

Jon Breitenbucher

Jon Breitenbucher is interested in the use of \TeX in educational situations and is a member of the TUG board.

[Interview completed 22 June 2008.]



Dave Walden, interviewer: Please tell me a bit about your personal history independent of \TeX .

Jon Breitenbucher, interviewee: I am originally from a small town in Holmes County, Ohio. I attended The College of Wooster, a small, residential, liberal arts college in Wooster, Ohio, for my undergraduate degree. From Wooster I went on to The Ohio State University to study Analysis. I ended up studying Special Functions and did my thesis with Stephen Milne on extending one of Ramanujan's Third Order Mock Theta Functions. I left Ohio State to return to a teaching position at The College of Wooster and eventually ended up in a split position. I now teach one class a semester and the rest of my time is spent as an Instructional Technology Specialist.

While I was at Wooster as an undergrad, I met my wife. We were married right after graduation and still haven't had a real honeymoon. Shortly before graduating from Ohio State we had our first and only child. We've settled in a small town a little north of Wooster and are very happy. We spend our time entertaining our Lhasapoo and playing games. My wife and I are into the World of Warcraft and our daughter is into Webkinz.

DW: I guess I am not in touch with the World of Warcraft and Webkinz. What are these?

JB: The World of Warcraft (<http://www.worldofwarcraft.com/index.xml>) is a Massively Multi-player Online Role Playing Game (MMORPG); others include City of Heroes (loosely based on comicbook heroes) and Everquest (a fantasy based MMORPG). WoW is based on Blizzard Entertainments Warcraft real-time strategy games and set in the same universe. The universe draws heavily from the worlds created by Tolkien and Gygax. Currently there are over nine million subscribers worldwide. And as this implies it is a monthly subscription to play and all your character information is stored on central servers maintained by Blizzard. Your computer only has the image data and other elements that would require high bandwidth to transmit in real-time. I am on the Thorium Brotherhood server if you ever feel the desire to try it out. My character name is Cauchy.

Webkinz (http://www.webkinz.com/us_en/) are stuffed animals which come with a computer code that allows you to enter the digital Webkinz world online and redeem a

digital representation of your animal. In this world you can buy things for your animal such as a house, furniture, clothes, food, etc. Of course you need money to do that and you make money by playing games. Some of the games are not educational per se such as Tetris, but a number of them are very educational. Children really learn how to manage money and whatever skills the games are teaching. It is rather a neat thing.

DW: When and how did you first get involved with \TeX ?

JB: I'll start a little before I got into \LaTeX . All seniors at The College of Wooster are required to complete a Senior Independent Study Project. This project can and often does produce original results for students in research fields and the result for all students is a thesis of between 75 to 200 pages. I was a senior just around the time that Microsoft Word 4 or 5 was available for the Macintosh and had to write my thesis with that software. Even then I was preparing to use \LaTeX but didn't know it.

I broke the parts of my thesis up into separate documents, figured out how to get Word to generate a Table of Contents, Table of Figures, Table of Tables, Table of Symbols, Index, how to number equations, and how to format mathematics without the use of equation editor. I also figured out how to get Word to print the documents in order and paginate things correctly with the proper numbering style for the different sections and how to make use of styles. In the end I had one of the most professional looking theses that the Math department had ever seen. I thought it was immensely fun and didn't care that it took me three times as long to type up my thesis.

That Fall I was in an analysis class with Paul Nevai and I'll never forget his comment when handing back our first homework assignment, "Don't any of you know how to properly write mathematics in \TeX ?" He said this in his mild Hungarian accent and just could not believe that we had given him hand-written homework solutions. He offered to use some of his grant money to pay part of the cost for each of us to get a copy of Michael Spivak's *The Joy of \TeX* , 2nd ed. He took names and told us each to bring him ten dollars. A few weeks later about ten of us got our copies and started figuring out what this \AMSTeX was all about. We also learned that Paul had thought the books only cost \$20 and had ended up actually paying \$20 per student since the book cost \$30. I still have my copy sitting on the shelf in my office.

It wasn't long after that that I had the Borders near my apartment order a copy of *The \TeX book*. With those two books I began to create templates for my homework assignments and fell in love with the beautiful mathematics \TeX produced. A few years later I discovered \LaTeX when I started writing my thesis. I couldn't believe that it made it so easy to do the things I had done with Word for my Independent Study thesis. Numbering, pagination, generation of various tables, indices, styling, and entry of mathematics was so much easier than what I had done with Word. It was at this time that I started to fiddle with class development since I needed to tweak the Ohio State thesis class to match the university guidelines after the original class author had graduated.

When I returned to Wooster I was horrified at the visual quality of the theses being produced by the Math majors and took it upon myself to develop a thesis class for Wooster. I started by trying to alter the Ohio State class and the first few versions of the Wooster class were based on it, but I eventually threw it out and started with a more generic class and did some heavy modifying to arrive at the current version. Each year I ask the students what abilities they need the class to support and try to make sure that it can. During this entire time I have been offering sessions to students on how to use \LaTeX and have started requiring my own students to type up their homework. I don't require them to use \TeX but it is strongly encouraged.

DW: Please say a little bit more about your work developing a new class. What class did you start with, what other classes (if any) do you use in it, and did the result have to go through any sort of university or department approval process?

JB: Ultimately I ended up altering the book class. I have provided options to print only the abstract, to include a copyright notice with a Wooster image, to color the links black for printing, to have an index, to use the listings, floatflt, verbatim, lettrine, and alltt packages, a modified fncychap package, and an option to have a colophon. The class also auto-detects if the document is using $X_{\text{E}}\text{T}_{\text{E}}\text{X}$ or $\text{T}_{\text{E}}\text{X}$ and loads the packages that are not optional with the appropriate options. The required packages in the class are ifpdf, ifxetex, textpos, amsthm, amsmath, amssymb, setspace, eso-pic, ifthen, natbib, float, caption, subfigure, hyperref, and fancyhdr. In the case of $X_{\text{E}}\text{T}_{\text{E}}\text{X}$ we also load fontspec, xunicode and xltextra. In the case of $\text{pdf}_{\text{E}}\text{T}_{\text{E}}\text{X}$ we load graphicx and microtype. That's a lot of packages but they have been added to meet particular needs identified by students.

The final look of the document was approved by the Secretary of the College and the Director of Public Information because it used official College images. There was no real approval for the general format of the document. I based the format on my dissertation requirements at Ohio State. You can see an example at http://woolatem.wooster.edu/pdf/latex/IS_guide.pdf for which I think used $X_{\text{E}}\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$.

DW: I remember from meeting you at Prac[] $\text{T}_{\text{E}}\text{X}$ in New Jersey that you are very interested in helping students use $\text{T}_{\text{E}}\text{X}$ (and this interview, so far, confirms that interest). What are some of the useful $\text{T}_{\text{E}}\text{X}$ -educational resources you've used with your students, and what's missing?

JB: I have used *The Not So Short Introduction to $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}2_{\epsilon}$* and a few others; they are listed on the wiki I maintain for my $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ work at Wooster (<http://woolatem.wooster.edu/latexwiki/Guides>). Images, tables, and matrices are the things I get the most questions about at Wooster. I still haven't figured out how to do a matrix where the rows and columns are labeled with the labels outside the brackets of the matrix. Maybe that's just me though.

DW: I am sorry to say that I had not heard of The College of Wooster before I heard you mention it at the meeting in NJ. Is it a fairly typical liberal arts college, or does it have an unusual approach that drew you to it in the first place and back later?

JB: Wooster is known for its Independent Study program. Many institutions have Senior capstone projects for honors student or which students can elect to do, but at Wooster our curriculum centers around Independent Study which every senior does. Wooster starts from day one to prepare its students to undertake their year-long independent study project that will result in a written thesis at the end of their Senior year. I found that to be exciting when I was looking at colleges as a student and I really wanted to return to have the opportunity to mentor students as they did their projects. The official College page has a better write up than I could possibly provide: <http://admissions.wooster.edu/each/original.php>.

DW: What led you to be willing and interested in serving as a member of the TUG Board?

JB: I don't have a lot of money to donate to help further the development of $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$, $X_{\text{E}}\text{T}_{\text{E}}\text{X}$, $\text{ConT}_{\text{E}}\text{Xt}$, and friends or the mission of TUG, but I do have time. Thus I thought if I could get involved with TUG and donate my time to help with whatever I was qualified to do I'd be doing my part. I've benefited greatly from the work of TUG and all the developers

that make \TeX and friends possible and want to make sure others are able to benefit in the future.

DW: As I understand it, most of your time at Wooster is spent doing instructional technology work, and your web site (<http://jbreitenbuch.wooster.edu/~jonb/>) and blog (<http://jbreitenbuch.blogs.wooster.edu/>) certainly mention many technologies. Can you briefly summarize the sorts of instructional technologies you are working with? Also can you speculate on whether any of these might be of practical use for an organization like TUG in helping its members with aspects of learning and using \TeX ?

JB: I work with mostly Web based technologies such as blogs and wikis. I also oversee our Moodle installation (course management software) and am involved with video projects involving iMovie, Garageband, Audacity, and similar technologies. I am in the process of identifying faculty members to work with in the development of an information literacy project involving del.icio.us and on-line research sources. I am also in the process of finding projects that might lend themselves to Second Life or similar virtual environments. I think TUG could make wider use of a wiki (and may already be doing so). A wiki would provide a place where the community could develop living documentation. A blog for active development projects would provide a nice place for users to be informed about progress and comment on the direction of the projects. It would also allow the developers and users to communicate in a more public venue than mailing lists to which a number of users might not be subscribed.

DW: Thank you for taking the time to participate in this interview. Your descriptions of how Wooster functions make me want to return to college.