back into Word format and can then execute all suggested text changes automatically.

2.c Document Collaboration and Security

As questions about academic honesty come up, Jones' TA suggests an additional improvement: each student obtains a free digital signature for Acrobat, and signs all his alterations digitally within Acrobat. Thus each member's contributions can be traced back beyond doubt.

3. Classroom presentation

Prof. Brown used to create overhead transparencies for classroom projection, but finds that they take too much time to create, don't last very long, and cannot be easily re-purposed. He decides to project PDF versions of his lecture notes instead, and can now mark up the lecture slides during his presentation at will, without disturbing his original source document. At the end of the lecture, he exports those annotations and makes them available to his students, who can import them to their copy of his lecture materials with the full Acrobat program.

Acrobat's zoom-and-pan capabilities allow him to look at details of his diagrams as well as get an overview quickly. When questions about specific topics come up, he can also use Acrobat's search feature to find the correct page right away, then return to the previous view at the click of a button.

3.a Classroom presentation and PowerPoint

Prof. Jones prefers displaying PowerPoint slides in his lectures, as he is very familiar with this easy-to-use program. He decides to distribute the presentations on his class website. But many of his students don't have the MS Office suite, and those that do tend to print the slide presentations out, wasting paper and toner. Some of the files are also way too large for distribution, as they contain many photographic images. He tries the conversion to web format, but isn't happy with the results, especially as some of his students use different browsers and operating systems than others. So he uses Acrobat's *PDFmaker* macro to convert the slides to a PDF presentation, which he print-disables. He also prints the presentation outline to PDF format, and allows printing it. When one of his presentations is rich in images, he instead prints 4-up or 6-up handout pages to PDF format, and allows the students to print those.

3.b From Presentation to Publication

At the end of the term, Prof. Jones has accumulated a large set of material, worthy of becoming a textbook for future terms. Instead of looking for a publisher, Jones decides to self-publish in PDF eBook format. This allows him to make last-minute customizations to the document, and saves the students a lot of money and weight, while allowing for interactivity and searchability unknown in the age of paper books. He puts sample pages on his website and would like to market the eBook to other campuses as well, but has to find a PDF merchant to manage the eBook purchasing/renting process. Licensing schemes and fee schedules are still very much in flux, but he decides to allow printing of 10 pages/month and no lending of the eBook to other users. He sets document expiration to six months after purchase.

4. Web Capture

Prof. Miller, a graphical designer, is making many web pages available to his students for online review and printout. The pages don't print well: his images and tables are broken up, captions are lost or misplaced, and wide pages are simply cut off. Converting the pages to PDF format via Acrobat web capture ensures that content properly fits on the pages. Wide pages are rotated automatically, and content is scaled as needed. He can choose basic default font settings, while preserving styles used on the pages. With Acrobat 6 Pro, he now has a simple "Create PDF" toolbar button in Internet Explorer.

He also seeks a way of conveniently archiving such a set of pages, so he can keep all materials for a specific term in a single document, with all internal navigation and external links intact. Again, Acrobat's web capture fits the bill exactly, and even gives him the option to update/refresh his captured pages at a later time, or to append additional pages from the external links.

However, Acrobat can only capture pages that are not access-controlled, so pages that require authentication or are built dynamically need to first be saved locally (in Internet Explorer) before they can be captured.

4.a Building a Portfolio

Miller is so pleased with his PDF web archives that he starts thinking about other applications for this technique. His students are creating a lot of artwork and web designs as class projects. As live websites undergo constant change, they need a way to document their original designs to build a portfolio of their work. Acrobat's web capture is used for the websites, whereas the graphics are converted in their native applications to PDF format or opened in Acrobat directly. All the documents are then merged and ordered by dragging page thumbnails from one file into the other.

4.b PDF on CD-ROM

Miller's class creates a demonstration project for publicity purposes, collecting their major work for the term. With all those graphics, these documents have become too large for Internet transfer and storage, so they need to be placed on a CD-ROM. By placing Acrobat Reader and some configuration files on the CD, they ensure that other users can see all the files without having to first install software.

4.c The Multimedia project

Miller finds out that Acrobat supports embedding Quicktime movies and sounds and decides to collaborate with the Performing Arts department on a multimedia showcase of their performance groups. For widest distribution, they not only put it on CD, but also on the web, where they need to link to remote Quicktime movies prepared for streaming or progressive download. In Acrobat 6, other common media formats are now also supported, but only on the Windows platform.