What Does a Person Have to Do to Use a Computer Here?

By: Gillian (Jill) D. Ellern & Robin Hitch

Abstract

This presentation talks about how the presenters got started looking into authentication in academic libraries in NC and how the presenters got interested in this topic. It covers the methodology of their research and some of their findings, with charts and graphs of each question.


What Does a Person Have To Do To Use a Computer Here?

Jill Ellern, Robin Hitch and Shandon Bates (in absentia)
Outline of Our Talk

- Our story and how we got interested in this topic
- Methodology of our research
- Some of our findings so far
  - Charts and graphs of each question
  - Depending upon how much time we have...
- Future directions in our research
What is Authentication?
2009 WCU mandated a new campus wide Pay for Print project

- Before this, the library and IT had a smaller print project
- IT wanted to change the way the library public area PCs were configured
  - Requiring machines to be logged into the domain
  - Question arose about the machine logins
- Library didn’t want to be forced to do this
Library’s Story: Reasons NOT to Authenticate

- **Ease of setup and security issues**
  - Library IT were not domain administrators
  - More complex issues with imaging PCs
  - Domain accounts have access rights issues
  - System staff seemed to address and find virus problems more quickly than IT did

- **Ease for patrons using PCs**

- **Ethics**
  - Privacy and inquiry issues
  - Freedom of access
A Meeting with IT

- Want to require all users to log in on all PCs
  - Make all users accountable
    - Including the public
    - Just like the labs, classrooms and staff
  - Worried about regulations and auditors
    - CALEA

- Didn’t like how the library managed the PCs
  - Not upgraded often enough
    - Despite using a security system software (Deep Freeze)
    - Despite our virus security software
IT’s Story: Reasons TO Authenticate

- Security issues/investigations in other areas
  - An employee's use of unauthenticated PC in the University Center led to Campus and Jackson County Sheriffs office investigation

- Increased overall security utilizing AD Group Policy
  - Allows for more granular security policies and faster rollout of updates, as no re-imaging is required
  - Deep frozen machines repeatedly infected with malware during large outbreaks

- Protection of University Assets
  - Requiring authenticated access and being able to track users increases security by insuring adherence to campus policies
Researching Library Authentication Practices

- Looked first at what other University of NC system libraries did
- Didn’t find much that I could use to help support the library position
  - In preserving library ethics
    - freedom of inquiry and privacy
    - anonymous access to library resources
  - Arguing against IT’s conservative protection
    - Network security concerns to protect against unauthorized access, abuse, disruption, tampering, and failure
    - Responsibility to follow appropriate laws and regulations
The Research Team

- Jill Ellern, Systems Librarian, Hunter Library
- Robin Hitch, Computer Tech, Hunter Library
- Shandon Bates, Director of Systems and Operations, IT
Our Thoughts on the Subject

- Why libraries
  - need to collect user data or limit access or track use?
  - not want to collect user data, or limit access, track use?
- Why IT
  - might need to collect user data or limit access or track use?
  - not want to collect user data or limit access or track use?
Methodology

- Used Qualtrics survey system
  - Online web product that sends email with link
- Tested survey with the UNC system libraries
  - Oct – Dec 2010
- Sent surveys to the rest of the NC academic libraries
  - Dec 2010
- Followed up with librarians via phone call and email
  - Jan-March 2011
  - 99% response rate (113 out of 114)
  - One private college opted out
- Library visits as a “Secret Shopper” /Guest User
  - Sept 2011
Data Collection and Processing

- Setup the questions
- Emailed our letter and link to appropriate person at each library
- Followed up to make sure everyone received it
- Downloaded the data into a spreadsheet
- Reviewed, normalized data
- Called librarians with questions about their responses
- Began the evaluation of the data
  - In the midst of evaluating responses
  - Boning up on statistical principles and tools
About the Questions asked

- 36 different questions
  - 7 different areas of inquiry
    - Variety of pull down lists, check boxes, and fill in blanks
  - 7 branches or skip logic in survey
    - For example, depending on the answer given, the survey skipped sections or asked for more information
- Snap shot in time
  - Moving target, ever changing
Authentication of PCs in the library public area

Thank you for agreeing to participate in this survey about user authentication on PCs in your public area.

What we mean by authentication is any means of restricting the use of a PC to a particular group or individual by some method. Examples of authentication can take the form of manual sign-in sheets, individual PC sign-in or scheduling software, centralized authentication or password methodologies, or preset authorization username password.

Select the college or university you represent:

Which library building in the above college or university?

How many total PCs do you have in the library’s public areas for the building you are reporting on?

How many Library IT or Library Systems staff does the library have?
The 7 Areas of Inquiry

- Descriptive
- Authentication
- Student only PCs
- Guest/Public PCs
- Wireless access
- Incidents
- Logs
Broad Themes of Inquiry

- Figure out if and why libraries were authenticating
- Factors that contributed to authenticating
  - i.e. were they forced to by someone else?
- Discrepancies in policies
  - i.e. between wired and wireless
  - The logging of book use vs. Internet use
- How libraries deal with servicing the public
  - Student Only vs. Guest/Public Use
  - Security vs. Open Access
What We Were Expecting to Find

- IT departments used post 9/11 factors, law interpretations, and fear of audits to force libraries to authenticate
- When IT controls the setup of the PCs, then there would be authentication required
- Factors such as population, enrollment, book volume, and others played a role in requiring libraries to authenticate
Some of Our Findings So Far
General Descriptive Results
Pictures of OPAC area
Academic libraries of NC (114) in this study

- Community Colleges: 58 (51%)
- Private Colleges: 36 (31%)
- University of NC system: 16 (14%)
- Religious Colleges: 3 (3%)
- Declined to participate: 1 (1%)
Who Controls the Setup of the PCs in Public Area? (all 113 Libraries)

- IT: 65 (57%)
- Library: 18 (16%)
- Shared with IT: 30 (27%)
Who Controls the Setup of the PCs in Public Area (by Type of Institution)

- **Community Colleges**: 42
- **Private Colleges**: 19
- **Religious Colleges**: 13
- **University of NC System**: 10

- **IT (Campus Computing Center)**
- **Shared between IT and Library**
- **Library**
Different types of PCs in Your Library?
(all 113 Libraries)

Yes
62
55%

No
51
45%

45% have All PCs the same
## Different types of PC Setups in Public Area
(all 113 libraries)

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some have specialized equipment attached (like scanners, microfiche readers, etc)</td>
<td>38</td>
<td>34%</td>
</tr>
<tr>
<td>Some have different types of software (like Browser Only)</td>
<td>37</td>
<td>33%</td>
</tr>
<tr>
<td>Some have printing limitations</td>
<td>12</td>
<td>11%</td>
</tr>
<tr>
<td>Some have time or scheduling limitations</td>
<td>11</td>
<td>10%</td>
</tr>
<tr>
<td>Some control, limit or block web sites that can be accessed</td>
<td>8</td>
<td>7%</td>
</tr>
<tr>
<td>Some control, limit or block access to library resources</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>ADA or large screen</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
Authentication in the Public Area PCs
Authentication Used on any PCs in Public Area
(all 113 libraries)

Yes
75
66%

No
38
34%
Authentication Used on any PCs in Public Area
(all 113 libraries)

- **Required to Use Authentication**: 59 (52%)
- **Not Required to Use Authentication**: 16 (14%)
- **Don't Authenticate**: 38 (34%)
What Organization or Group Required or Mandated Authentication?
(all 113 Libraries)

- The library itself: 28 (25%)
- IT or some unit within IT: 25 (22%)
- Collaboration: 14 (12%)
- College or University Administration: 5 (4%)
- Not sure: 3 (3%)
- Don't Authenticate: 38 (34%)
What Organization or Group Required or Mandated Authentication? (all 113 Libraries)

- Don't Authenticate, 74
- Collaboration, 58
- College/University Administration, 45
- Not sure, 36
- IT or some unit within IT, 35
- The library itself, 14
- The library itself (Not required), 16
- 12

11%
### Top Reasons Why Authentication is Used or What Lead to Its Use to Control

(75 Authenticating Libraries)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number</th>
<th>Percentage of those that Authenticate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent Missuse of Resources</td>
<td>45</td>
<td>60%</td>
</tr>
<tr>
<td>Inability of Students to Use the Resources Due to Overuse by the Public</td>
<td>24</td>
<td>32%</td>
</tr>
<tr>
<td>Computer Abuse</td>
<td>22</td>
<td>29%</td>
</tr>
<tr>
<td>Mandate by Parent Institution or Group</td>
<td>14</td>
<td>19%</td>
</tr>
<tr>
<td>Printing</td>
<td>11</td>
<td>15%</td>
</tr>
<tr>
<td>Access Control</td>
<td>10</td>
<td>13%</td>
</tr>
<tr>
<td>Statistics</td>
<td>8</td>
<td>11%</td>
</tr>
<tr>
<td>Control Underage Use</td>
<td>2</td>
<td>3%</td>
</tr>
</tbody>
</table>
Other reasons cited...

all IT's idea to do this
Best practices
Caution
Concerned they would be used for the wrong reasons
Control
We found them misusing computer resources (porn, including child porn)
Control over college's students search inappropriate websites,
such as porn/explicit sites
Disruption
Don't know
Ease of distributing applications
Fear of abuse on the part of legal
Legal issues regarding internet access
Make student accountable
Monitor use
Policy
Security of campus network
Security of machines after issues was raised at a conference
Time
# How are Users Informed of the Authentication Policy?
(75 Authenticating Libraries)

<table>
<thead>
<tr>
<th>Method of Informing Users</th>
<th>Number</th>
<th>Percentage of those that Authenticate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login or sign on screen</td>
<td>58</td>
<td>77%</td>
</tr>
<tr>
<td>Training session or other presentation</td>
<td>19</td>
<td>25%</td>
</tr>
<tr>
<td>Web page</td>
<td>13</td>
<td>17%</td>
</tr>
<tr>
<td>Signage</td>
<td>10</td>
<td>13%</td>
</tr>
<tr>
<td>staff</td>
<td>8</td>
<td>11%</td>
</tr>
<tr>
<td>Screen saver</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Library Handbook</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Mail out flyer to all students</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>
# What Form of Authentication Do You Use?
(75 Authenticating Libraries)

<table>
<thead>
<tr>
<th>Forms of Authentication</th>
<th>Number</th>
<th>Percentage of those that Authenticate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized or networked authentication</td>
<td>44</td>
<td>59%</td>
</tr>
<tr>
<td>Manual paper sign-in sheets</td>
<td>19</td>
<td>25%</td>
</tr>
<tr>
<td>Preset or Temporary Authorization Logins or Guest Cards Handed Out</td>
<td>16</td>
<td>21%</td>
</tr>
<tr>
<td>Individual PC based sign-in or scheduling software</td>
<td>11</td>
<td>15%</td>
</tr>
<tr>
<td>Use the Library system in some form</td>
<td>6</td>
<td>8%</td>
</tr>
<tr>
<td>Staff Log Guests In</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>Independent authentication systems</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Auto log into guests accounts at select PCs</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>
## Handle User Privacy of Authentication?
(75 Authenticating Libraries)

<table>
<thead>
<tr>
<th>Privacy method</th>
<th>Number</th>
<th>Percentage of those that Authenticate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified access (none)</td>
<td>50</td>
<td>67%</td>
</tr>
<tr>
<td>Anonymous access (each session is anonymous with repeat users not identified)</td>
<td>21</td>
<td>28%</td>
</tr>
<tr>
<td>Pseudonymnous access with demographic identification (characteristics of users determined but not actual identified)</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>Identified access (but not guest login - anonymous)</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Pseudonymnous access (repeat users identified but not the identity of a particular user)</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Pseudonymnous access (repeat users identified but not the identity of a particular user) for guest</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>
When Did You Implement Authentication?
(75 Authentication Libraries)

- 5-10 years ago: 23 (31%)
- 3-5 years ago: 28 (37%)
- Last year: 10 (13%)
- This year: 3 (4%)
- Don't know: 10 (13%)

[75 Authentication Libraries]
Student Only PCs in the Public area?
Authenticate the Guest or Public Use PCs
(of 32 libraries that Differentiate Between Student Only and Guest/Public Use PCs)

Yes
31
97%

No
1
3%
What Authentication provides to Student Only PCs
(of 32 libraries that Differentiate Between Student Only and Guest/Public Use PCs)

<table>
<thead>
<tr>
<th>Types of Access</th>
<th>Number</th>
<th>Percentage of those that Authenticate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to specialized software</td>
<td>26</td>
<td>81%</td>
</tr>
<tr>
<td>Printing</td>
<td>24</td>
<td>75%</td>
</tr>
<tr>
<td>Internet access</td>
<td>23</td>
<td>72%</td>
</tr>
<tr>
<td>Access to storage space</td>
<td>19</td>
<td>59%</td>
</tr>
<tr>
<td>Scanner</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>
## Authentication Issues seen on Student Only PCs

(of 32 libraries that Differentiate Between Student Only and Guest/Public Use PCs)

<table>
<thead>
<tr>
<th>Authentication Issues</th>
<th>Number</th>
<th>Percentage of those that Authenticate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users forgetting to log out of a session (94% require students to log out)</td>
<td>28</td>
<td>88%</td>
</tr>
<tr>
<td>ID management issues from the user (ie, like forgetting passwords)</td>
<td>18</td>
<td>56%</td>
</tr>
<tr>
<td>ID management issues from the network (ie, updating changes in timely fashion)</td>
<td>6</td>
<td>19%</td>
</tr>
<tr>
<td>Timing out issues (31% User is timed out)</td>
<td>6</td>
<td>19%</td>
</tr>
<tr>
<td>Authentication system become not available</td>
<td>7</td>
<td>22%</td>
</tr>
</tbody>
</table>
Guest or Public Use PCs
Differentiate between Student Only and Guest/Public Use PCs? (all 113 libraries)

No 81
72%

Yes 32
28%
Differentiate between Student Only and Guest/Public Use PCs? (by type of institution)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Do Differentiate</th>
<th>Don't Differentiate</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of NC System</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Private Colleges</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Community Colleges</td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Religious Colleges</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
Authenticate the Guest or Public Use PCs
(of 32 libraries that Differentiate Between Student Only and Guest/Public Use PCs)

- Yes: 21 (66%)
- No: 11 (32%)
### How Authentication Controls Guest and Public Use PCs
(Those Differentiated and All libraries)

<table>
<thead>
<tr>
<th>Limitations</th>
<th>Number</th>
<th>Of the 32 libraries that differentiate</th>
<th>Of all libraries responding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Access Only</td>
<td>19</td>
<td>59%</td>
<td>17%</td>
</tr>
<tr>
<td>Limited Software</td>
<td>16</td>
<td>50%</td>
<td>14%</td>
</tr>
<tr>
<td>Timed or Scheduled Access</td>
<td>14</td>
<td>44%</td>
<td>12%</td>
</tr>
<tr>
<td>Limited or Different Charge for Printing</td>
<td>13</td>
<td>41%</td>
<td>12%</td>
</tr>
<tr>
<td>Control, Limit or Lock Access to Library Resources</td>
<td>4</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>(such as databases or other subscription based services)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control, Limit or Block Web Sites that Can Be Accessed</td>
<td>3</td>
<td>9%</td>
<td>3%</td>
</tr>
</tbody>
</table>
Guest or Public Use PCs Are within Line-of-sight to Library Service Desk (of 32 libraries that differentiate between Student Only and Guest/Public Use PCs)

- Yes: 84%
- No: 16%
### How Guest or Public Use PCs are Clustered
(of 32 libraries that Differentiate Between Student Only and Guest/Public Use PCs)

<table>
<thead>
<tr>
<th>Clustering Method</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All In One General Area</td>
<td>16</td>
<td>50%</td>
</tr>
<tr>
<td>Scattered Throughout the Library</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>In Several Groups Around the Library</td>
<td>2</td>
<td>6%</td>
</tr>
</tbody>
</table>
Wireless Access
Wireless Access
(all 113 libraries)

* Yes
  110
  97%

* No *
  3
  3%

* All 3 are Community Colleges
Library Has a Different Wireless Policy
(all 113 libraries)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>79</td>
<td>70%</td>
</tr>
<tr>
<td>Yes *</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Didn't answer</td>
<td>31</td>
<td>27%</td>
</tr>
</tbody>
</table>

* 2 Community Colleges and 1 Private College (outside agency runs wireless)
Wireless Authentication
(by type of institution)

- **Community Colleges**
  - No: 22
  - Yes: 17
  - Guest wireless access option: 15
  - Didn't answer: 4

- **Private Colleges**
  - No: 22
  - Yes: 8
  - Guest wireless access option: 6
  - Didn't answer: 2

- **Religious Colleges**
  - No: 2
  - Yes: 1
  - Guest wireless access option: 1
  - Didn't answer: 1

- **University of NC system**
  - No: 6
  - Yes: 10
  - Guest wireless access option: 6
  - Didn't answer: 1
Wireless Access Given to Guests or General Public (all 113 libraries)

- No: 21 (19%)
- Yes: 92 (81%)
No Wireless Access Given to Guest or General Public

(21 Libraries by type of institution) (switch colors)

Private Colleges: 10 (27%) No Wireless Access, 16 (73%) Wireless Access
University of NC System: 4 (25%) No Wireless Access, 12 (75%) Wireless Access
Community Colleges: 7 (12%) No Wireless Access, 44 (88%) Wireless Access
Religious Colleges: 0 No Wireless Access, 3 (100%) Wireless Access
Other Methods Used to Give Guest and Public Wireless Access
(of the 110 libraries with wireless)

<table>
<thead>
<tr>
<th>Method of Control</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited access by time</td>
<td>10</td>
<td>9%</td>
</tr>
<tr>
<td>Limited access by resources (such as Internet access only)</td>
<td>10</td>
<td>9%</td>
</tr>
<tr>
<td>Paperwork and/or signature required before access given</td>
<td>8</td>
<td>7%</td>
</tr>
<tr>
<td>Special groups get full access</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
Incident Responses
Improper Use of the Public PCs Reported (all 113 institutions)

- Yes: 49 (43%)
- No: 52 (46%)
- Unsure: 12 (11%)
Type of Institutions Reporting Improper Use?
(Of the 49 libraries reported incidents)

- Community Colleges: 30 (61%)
- Private Colleges: 10 (21%)
- University of NC System: 8 (16%)
- Religious Colleges: 1 (2%)
Who Handled the Investigation?
(Of the 49 libraries that reported incidents)

- Library IT or Library Systems staff: 11 (23%)
- IT or Campus Computing Center: 11 (23%)
- Campus Police: 8 (16%)
- All three (Campus Police, IT and Library): 2 (4%)
- Other Law Enforcement: 6 (12%)
- Did not requiring investigation: 8 (16%)
- Unsure: 3 (6%)

Did not requiring investigation: 8 (16%)
Other Law Enforcement: 6 (12%)
All three (Campus Police, IT and Library): 2 (4%)
Unsure: 3 (6%)
Library IT or Library Systems staff: 11 (23%)
IT or Campus Computing Center: 11 (23%)
Campus Police: 8 (16%)
Computer Activity Logs
## What Kind and For How Long Computer Logs are Kept (all 113 Libraries)

<table>
<thead>
<tr>
<th>Computer Activity Logs</th>
<th>Number</th>
<th>Of total libraries</th>
<th>Don't know how long data is kept (unsure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsure</td>
<td>59</td>
<td>52%</td>
<td>100%</td>
</tr>
<tr>
<td>Authentication logs (who logged in)</td>
<td>28</td>
<td>25%</td>
<td>60%</td>
</tr>
<tr>
<td>None</td>
<td>21</td>
<td>19%</td>
<td>--</td>
</tr>
<tr>
<td>Browsing history (kept in centralized log files)</td>
<td>14</td>
<td>12%</td>
<td>86%</td>
</tr>
<tr>
<td>Scheduling logs (manual or software)</td>
<td>10</td>
<td>9%</td>
<td>70%</td>
</tr>
<tr>
<td>Browsing history (kept on PC after reboot)</td>
<td>7</td>
<td>6%</td>
<td>57%</td>
</tr>
<tr>
<td>Software use logs</td>
<td>6</td>
<td>5%</td>
<td>33%</td>
</tr>
<tr>
<td>Library system</td>
<td>4</td>
<td>4%</td>
<td>75%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2%</td>
<td>--</td>
</tr>
</tbody>
</table>
Future Directions in Our Research

- Conclusions?
  - Surprises in the findings
  - Privacy and ethics
- Further correlation and research with the responses
- What we didn’t ask