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REVIEW OF: Joseph Janes, David Carter, Annette Lagace, Michael McLennen, Sara Ryan, and Schelle Simcox. (1999). The Internet Public Library Handbook. New York: Neal Schuman.

by Cindy Schofield-Bodt

The Internet Public Library Handbook is at once two things: It is a narrative that describes the process and philosophy behind the Internet Public Library (IPL), and it is a guide to all things good in Web page design and library management of Web pages. As a description of how the IPL came to be, it is a fascinating read--though it almost doesn't make sense to read the book without exploring the Web site (www.ipl.org (<http://www.ipl.org/>)) either beforehand or between chapters. Any library that is setting out to have a World Wide Web presence should encourage all involved staff members to both study the IPL site and read the IPL handbook.

All six authors have the common perspective of library experience and, in addition, each possesses a unique perspective from a related field. They set out to meet five specific goals for helping information specialists, including: building collections of Web-based resources; developing services to meet users'

needs; designing original Web resources, providing on-line reference services; and considering funding and support issues of the network-based environment. Six chapters, each written by the person with major responsibilities in the described areas, cover the set goals and then some.

If readers think back to their "intro to libraries" classes, they will remember that library standards evolved to enable libraries to provide patrons with a consistent experience, one that would allow patrons to use the same research techniques in many institutions with confidence that no sources would be overlooked. In addition, library standards allowed for shared cataloging and, today, shared catalogs and collections. It is in this spirit of library cooperation that the authors share their collective Internet wisdom. According to the authors, the Internet Public Library has the world's "largest collection of on-line texts, newspapers, serial publications and general reference resources" (pg. vii). The IPL "opened" in 1995. It has been "visited" by people from over 130 countries and averages over 20,000 users per day. Certainly, providing library service to the world community has taught the IPL librarians a little something. This text gives them a platform from which to share what they have done right and highlight what they would do differently given a fresh start. Librarians reading this book are given the chance to improve upon the IPL staff's ambitious beginnings in their own libraries.

Initial chapters make a case for why librarians belong on the Internet, what a library Web site can offer and how the information business will change with or without librarians. The IPL staff shares that: "The biggest lesson we have learned during the project is that no matter how the world of information changes, skilled librarians are more necessary than ever" (p.3). Technological developments are not new; the pace of technological change is accelerating. While the business of the profession is to keep abreast of the latest in available information and the latest needs of customers, the authors affirm every librarian's suspicion: It is an impossible task. The speed and power of computers are accelerating at an exponential rate and human beings seem able to routinely increase the complexity of their tasks so that the power of each new generation of computer is tapped. In the area of interconnectedness, though, those with vision will have the advantage. No one seems able to predict how technology will bring us together during the coming decade and beyond. The text encourages information professionals to keep a wide open mind in order to accept and make use of future changes in the areas of publishing, editorial controls, fluid publishing in digital form, and the plethora of new media requiring innovations in purchasing, acquiring, and providing intellectual control. To know what kinds of things are possible may be beyond our comprehension, so those with the best imaginations will be the winners in the coming years.

Various chapters were written by the IPL staff member most involved with each area of focus. As David Carter takes the reader through "Building Online Collections," it is clear that the IPL staff grappled with all of the issues that anyone setting out to gather an on-line collection is going to consider. In the end, nine steps are outlined, including such traditional activities as defining the collection and evaluating sources, to more vexing on-line issues such as descriptive cataloging problems and the complexity of multiple subject access points. Again, the IPL staff concludes that traditional library skills are still valid in the digital age.

The assumption is made that a library Web presence is worthwhile, and chapter 3 is devoted to outlining the steps that will make a Web site "successful." The writer focuses on creating, designing and maintaining original, adaptive, and integrated resources. The strategy of using teams of talented people is strongly encouraged in undertaking Web endeavors. The mix of talents and interests, combined with a defined purpose and a unique offering or perspective, will strengthen any site. This chapter outlines six more steps than the last, 15 in all, to creating a Web resource. In addition to the helpful checklist, Schelle Simcox

emphasizes the value of making sure that the humans shine through the resource. A library resource page should not appear to be simply an electromagnetic phenomenon, but a carefully developed service vehicle wrought by human hands to meet the needs of the public.

The IPL offers many of the same services that any library would, and has run into some unique challenges by offering those services via the Internet. Imagine conducting a reference interview with a faceless patron or not being able to see a child's expressions as you tell a story. Welcome to the IPL reference and youth service divisions. While e-mail messages are often exchanged, on-line service cannot be equated with on-site service. With experience, some ground rules are coming to light. It is clear that the most successful projects have been self-contained (story hour) or have a structure that allows growth without having to revise existing material (Author FAQs). Reference service on-line requires many of the same qualities in a librarian as service at the information desk in a library building does--especially an understanding of the question. And while the author of this section acknowledges that there are disadvantages to a face-to-face encounter, there is also at least one advantage. On-line inquiries can be entered into a queue where they can sit until the right staff member is available or until the librarian faced with the question has some time to contemplate the request and come up with just the right source for an answer. Again, the new medium requires adaptation of old skills. The time and energy invested in adapting will carry the profession into the new world.

The Handbook does offer some guidelines for the economic feasibility of Internet library ventures and other nonprofit efforts. The advantages and disadvantages of advertising, corporate partnerships, organizational memberships, and fee-based services are all reviewed. In addition, new sources of income such as the licensing of intellectual property, providing continuing education, grants, and newsletter production are also discussed. The IPL has used a variety of methods to achieve economic stability and it is likely that any institution will have to follow its model of diversified funding. In addition, the writers look at the public library funding history of subscription libraries that preceded the free public library model (originally funded by the great philanthropists, particularly Andrew Carnegie), and muse that maybe the process must repeat itself.

The IPL has succeeded because of the people involved with the project, the standards they set, the motivation of the staff, the spirit of creativity, and "the power of the idea" (p. 203). In the Handbook's final chapter, future plans for the IPL are revealed and a summary of the project is presented. Advice to librarians beginning to form a "Web presence" is that "the best way to learn is to do it" (p. 207). Librarians have always incorporated new technologies and media into their work and have consistently provided access to information regardless of the format. The Internet continues to challenge the profession to help with the process of getting "information out of one person's head and into another's" (p. 209). Librarians have been here before, simultaneously working in the library of yesterday, the library of today, and the library of tomorrow--only this time, librarianship may prove itself to be "one of the most important, valuable, and respected professions" (p.209).

The Internet Public Library Handbook is an excellent source of cheerleading for librarians and nuts-and-bolts information for information professionals trying to determine how and where they fit into the Internet scheme. Easier to read than most techno- jargon tomes, this text should be required reading for library directors, Webmasters and information science students and faculty.

Cindy Schofield-Bodt (Schofield@southernct.edu (mailto:Schofield@southernct.edu)), Librarian, Southern Connecticut State University, is currently the Buley Library Technical Services Division Head. She teaches cataloging and acquisitions courses as an adjunct at the SCSU Graduate School of Library and Information Science.

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REVIEW OF: Don Tapscott. (1998.) Growing Up Digital: The Rise of the Net Generation. New York: McGraw-Hill.

by David Mattison

Digital kids are our future: They will transform and save the world from itself if given the opportunity. This is the message that social order theorist and economic futurist Don Tapscott trumpets loud and clear in his latest book. Tapscott argues persuasively for a change in Baby Boomers' attitudes toward their offspring before things really fall apart. He defines the Net Generation (N-Gen) as "children who, in 1999, will be between the ages of two and twenty-two, not just those who are active on the Internet" (p. 3). He also shows that the N-Gen are especially fluent in understanding and making digital media, which includes the Net, work for their interests on all fronts.

While it appears to me from the bibliography that Tapscott is riding a wave on how children will adapt to the Net, *Growing Up Digital* distinguishes itself through a wealth of anecdotal detail gleaned from chat forums and on-line surveys for a year or more. Many of Tapscott's conclusions are based on N-Gen's own views as expressed in these interactive sessions.

Growing Up Digital is also one of a new breed of books about the Net written through collaborative research with the book's subjects, both children and adults. Tapscott's book skillfully integrates the findings of his research and design team, as well as contributions from corporate colleagues at New Paradigm Learning Corporation. Every aspect of the book is clear and intelligible; Tapscott does not obfuscate his subject with jargon-laden or theoretical constructs unless absolutely necessary. The book educates as well as entertains through cartoons reflecting the content of each chapter, and quotations from the kids themselves in balloon graphics and sidebars. Graphs appear throughout the book and eight are reprinted in an appendix. Bibliographic footnotes, a bibliography, and an index support the reference aspect of the book. The index is somewhat problematic as discussions of topics such as "democracy" and "governance" are not listed under those terms and there are no cross-references to them.

Growing Up Digital comprises 13 chapters ranging from an introduction that sets the stage to Tapscott's optimistic view of N-Gen as leaders and his prognostications on future relations between N-Gen and their parents. In between, Tapscott covers "The Generation Lap," the distance and difference in attitude between N-Gen and boomer parents over technology; and the kinds of on-line and off-line activities involving digital media most favored by N-Gen. A series of chapters details some of the most important aspects of N-Gen life: how they think, learn, play, purchase, work and get along with their families. Before his final, sanguine chapter titled "Leaders of the Future," Tapscott presents some ideas on how the growing "digital divide" can be narrowed.

While it appeared to me at times that Tapscott is speaking of a generation of youth around the world, his population figures are based solely on U.S. Census Bureau data. Although we hear from various youth in other countries who participated in the on-line forums, little is said about how differing kinds of telecommunications infrastructures, let alone economic, social and political issues, affect N-Geners outside

North America. Tapscott rarely has a bad thing to say about N-Gen. Yet how valid is his sample? Can we extrapolate behavior and development of an entire generation (80 million strong) based upon the experiences of, say, 40,000 N-Gen with whom Tapscott had direct communication? Although I am not a statistician, the sample population (.05%) seems inconsequential and skewed toward the kinds of conclusions Tapscott produced. To be fair, the picture he paints of N-Gen is not all rosy, yet he seems to come down, in my opinion, too hard on parents who, in some cases, have made financial sacrifices so their children can have access to the latest technology.

In summarizing the differences between N-Gen and previous generations in the first chapter, Tapscott sometimes contradicts himself or seems to be working with obsolete data. For example, how much of this statement is true or relevant depends on where in the world his book is being read:

Governments are lagging behind in thinking about the implications of this new generation on policies ranging from cyberporn and the delivery of social services to the implications of the N-Gen on the nature of governance and democracy. (p. 2)

Canada, one of the world's most wired and digitally advanced countries, has enjoyed federal and some provincial government support since at least late 1995 of digital initiatives in the areas of community computer networks, cybereducation, and on-line business. Even the behemoth U.S. Federal Government as well as many state governments have not been slow to act, particularly when it comes to delivery of information services. I am not as convinced as Tapscott is that "democracy as we know it will be finished" (p. 304) or that N-Gen "will find racism, sexism, and other vile remnants of bygone days both weird and unacceptable" (p. 305).

While soundly demonstrating that N-Gen children and young adults are "learning, developing, and thriving in the digital world" (p. 7) without being corrupted, Tapscott goes on to contradict himself when speaking of child development. Several times at various points, he notes that further research is needed on how digital media and on-line interaction affect cognitive and social development. Yet, he boldly asserts with no conclusive or even preliminary evidence: "What we know for certain is that children without access to the new media will be developmentally disadvantaged" (p. 7). In concluding a discussion of N-Gen intelligence, he admits that "the first three years of life are the most important in terms of the development of intelligence, and the digital media is currently used very little by this age group....While more investigation is needed, it appears that new tools may change our thinking process" (p. 101, 104). Clearly, these statements do not square with his belief that N-Gen are somehow smarter or developmentally advantaged because they have access to computers and the Net.

One of the more fascinating chapters of *Growing Up Digital* covers "The Culture of Interaction," and examines the use of chat lines and on-line communities created by N-Gen. Based on months of observation, Tapscott summarizes 10 themes of N-Gen culture, among them independence, openness, innovation, curiosity, and the requirement to earn trust. Even N-Gen are a bundle of contradictions: The rights and rules set for the *Growing Up Digital* forum included free expression of opinions and the right to disagree, yet prejudicial comments are not tolerated. Does this sound like a group preoccupied with maturity, another of the 10 themes, and willing to defend socially unacceptable and unpopular forms of free speech?

Following up on much of his forecasting in *The Digital Economy*, Tapscott sees "successful companies...recognizing that networked structures work more effectively" (p. 37). He later cites Michael Dell of Dell Computer as an example of a successful executive whose company is based on networked

principles and is results-oriented. Reading Dell's explanation of how e-mail is used to weed out bad employees (p. 229), along with other employee-management relations, I was struck not by how different his company is, but rather how it all comes down again to the fact that someone has to be in charge and make decisions for which that person alone is accountable. Tapscott believes that N-Gen as employees will redefine the workplace in ways that will make the Year 2000 Problem seem trivial by comparison. He admits, however, that "knowledge sharing is at the heart of this challenge, but it has been slow to get off the ground, stalled in many companies" (p. 217).

The business world will find Tapscott's empirical-based forecasts on N-Gen as consumers captivating. I'm not particularly convinced, however, that the five themes, except perhaps for the last, of N-Gen consumer habits are unique to this generation. Don't we all as consumers wish for options, customization, and the ability to change our minds at any point during a sale? Is not trying a product out standard practice for any wise purchaser? The fifth theme has to do with technology as a market product: N-Gen, according to Tapscott, "cares about function, not form; about what the technology will do, not the technology itself" (p. 190). Tapscott also has some potent advice for marketers on advertising to N-Gen and the demise of "the brand" (p. 193). He delves even farther into the future and outlines some of the ways in which N-Gen as adults and parents themselves will behave as consumers.

Tapscott and N-Gen challenge many dearly held assumptions of adults regarding the Net and society in general. For example, he deals with the issue of cyberporn and on-line child predators, probably the biggest concerns adults have when it comes to children's access to the Net, in all of about ten pages (p. 238-249)--not because he believes these worries are insignificant or because he is glib, but rather because his solution relies on a family compact. Some of his statements, however, are unsupported by documentation or even example. He begins by noting that "pornographic images represent less than one half of one percent of images on the Net--far less than on the magazine rack at most newsstands or grocery stores" (p. 238). This statistic is not footnoted. He then goes on to state that "youngsters could persevere on the home computer for hours until they finally unearthed adult material" (p. 238). Try seconds these days.

Tapscott places the protection of children from exposure to sexually inappropriate imagery and text, as well as to sexual predators, squarely on the shoulders of parents. He dismisses the now invalidated U.S. Communications Decency Act as heavy-handed, misguided government censorship. Blocking software such as Net Nanny, CyberPatrol, and SurfWatch is also criticized as another form of censorship and basically unnecessary, given Tapscott's belief that parents should take responsibility for their children's access to the Net, and should be receptive and encouraging so that their children are willing to approach them when confronted by material that seems inappropriate.

Tapscott also notes that in extreme behavioral cases it may be necessary to monitor at all times a child's access at home; how this would work outside the home is not explained. He provides common-sense advice on protection from predators: ensure your children understand they should never provide personal information that could identify their locations or identities to anyone, even chat partners, unless some other form of real-world identification via parents is arranged.

The importance of creating an "open family" so children and parents clearly understand their respective roles and responsibilities concludes what I believe is the most important chapter in the book, "N-Gen and the Family." While stressing the need to clearly listen to our children in order to learn from and with them, Tapscott notes that "parents need to take the lead in defining rights and responsibilities" (p. 253) and not to confuse openness with permissiveness. The result, he summarizes, is a legacy of children who "remember

you as someone with curiosity who encouraged them in everything important and who shared your power with them and in doing so increased their personal power, self- esteem, self-reliance, and ability to make appropriate life choices" (p. 254).

How will this all play out? Given the extreme number of variables, Tapscott's four scenarios to describe possible near- future associations between the two generations seem to me unrealistic. I also question some of the causal dependencies in his scenarios, particularly the last scenario of a networked society that appears to describe a utopian and peculiarly American vision:

Social development, tackling racial imbalances and improving the lot of the growing underclass are all possible because of improved levels of wealth creation in a new economy....New models of governance emerge and governments are reinvented. Truer forms of democracy emerge, in which citizens have more control over their own destiny. (p. 295)

Powerful, transcendental stuff. Yet how applicable is this scenario in a world far from the ideal Tapscott presents? It is more likely that his final words, "listen to the children" (p. 305), will fall on deaf ears.

For those wishing further information before investing in the book, there are two Web sites carrying parts of Tapscott's eloquent text: his own New Paradigm Learning Corporation site at <http://www.nplc.com/> (<http://www.nplc.com/>), and the Growing Up Digital site at <http://www.growingupdigital.com/> (<http://www.growingupdigital.com/>) which includes public forums (message posting keyed to specific questions for children and adults).

David Mattison (David.Mattison@gems3.gov.bc.ca (mailto:David.Mattison@gems3.gov.bc.ca)) is an Access Services Archivist at the British Columbia Archives in Victoria, Canada.

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REVIEW OF: Ross Anderson, et al. (1999 ed.). The Global Internet Trust Register. Cambridge, MA: MIT Press.

by Betty Landesman

This is the second edition of the work compiled by Ross Anderson, Bruno Crispo, Jong-Hyeon Lee, Charalampos Manifavas, Vaclav Matyas, Jr., and Fabien Petitcolas, researchers in the Computer Security Group in the Computer Laboratory of the University of Cambridge. The 1998 first "trial" issue of the book, entitled Global Trust Register, is available in Portable Document Format (PDF) at the Global Internet Trust Register Web site at <http://www.cl.cam.ac.uk/Research/Security/Trust-Register/index-1998.html> (<http://www.cl.cam.ac.uk/Research/Security/Trust-Register/index-1998.html>).

Renamed the Global Internet Trust Register for the 1999 edition, this book addresses the question of trust on the Internet--the problem of identifying and authenticating users through public key cryptography--by providing a directory of public keys. The compilers describe it as "a register of the fingerprints of the world's

most important public keys; it implements a top-level certification authority (CA) using paper and ink rather than in an electronic system." Why paper and ink? In order to take advantage of the First Amendment privilege against regulation afforded print publishers and thus limit government interference.

The book has four purposes:

- to provide a top level in the global key certification hierarchy, allowing the authentication of root certificates acquired online;
- to gain trust for on-line applications by using the existing trust accrued by print publishing;
- to broaden understanding of the scientific, engineering, and business issues associated with top-level certification, and to discover problems in existing public key standards; and
- to use the privilege of a print publisher to circumvent government licensing of certificate authorities.

The book is divided into eight sections. The introduction describes the problem of trust on the Internet, requiring a means of identifying and authenticating users. There is an analogy given between the three things that can go wrong with cryptography and those that can go wrong with a signature stamp: the stamp may be stolen; the stamp may be counterfeited; and the stamp may not belong to the person you thought it did. This book is intended to solve this last problem by printing a directory of keys.

Chapters 2 through 7 list the keys of certification authorities, Electronic Data Interchange (EDI) systems (there are only two given, as most such keys are private), computer emergency response teams, other institutional keys, personal Pretty Good Privacy (PGP) keys, and medical keys. The last is an experimental effort supporting pilot projects to secure medical telematics applications, containing one X.509 key and eight PGP keys used by medical practitioners in the United Kingdom.

Each key is assigned an A-D "level of trust" rating by the compilers. D means that there is no reason to doubt that the key owner is not as stated, but there has been no actual verification. C means that the binding between the key and the e-mail address or other associated information has been verified, or that the key was recommended by someone with a rating of B. B means that the binding has been verified using a control on formal government- issued documents (e.g., passport or certificate of company incorporation), or that the key was recommended by someone with a rating of A. A means that at least one of the compilers has personal knowledge that the key belongs to the person or entity listed.

Chapter 8 is an appendix giving the background and purpose of the project, the philosophical debate behind the certification of identity, the problems faced in doing so, available products and procedures, and the rating scheme used in the book. The book concludes with a brief bibliography.

The 1999 edition is almost double the size of the 1998 edition. The increase is primarily in the contents of Chapter 6, "Personal PGP Keys," which has grown from 47 pages to 108. It is evident that the compilers have made a real effort both to add entries to the register and to remove entries that should no longer be included.

The appendix is also a new and welcome addition. It provides a necessary narrative to accompany the register entries. I found the section on lessons learned from the initial 1998 effort, such as the need for multiple attempts in order to authenticate most certification authorities and problems with naming conventions, particularly informative. However, I also found the entire appendix too brief and fairly cursory. I believe the third stated purpose of the book, to broaden understanding of the issues and problems with top-level certification and public key standards, would be better served by a more in-depth exploration of these questions.

I found the lack of current information problematic. The bibliography contains only 11 entries, half of which predate 1997. The section on problems with Web browsers refers to Netscape Communicator v. 4.03 and Microsoft Internet Explorer v. 4.0. I realize that some of this lack of currency is inherent in the print format--the information was no doubt current at the time the publication went to press--which is an integral component of this effort. Nevertheless, some of the non-sensitive portions of the text (such as new versions of Web browsers) could be updated on the group's Web site. The compilers state in the Introduction that if "any mistakes come to our attention, or if we are notified of any keys being lost or stolen, we will report this on the Global Internet Trust Register's webpage" (p. x-xi), which was last updated on March 2, 1999.

The compilers have included keys that have been made available by "giving them to us, by publishing them or otherwise" and all PGP public keys used to sign "a significant number of other keys" (p. ix). The register therefore is--and always will be--by definition incomplete. But it is a grassroots, heartfelt effort, in the spirit of freedom of the Web, and represents a great deal of work and provides information not otherwise readily available. The back cover quotes Whitfield Diffie from Sun Microsystems as follows:

...digital signatures are both widely used and severely limited by the difficulty of obtaining the information required to verify the signatures of strangers. It is ironic that a printed book is required to bridge the gap but, until the long-awaited public-key infrastructure is built, The Global Internet Trust Register will be a valuable aid to those who need to verify digital signatures from beyond the bounds of their own organizations.

I am inclined to move beyond the political tone and, in general, agree with the self-styled description of this book as "a good thing" (p. ix). I hope that there are further editions, and that they will be strengthened by more current and empirical data.

Betty Landesman (blandesman@aarp.org (mailto:blandesman@aarp.org)) is Manager, Document Delivery Team at the Research Information Center of the AARP in Washington, D.C.

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