

The Evolution of the Patent and Trademark Depository Library and the Role of the Patent and Trademark Librarian in the Digital Age

Karen S. Grigg

North Carolina State University Libraries

Abstract

This paper discusses effective methods of delivering patent and trademark reference assistance that support the university and library's mission of time- and location-independent service. The North Carolina State University Libraries is the sole Patent and Trademark Depository Library (PTDL) in the state of North Carolina and, as such, supports a diverse and geographically scattered clientele, including University faculty, staff and students, the extension community, and independent inventors. Each of these stakeholders has differing levels of expertise in patent searching, and different needs and expectations from the library. At the same time, the United States Patent and Trademark Office (USPTO) has produced a suite of web-based products that empower users as never before. Although these new tools are a step in the right direction, much work remains before the USPTO web site can be recommended as a stand-alone source for patrons. Librarians must add value by creating web sites and online tutorials for patent and trademark users, focusing on best practices for web page and tutorial design. Additionally, the patent and trademark subject specialist must effectively train reference staff to provide quality services to patent and trademark patrons. Librarians must bridge the gap between the users and the resources, and must serve as advocates for the user to the USPTO. Patent librarians must also work with faculty and students to integrate patent and trademark searching skills into the curriculum. Finally, as the role of the Patent and Trademark Depository Library in the digital age is changing, PTDLs must continually assess their success in providing time and location independent services.

I. Introduction

The Patent and Trademark Depository Library Program (PTDLP) was launched in 1871 and provided for the United States Patent and Trademark Office (USPTO) to print and distribute patents to participating libraries. According to USPTO, "Since 1977 the PTDL network has grown to four times its original size. Currently, about half of the membership is academic libraries with nearly as many public libraries."¹ The Patent and Trademark Depository Library Program benefits the general public by allowing libraries to house collections of patents and for librarians to assist the public in accessing these patents. Although this paper focuses primarily on many of the issues, challenges, and opportunities experienced by academic patent and trademark depository libraries, many of the recommendations can be applied to public libraries participating in the program.

The North Carolina State University Libraries (NCSU Libraries) joined the Patent and

Trademark Depository Library Program (PTDLP) in September 1977. Given the land-grant status of the University and its strong science and technology research focus, the decision to become a patent and trademark depository program was logical.

As the sole Patent and Trademark Depository Library (PTDL) in the state of North Carolina, the NCSU Libraries must balance the needs of independent inventors with those of the University community. As more resources are available through the World Wide Web, many patent and trademark patrons have bypassed the library altogether and utilize electronic tools. Additionally, in strained economic times, institutions tend to focus on their primary constituencies. As a result of these constraints and opportunities, the NCSU Libraries has reconsidered the role of the Patent and Trademark librarian and has decided to take advantage of the empowerment that the web offers to patrons.

II. Diversity of Patent and Trademark Stakeholders

NCSU Libraries supports a diverse and geographically scattered clientele, including university faculty, staff, and students, the extension community, and independent inventors. Each of these stakeholders has differing levels of expertise in patent searching, and different needs and expectations from the library. Faculty, staff, graduate students, and extension affiliates who invent usually seek the legal assistance of the campus Technology Transfer Office, as the inventions are assigned to the University at large. The campus technology transfer operation works to protect intellectual property across the University. Therefore, the libraries might not serve these stakeholders directly as regularly as they do the general public, though opportunities do exist to provide outreach to faculty, staff and students. When faculty and graduate students do make use of librarian reference assistance for patent searching, they tend to have good computing skills and often have some familiarity with the classification systems. Occasionally, faculty, students, and staff seek assistance related to specific known patents. For example, a history professor may seek Thomas Edison's first patent to display to a class or use in a publication.

Undergraduates tend to be light users of patent and trademark information. Occasionally, upper-level students might encounter references to patents in database searches and request these patents to use for a paper or for a senior design project. These students also tend to have a reasonable level of computer proficiency, and their requests can usually be addressed easily by all reference staff.

The most challenging stakeholders to serve are the general public. Independent inventors have complex reference questions, and they have differing levels of information and computer literacy. As will be discussed later, libraries have little control over what skills these patrons bring to the reference desk. Additionally, some patent and trademark patrons can be demanding and have time-consuming questions that overwhelm reference staff when the desk is busy. Although faculty and graduate students are often inventors, there is usually a technology transfer office for their questions; further, those who request assist from reference staff usually have baseline information and computer literacy skills.

III. Commitment to Time- and Location-Independent Services

Providing quality distance education is one of the top goals of many higher education institutions today. North Carolina State University and the NCSU Libraries have a strong commitment to deliver time- and location-independent services. In Fall 2002, North Carolina State University offered 96 distance education courses, a 30% increase over the number of courses offered the previous fall semester. The NCSU Libraries has responded to the needs of distance learning students by creating a department, Distance Learning Services, to serve this clientele. Academic research libraries are charged to meet the Association of College and Research Libraries' (ACRL) *Guidelines for Distance Learning Library Services*, which state that academic research libraries should provide "library services and resources equivalent to those provided for students and faculty in traditional campus settings." ² To this end, the NCSU Libraries offer distance learning students document and book delivery services, toll-free library telephone numbers, and virtual ("chat") reference services. Additionally, distance learning librarians work closely with other library departments to integrate the distance learning community's needs with new library initiatives and services.

The distance learning service model would translate well to the PTDL program. Although the ACRL guidelines refer to university students and academic programs, libraries should apply these standards for all library services. In the past, the USPTO resources could only be accessed through paper indexes and microfiche. Today, however, it should not be necessary for a patron with Internet access to drive 5 or 500 miles, unless his or her question requires the use of paper indexes or other library materials unavailable on the World Wide Web.

Is the independent inventor a good candidate to be a distance learner? According to McFadden (2001), "We already know much about the intellectual and psychological characteristics of independent (autonomous) learners: they can organize their time effectively; they are motivated to read and study without direction; they have generally good study habits; they enjoy the process of learning; and they can work cooperatively when they need to. Most of all, perhaps, they prefer to learn on their own." ³ Certainly, one could argue that independent inventors are autonomous and self-directed. The process of invention requires abundant intrinsic motivation. The first and most immediate hurdle is that users need both computer literacy and access to the Internet. This challenge will be discussed later in this paper. The number of Americans with home computers and computing skills has increased dramatically over the past few years. From 1996 to 2000, the number of personal computers per 1,000 Americans has increased from 212 to 585, or from 21.2 to 58.5 percent of the population.⁴ The Pew Internet & American Life Project survey in June 2000 found that "24 million Americans (21% of all Internet users) have high-speed connections at home."⁵ Home computer users have high expectations of what the web can deliver and increasingly demand Internet tools to access publicly available information.

IV. Evolution of USPTO Searching Tools

For many years, the only possible method for searching for patent and trademark information at PTDLs was to use paper tools such as the *Official Gazette of the U.S. Patent and Trademark Office*, the *Annual Reports of the Commissioner of Patents*, and

the various indexes for Patents and Trademarks. A major step forward came when the CASSIS system launched in 1988. This DOS-based system began in CD-ROM format and has now upgraded to DVD-ROMs containing bibliographic information, full images of patents and trademarks, and searchable indexes and manuals. Libraries participating in the PTDL program receive a computer and all CD-ROMs and DVD-ROMs produced by the USPTO.

The USPTO made great strides in 1996 by developing the USPTO web site and the patent and trademark databases. Until 1999, only bibliographic patent information was available, with limited full text. In 1999, the USPTO began to add TIFF images for each patent, and by 2000, the USPTO added all U.S. patents back to 1790. All patents from 1976 through the present are searchable by full text as well as by all fields. Patents issued before 1976, however, still do not contain full text, and are only searchable using patent number and classification code.

Currently, the USPTO is maintaining upkeep for two separate search systems. There are distinct advantages and disadvantages to both. CASSIS has sophisticated search capabilities that the USPTO web database does not, but the CASSIS interface is very difficult for most to learn and requires a trip to the library. While using CASSIS, it is often necessary to use three or four separate databases for one search. Because of the web's ability to use hyperlinking, the USPTO web site does a better job of seamlessly guiding users from the indexes and manuals to the final patent. The USPTO web site, while easier to navigate than CASSIS, only allows users to print one page at a time, and forces users to download and install a TIFF viewer plug-in to view the full images.

The amount of full text searching available continues to be a serious issue. Many users state the desire to see the USPTO provide retrospective full text searching back to 1790, rather than the current limitations. Some patent searchers, however, worry that increased access to full text searching may cause eventual degradation to the patent classification system. According to Lambert (2001), "Patent searchers are also concerned that with the digitization of the patent collection and the increasing dependence of patent examiners on computerized full-text searching, the PTO may abandon the U.S. patent classification system. This would seriously hinder patent searching in subject areas that have no consistent terminology, especially subjects in which earlier patents do not use terminology later associated with the concepts. For instance, some of 3M's early patents on repositionable adhesives - "Post-its"- refer to them as "tacky acrylate microspheres," not the first terms that would come to a searcher's mind." ⁶

Certainly, most patent librarians would not recommend that patent searchers abandon classification searching and settle for a "quick and dirty" keyword search. However, the Patent Classification system is old and provides challenges when classifying inventions that use technologies that did not exist in 1790. For many searchers, combining keyword searching with classification searching helps pinpoint the classification code and enhances the search. This technique is similar to that which librarians teach patrons for searching the libraries' catalog. Often, the best catalog search involves a preliminary keyword search, followed by a careful examination of subject headings in the record retrieved. This same approach used in the USPTO database can lead the patron to classification codes

when the Index and Manual to the Classification yielded in the first search.

V. Changing Roles of Librarians in the Digital Environment

Traditionally, patent librarians served patrons in two ways: by maintaining the patent and trademark collections, and by working directly with the patent and trademark patrons from the general public. Much of the time, a patent patron would call the library, arrange to meet with the librarian, drive to the library, and the librarian would train the patron to do a patent search. Not surprisingly, these interactions would be very time consuming. The independent inventor often had no other alternative except to travel to the library for each patent search. Over the years, patent librarians often developed long term professional relationships with certain patrons. There was often a full-time patent and trademark librarian devoted to building these relationships with independent inventors.

Now, as electronic searching tools and the computer literacy of the general public continue to evolve, new roles for patent and trademark subject specialists in the academic library are emerging. Among these roles are that of the technological liaison, the curriculum advisor, the trainer, and the advocate.

VI. Role as Technological Liaison

While the USPTO's web databases are a step in the right direction, they are not sufficient as stand-alone products for the general public, though certainly, the complex nature of patent and trademark searching makes producing a user-friendly product a challenge for anyone. At this time, one cannot address each patent and trademark reference question by giving a web address to the patron. However, there is no need for every single patron to drive to his or her nearest PTDL. Creating a matrix that defines which patrons and which questions can be answered remotely is important to ensure that service is truly time- and location-independent. Patent questions that cannot be answered remotely can still be handled traditionally. Patent librarians must invest time in creating support tools that will assist patrons with the process of navigating the USPTO web site and the world of intellectual property as a whole.

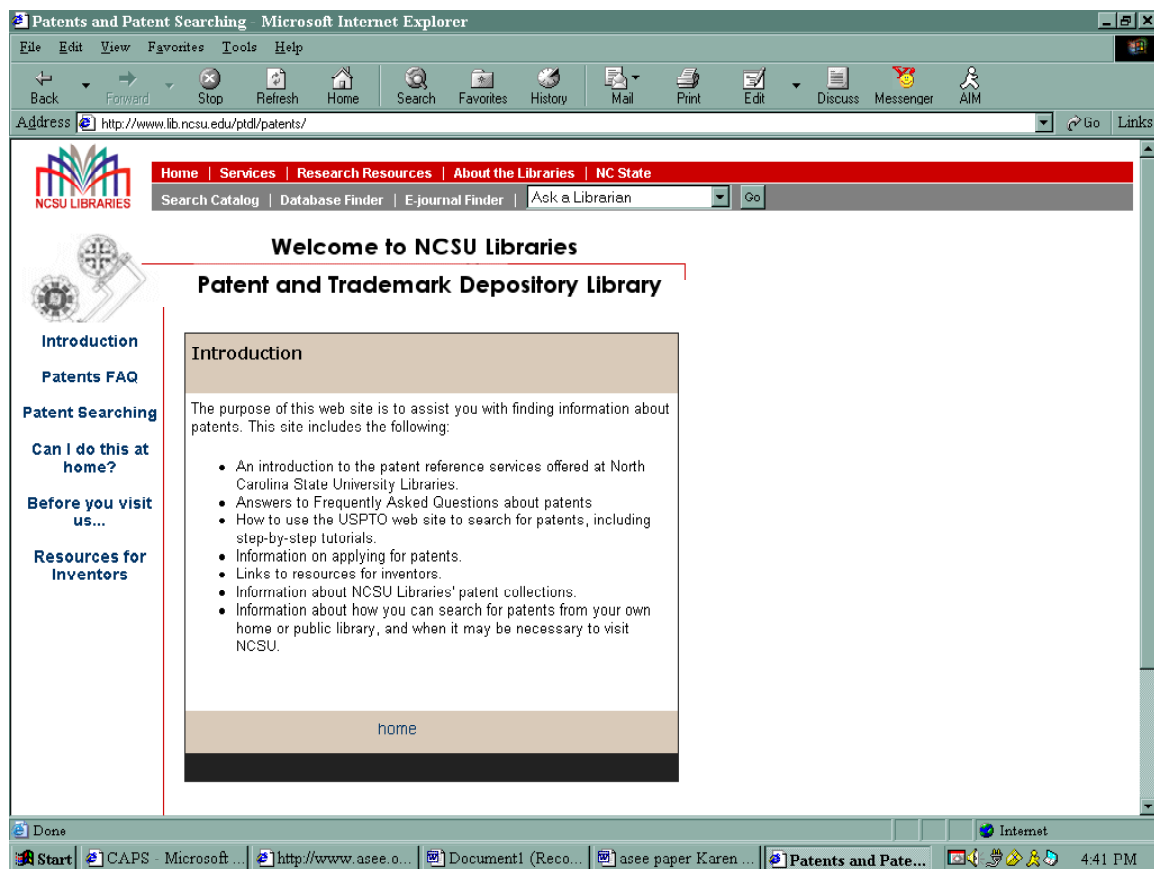
Carlson and Repman (2000) discuss what is required to make web-based instruction (WBI) successful. They state that "It is necessary to design instruction which engages the learner in interactive activities"⁷ In order to be interactive, the web site should contain elements where the user can choose a specific scenario or question and have the opportunity to use tutorials that demonstrate a new skill, followed by the user trying the activity. A good patent or trademark searching tutorial should be developed in modules, so that patrons can view the portions that are relevant for their specific information need. Additionally, these modules should be integrated into an overall information delivery service. While use of animated tutorials built with software such as Qarbon ViewletBuilder™ can be helpful for those wishing to view real-time demonstrations of search strategies, care must be taken to meet accessibility requirements, such as ADA requirements for the visually impaired.

Several PTDLs have tackled the issue of time and location independence by creating

patent and trademark searching tutorials. One good example is the McKinney Engineering Library at the University of Texas at Austin, which has created an exceptional patent searching tutorial, that gives search instructions in a left frame and brings up the USPTO web site in a right frame. ⁸

The NCSU Libraries has created a web site for patrons with patent and trademark reference questions. (Figure 1) The site allows patrons to determine whether their search is one that can be done from home and contains a variety of tutorials. At this time, librarians are adding viewlets created with ViewletBuilder™ to allow users to see step by step how to search for patents and trademarks. Each tutorial is available in a text-based version for accessibility purposes. Patrons with web access who wish to search from home are referred to the web site to gain background on patent searching and to learn how to do a search.

Figure 1: NCSU Libraries' "Patents and Patent Searching" web site for patrons ⁹



VII. Role as Curriculum Advisors

Patent librarians in academic research libraries should work with other librarians and faculty to integrate patent and trademark information into the curriculum. Patent librarians can team up with other librarians who offer library instruction and add patent and trademark searching skills to bibliographic instruction sessions where appropriate. In addition to partnering with other librarians, patent librarians should build relationships with faculty. Obvious partnerships would be with colleges and departments such as

engineering, business and management, chemistry, law, and life sciences, but other disciplines such as the Humanities might also be appropriate departments for outreach. While working to link patent and trademark information to the curriculum, the patent librarian has a unique opportunity to build relationships that may encourage faculty members who invent to consult with patent librarians for assistance and training.

The opportunity to teach patent and trademark searching skills is enhanced in an environment where instruction is delivered systematically. Nerz and Weiner (2001) discuss a curriculum-integrated approach to library instruction where librarians work with faculty at the curriculum level to identify strategic points at each grade level where library instruction can be embedded into courses to build information literacy competencies. They state that, “in order to be relevant, library instruction must be planned strategically across the curriculum and implemented in a way that allows the student to grasp the complexities of the information universe. There needs to be collaboration between teaching faculty and librarians, and critical evaluation of the students’ information competencies.”¹⁰ In an environment where library instruction is sporadic and random, most assignments and bibliographic instruction are by necessity basic in nature. Librarians using the curriculum-integrated instruction model, however, can add patent searching assignments to junior and senior level courses, so that students can build on the competencies gained in freshman and sophomore assignments.

VIII. Role as Trainer

As the patent and trademark librarian serves multiple roles within an organization, greater opportunities exist for all reference staff to encounter patent and trademark reference questions. This means that patent librarians must place a greater emphasis on training all reference staff. Inevitably, patent patrons will still drive long distances to the nearest PTDL without giving notice, so it is essential that everyone who staffs the reference desk has basic competencies.

One can think of these competencies as distributed using a tiered model. The first tier should be required of all reference staff. The second tier will be distributed to one or two librarians who are given additional patent reference training and are considered to be patent “backups”. Likely candidates for the second tier might be reference subject specialists in areas such as engineering, chemistry, or law. The third tier would be expected only from the patent and trademark subject specialist.

Before listing the specific tiered competencies, it helps to define the scope of patent and trademark reference questions. First of all, one can divide these questions into two main categories: known and unknown. Known patent or trademark questions arise when a patron knows or believes one or several patents or trademarks exist. While most of these questions can be easiest for beginners to answer, occasionally they can be the most vexing; even for experts. Some examples of known patent and trademark questions are:

- My great-grandfather invented a widget in the 1920s or 1930s and I am trying to find a record of the patent.
- This journal article references US Patent number 5,146,634 and I need a copy of the

patent.

- I am trying to print a list of all the trademarks held by Ocean Spray Corporation.

Many known patent and trademark questions are the simplest and best suited for the beginner at the reference desk. A patron with a patent number in hand is usually easy to help. Less simple, but still manageable by the novice, are questions involving newer patents and trademarks held by companies, where specific information is known by the patron. A patron who knows that IBM invented something in a specific year is probably an easy patron to serve. However, some of the most difficult questions to answer are those involving old patents and trademarks, or where little information is known about the patent or trademark. These questions are challenging, as one must consult a variety of older print indexes and tools.

Unknown patent or trademark questions exist when independent inventors or business owners are researching the uniqueness of their invention or trademark and searching for prior art. Independent inventors seeking patents provide certain challenges due to legal issues. The librarian is not allowed to give legal advice to the patron, and must train the user to perform a patent search without helping them choose the proper classification code or influencing the outcome. Additionally, the user is expected to find comprehensive results. These patrons can be quite challenging to serve at a busy reference desk, as the average patentability search takes between 25 and 30 hours to perform⁸. Unknown patent questions usually involve the use of the patent classification system, as a keyword search is not sufficient to provide comprehensive results. Faculty and students also may have questions that involve using the patent classification system, but unless they are searching as inventors, it is usually not as critical if the search is exhaustive. Further, the librarian is often able to assist with the selection of classification codes without fear of legal reprisal. Unlike the known search, patrons conducting a patentability search have no idea whether the item searched for actually exists, and in fact, usually hope that it does not. Assisting patrons with these searches can be challenging for most reference staff, and are best handled after training sessions. An intensive, iterative approach to training, with several smaller sessions that build skills in reference staff, is helpful. As the USPTO mandates that librarians avoid giving any sort of legal advice, and as patrons will often press for feedback on their search strategies, it is helpful for reference staff to have a couple of memorized stock generic searches. For instance, a librarian can use a search for a specific category to show patrons how to work from the *Index to the U.S. Patent Classification* to the *Manual of Classification* to the actual patent documents. Reference staff should be able to take a few minutes to acclimate the patron to the complexity of the search, advise the reading of helpful materials, and lead the patron to the patent machine. If necessary, the tier-two librarians can assist the patron at this stage.

Competencies expected of all Reference Staff:

- The ability to conduct the reference interview for all patent and trademark patrons;
- The ability to assist patrons with basic known patent and trademark questions; and
- The ability to identify patentability patrons and orient the patron to the complexity of the process and assist with the multi-step process of the Classification System to enable the patron to start a patent search.

Competencies expected of Tier Two Reference Staff:

- All of the competencies expected of Tier One Reference Staff plus:
- The ability to conduct more challenging known patent and trademark searches using print indexes;
- The ability to handle patrons with very challenging patentability questions that are unanswerable using the standard skills gained at basic patent training sessions; and
- The willingness to assist when reference staff are overwhelmed by other desk traffic and cannot leave the desk to assist patent patrons.

Competencies expected of the Patent and Trademark Librarian:

- All of the competencies expected of Tier One and Tier Two Reference Staff plus:
- The ability to handle obscure or difficult reference questions that Tier One or Tier Two Reference Staff have not been able to answer. Frequently, this may involve posing questions to electronic mailing lists, contacting peers, or contacting the USPTO;
- The ability to provide patent and trademark reference training to other librarians and to assist instruction librarians in integrating patent and trademark skills into library instruction where appropriate;
- The ability to work with faculty to integrate patent and trademark instruction into the curriculum where appropriate;
- The ability to conduct patron surveys, manage the collection, and administer the duties the USPTO requires of PTDLs; and
- The ability to serve as an advocate to the USPTO for patron needs.

IX. Role as Advocate for Patrons to the USPTO

Patent librarians, rather than spending their career trying to make the best of a flawed information system, must serve as advocates for their patrons. Why, for instance, is the USPTO continuing to spend money and resources on CASSIS, an antiquated search system that can only be used at a PTDL, when full text of patents is only available from 1976? This does not help the independent inventor in Fairbanks, Alaska who has to drive approximately 358 miles to Anchorage, Alaska to the nearest PTDL. Additionally, patent images stored in TIFF, a format that does not automatically load in most web browsers without an additional download of a plug-in. The USPTO should take a cue from Espacenet, the database offered by the European patent office, which uses PDF format for patent images. Further, why must patrons print these patent images one page at a time? The independent inventor trying to print out numerous patents that are each several pages long often become overwhelmed and frustrated. Wherry (1999) charges that “Although the USPTO has provided an adequate service for inventors and others for over 200 years using a manual system, in the digital age the system no longer meets the needs of those who require patent information. The technology is in place to create patent databases with image and text capabilities, but the USPTO seems to be struggling with funding and bureaucracy in getting this task accomplished.”¹¹

Clearly, the market is stacked in favor of companies, academic institutions, and corporations. Astebro (1999) asserts that “The probability of commercial success for inventions developed by independent inventors was determined to be exceptionally low:

6.5%.”¹² Corporations have deep pockets and can often afford attorneys and expensive search tools. There are many commercial databases that have greater, more powerful search capabilities, such as Dialog, STN, and Delphion. However, the cost of searching these products is out of the reach of most independent inventors, who are consigned to use whatever free products the USPTO makes available. Shane (2000) states that free electronic tools are a mixed blessing because “as much as this is a convenience, particularly for people living in remote areas, it will also inevitably invite people to perform sloppy or incomplete patentability searches.”¹³ This worry is similar to concerns that the classification system will erode with the advent of full-text searching. However, the possibility that users will not perform complete searches should not mean that the USPTO and patent librarians should eschew making the process more convenient and affordable for the general public. Why should the person with a simple known patent search be inconvenienced because those with complex patent searches might perform incomplete searches at home? Further, one cannot ensure that patrons who make the trip to the PTDL are going to self-identify and allow reference staff to assist. Sloppy patent searches can be performed at home and at PTDLs. More efforts, then, must be placed on educating the public on the complexity of the patentability search and providing tools that allow some to learn these skills independently. Therefore, the Patent and Trademark Librarian must still serve as an advocate for the patron, both by educating users to perform in-depth and complete patent searches and by advising the USPTO of user needs.

X. Reference Assistance to the Technologically Challenged

Academic research libraries face special challenges when serving the general public in the role of the PTDL. With students, faculty, and staff, there is a fairly controlled environment where computer and information literacy requirements can be made and enforced. One can expect that a college senior should have the ability to use a personal computer with a reasonable degree of proficiency. The librarian has, however, little control over what technological skills an independent inventor will bring to the patent searching process.

PTDLs often encounter patrons with little or no experience with computers. These patrons are entitled under the Patent and Trademark Depository Library Partnership program to receive quality service as much as any other patrons. However, when the reference desk is busy, it is not practical to leave the desk to give basic instructions on how to operate a personal computer. Additionally, these patrons are definitely not able to utilize web-based tutorials and probably have no access to these resources at home. So, how does the model of time- and location-independent patent reference services assist these patrons?

First of all, the USPTO’s current path seems to include the expectation of computer proficiency from the patent and trademark searcher. The USPTO recently unveiled a plan to go paperless and has begun disposing of paper copies of U.S. patents, expecting that users will rely on CASSIS or the USPTO web databases to access patents.¹⁴ Additionally, as of September 2002, the USPTO discontinued the production of the paper version of the *Official Gazette of the U.S. Patent and Trademark Office*. The academic research library, however, is not the ideal setting for instructing the general public in the use of computers.

PTDLs must partner with public librarians and other community organizations to address computer literacy issues for adults. Since it will be necessary for patrons to have minimal computer skills in order to search for patents and trademarks, reference librarians at academic libraries should refer these patrons to their closest public libraries or community centers to gain these skills before attempting the complex patentability search. Additionally, because of legal issues that prevent the librarian from becoming too directly involved in the patron's specific search, it is necessary to require some level of autonomy and independence from the patron. With simple known patent or trademark searches, legal issues are usually not a problem, and the reference staff should be able to assist any patron in locating a specific patent or trademark. An independent inventor with a complex patent search, however, must be responsible for learning the tools he or she must use to complete the task.

XI. Summary and Conclusion

Despite the call for time- and location-independent patent and trademark reference services, the PTDL as a physical space still serves valuable functions. The role of the PTDL as holder of a physical historic collection of older, fugitive materials is still relevant. According to Sleeman (2002), "the notion that all the government information that researchers will ever need is available, or shortly will be, in a user friendly form on the Internet, is a far cry from the reality facing most government information professionals."¹⁵ Additionally, access to government information via the web is often ephemeral. Warner (2002) states that "Ensuring access implies being able to control the existence, integrity and location of an item. If someone other than you can move, replace, alter or remove the copy you want to provide for your users, then you can not ensure access. The presence today of a document on the web is no guarantee of its presence tomorrow."¹⁶ Whether or not libraries are ultimately responsible for archiving government information indefinitely is the subject of another paper. Some might argue that the government itself bears this responsibility; others see the government depository system as the cornerstone of democracy.

Does placing emphasis on providing off-site access to patent and trademark searching service for patrons sound a death knoll for the PTDL as a whole? The answer to this question is both yes and no. The idea that all patent patrons with reference questions need to physically travel to the PTDL is outdated in the digital age. The USPTO needs to take more responsibility for assisting the small independent inventor by improving the USPTO web search tools, putting less emphasis on the older CASSIS system, and providing full-text searchability for all patents issued since 1790. As more citizens are able to utilize these tools at home or in other convenient settings, reference staff will be able to more thoroughly serve those patrons who still need or want to make the trip to the PTDL. Ultimately, the long-term goal of both the USPTO and the PTDL should be to work towards creating systems that are convenient and easily accessible to all Americans from the privacy of their own homes or closest public libraries. Patent and trademark librarians will always have a role in training and providing helpful tools, but will enable citizens to empower themselves. Although these aspirations will not be reached immediately, they should be the end goal to which all aspire.

Bibliography

1. Patent and Trademark Depository Program (2002, May 28.). Retrieved December 20, 2002, from <http://www.uspto.gov/go/ptdl/ptdlgen/htm> .
2. Association of College and Research Libraries: Guidelines for Distance Learning Library Services (2002, January 24). Retrieved December 20, 2002 from <http://www.ala.org/acrl/guides/distlrng.html>.
3. McFadden, T. (2001) Computer-based instruction in libraries and library education; Introduction. [Electronic version]. *Library Trends* 50(1), 1-7.
4. US Bureau of Census (2002) *No. 1375. Newspapers, Radio, Television, Telephones and Computers by Country*. Statistical Abstract of the United States. Retrieved December 22, 2002, from <http://www.census.gov/prod/2002pubs/01statab/intlstat.pdf>
5. Horrigan, J. and Rainie, L. (2002) The Broadband Difference: How online Americans' behavior changes with high speed Internet connections at home. Pew Internet Report 63. Retrieved December 22, 2002 from <http://www.pewinternet.org/reports/index.asp>.
6. Lambert, N. (2001). That was the year that was- patents Y2K. [Electronic version] *Searcher*, 9(2), 10-18.
7. Carlson, R., & Repman, J. (2000). Experience speaks! What Web instructors wish they'd known. *WebNetJournal*, 2(1), 11-13.
8. Patent Search Tutorial and Information - University of Texas (n.d) Retrieved December 20, 2002 from <http://www.lib.utexas.edu/engin/patent-tutorial/index.htm>.
9. Grigg, K. (2002) NCSU Libraries: North Carolina's Patent and Depository Library Partner. Retrieved December 20, 2002 from <http://www.lib.ncsu.edu/ptdl/>
10. Nerz, H. and Weiner, S. (2001). Information Competencies: A Strategic Approach. [Online.] Available: http://www.asee.org/conferences/search/00510_2001.pdf. [4 October, 2001].
11. Wherry, T. (1999). Patents in the new world. *Science & Technology Libraries*, 17(3/4), 217-222.
12. Astebro, T. (1999) Basic statistics on the success rates and profits for independent inventors. [Electronic version]. *Entrepreneurship Theory and Practice* 23(2), 41-47.
13. Shane, J. (2000). Patent and Trademark searching on the web: Some cautionary advice. *Science & Technology Libraries*, 18(4), 83-91.
14. Patent Office tosses paper. (2002). [Electronic version]. *Library Journal* 127(2), 19-20.
15. Sleeman, W. (2002). It's not all on the net: Identifying, preserving and protecting rare and unique federal documents. [Electronic version]. *Government Information Quarterly*, 19, 87-97.
16. Warner, D. (2002). Why do we need to keep this in print? It's on the Web. [Electronic version]. *Progressive Librarian*, Spring 2002 (19/20), 47-64

Karen S. Grigg has been Textiles and Engineering Services Librarian at North Carolina State University Libraries (NCSU Libraries) since April 2002. She is also the Patent and Trademark Subject Specialist for the Libraries. From December 1999-April 2002, she held the position of Agriculture and Life Science Reference Librarian. Ms. Grigg received her M.S.L.S. degree from the University of North Carolina at Chapel Hill in 1998, interned at the Environmental Protection Agency Library in Research Triangle Park, North Carolina, and worked from 1998-1999 for Lockheed Martin on the Environmental Protection Agency contract for the Emission Factor And Inventory Group.