

Computer Security Awareness: A Survey on Current Practices

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Background of Research

- Started in the fall of 2004.
- Research is funded by CREU (Collaborative Research Experience for Undergraduates in Computer Science and Engineering).
- CREU is funded by NSF through the ACM CRAW (Computer Research Association's Committee on the Status of Women in Computing Research) program.
- CRAW is an organization dedicated to increasing the number of women participating in Computer Science and Engineering at all level

Biography of Researchers

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 - Senior, Computer Science Information Assurance, Criminology Minor
- Ometere (Tuté) Ehinlaiye (tmtj@iup.edu)
 - Senior, Double Major Computer Science & Applied Mathematics.
- Melissa Karolewski (qgkl@iup.edu)
 - Senior, Computer Science Information Assurance, Criminology & Applied Statistics minors
- Sarai Raffensperger (hjrl@iup.edu)
 - Senior, Double Major Computer Science & Chemistry

Overview

- Objective of Research
- Methodology
- Results
- Conclusion

Objectives of Research

- To conduct research on the most commonly used security tools.
- To promote computer security awareness to the community.
- To educate the community on the available tools for computer security.

Methodology

- Research was conducted during the 2004 – 2005 school year.
- Project was divided into 3 phases
 - 1) Identification of currently used practices and tools for computer security.
 - 2) Survey research.
 - 3) Public awareness and education on practices and the importance of home computer security.

Phase 1: Identification

- Through Internet research, identified most well known security tools and practices.
- Tools & practices identified
 - Virus Scan
 - Anti Spy-ware
 - Passwords
 - Multi User computers
 - Firewalls
 - Networks
 - Encryption
 - Backing Up

Phase 2: Survey Research

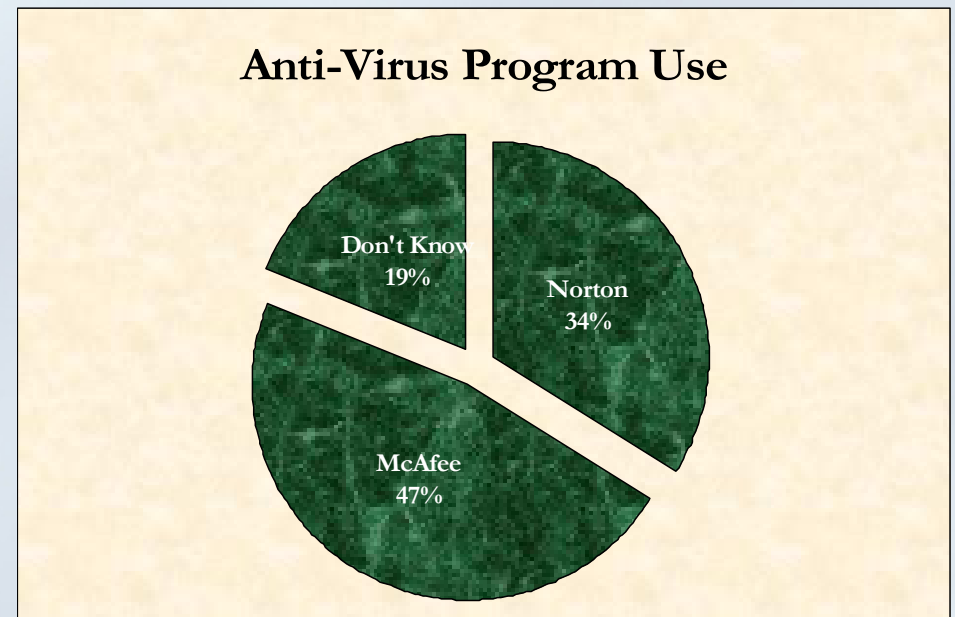
- Designed survey based on tools and practices identified from phase 1 was designed.
- Administered survey during the Fall 2004 semester to randomly chosen classes.
- 350 surveys were administered, 213 surveys were returned.
- Not every survey was completed, but no more than 3 questions on a single survey were left blank.

Results of Survey

- Questionnaire data was compiled during December 2004.
- An Excel spreadsheet was used for the analysis of the data.
- Following slides contain results.

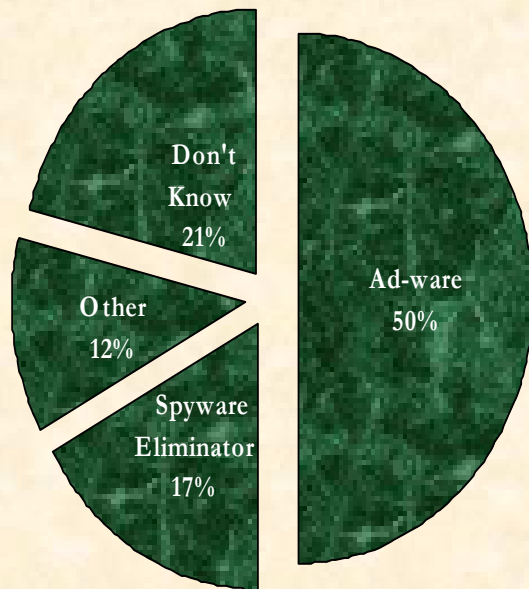
Results: Anti-Virus

- 78% understood the difference between Anti-Virus programs and Anti-Spyware programs.
- Updating Anti-Virus
 - 27% update weekly
 - 20 % on a monthly basis
 - 14% update on a daily basis
 - 39% did not know, never updated, or did not know how to.



Results: Anti-Spyware

Anti-Spyware Use

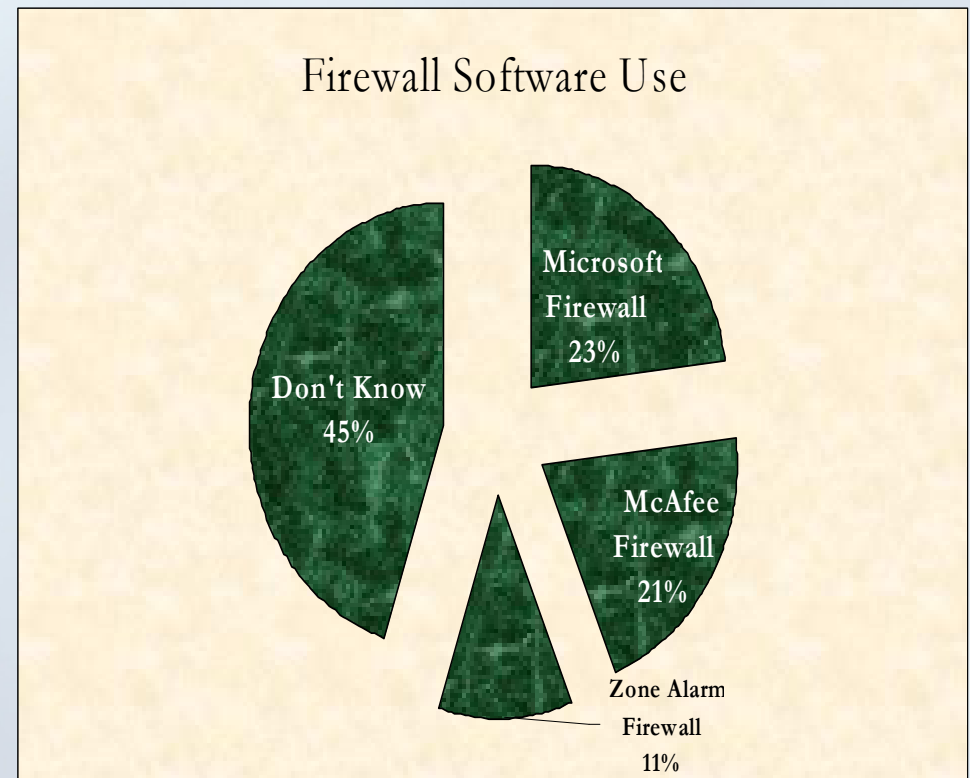


- Updating Anti-Spyware
 - 30% updated weekly
 - 19% updated daily
 - 51% never updated or did not know how

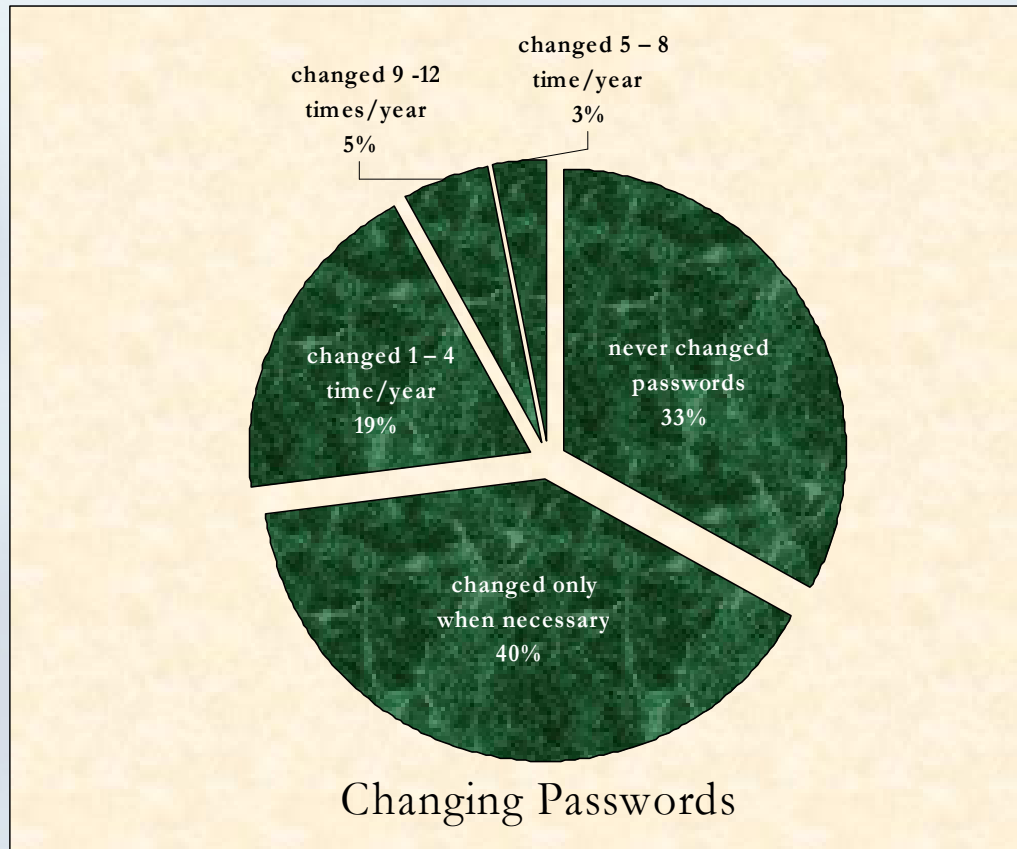
Results: Firewall Usage

■ Programs Used

- 23% used Windows Firewall
- 21% used McAfee Personal Firewall
- 11% used Zone Alarm
- 45% did not use a firewall or did not know

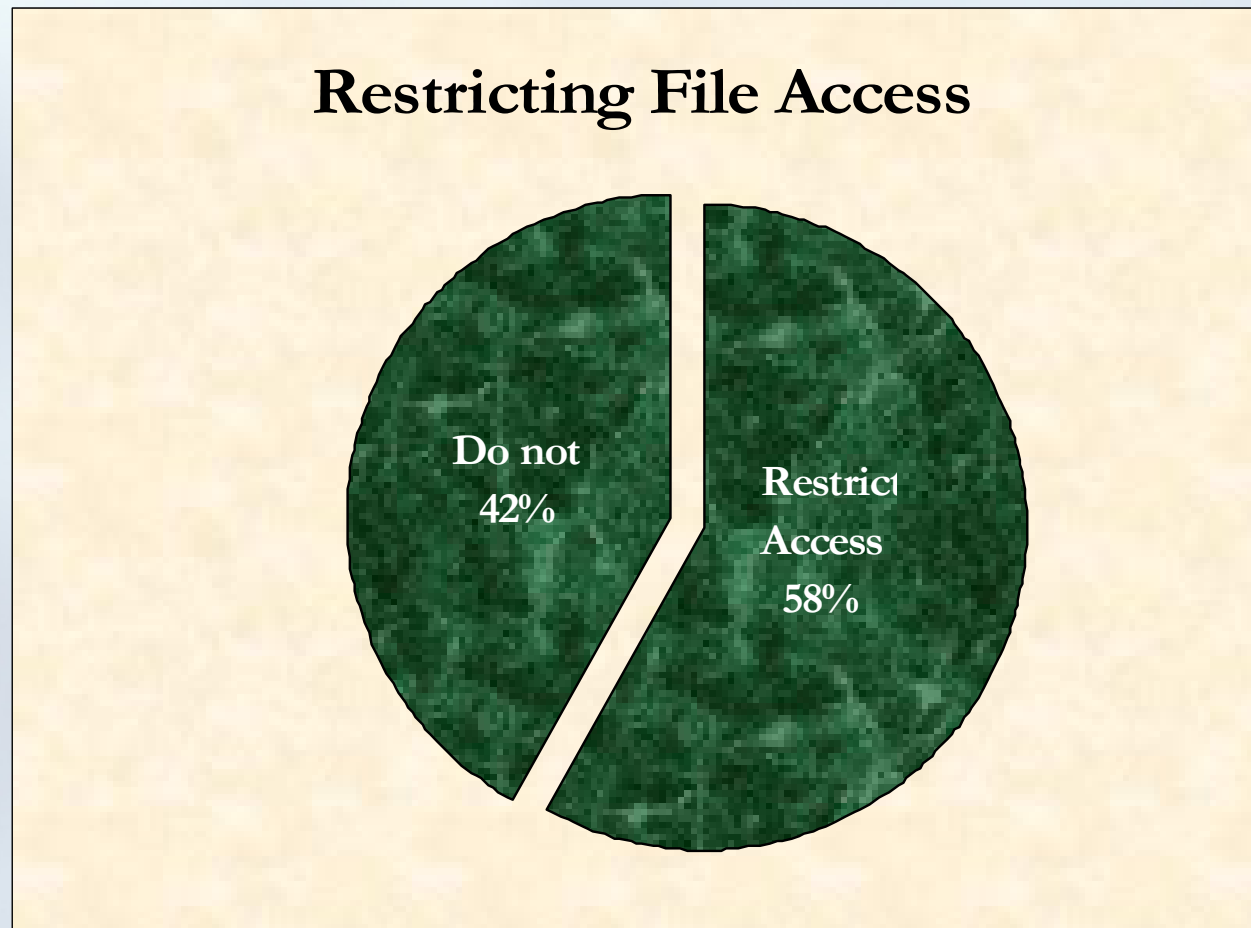


Results: Passwords



- Use of Passwords
 - 71% did not use same passwords for different logins
 - 51% did not use unique passwords
- Writing Passwords Down
 - 74% remembered passwords without writing them down
 - 22% used passwords that have something to do with them (i.e. child's name, interest)
 - 4% did not remember passwords and wrote them down

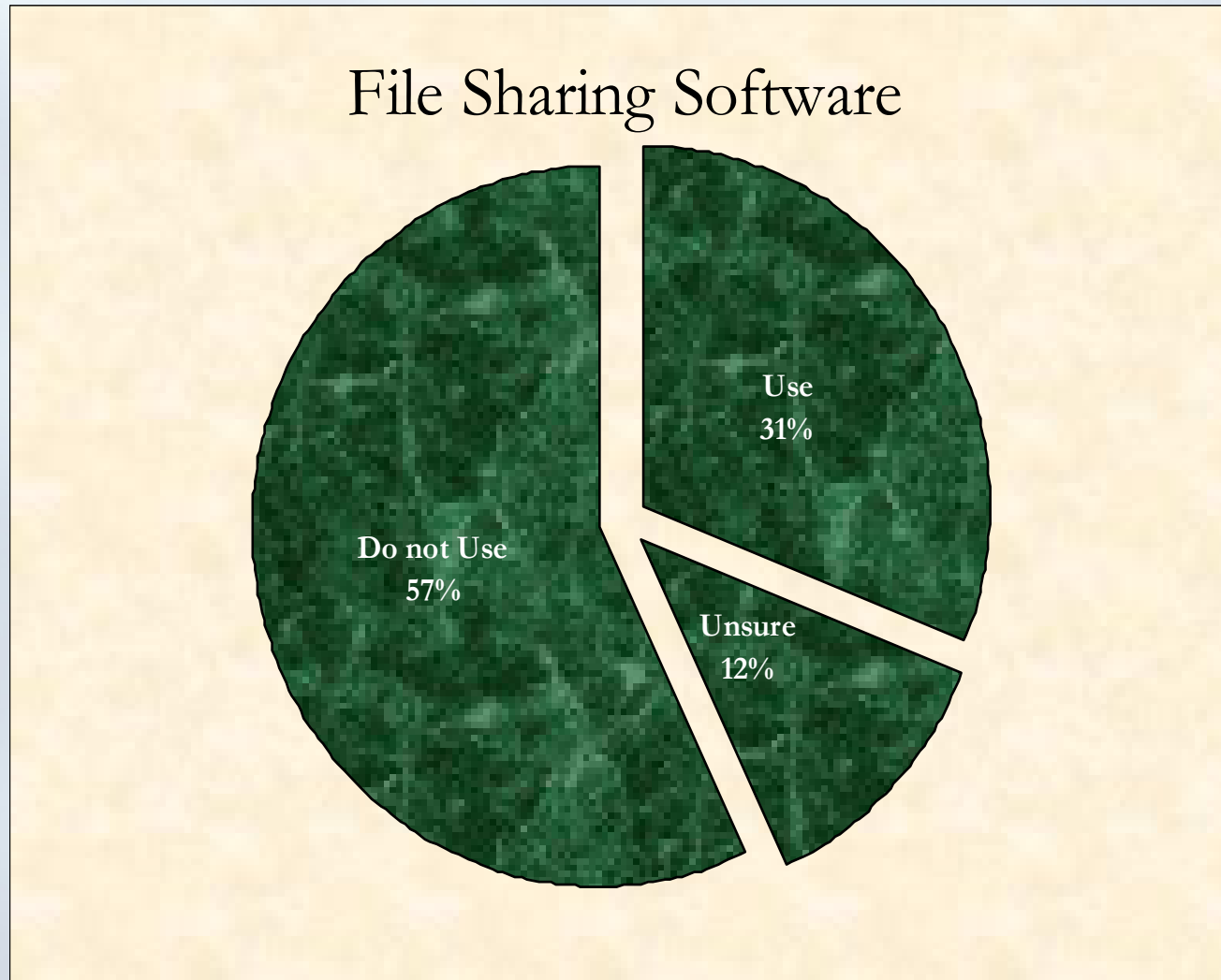
Results: Shared Computer Use



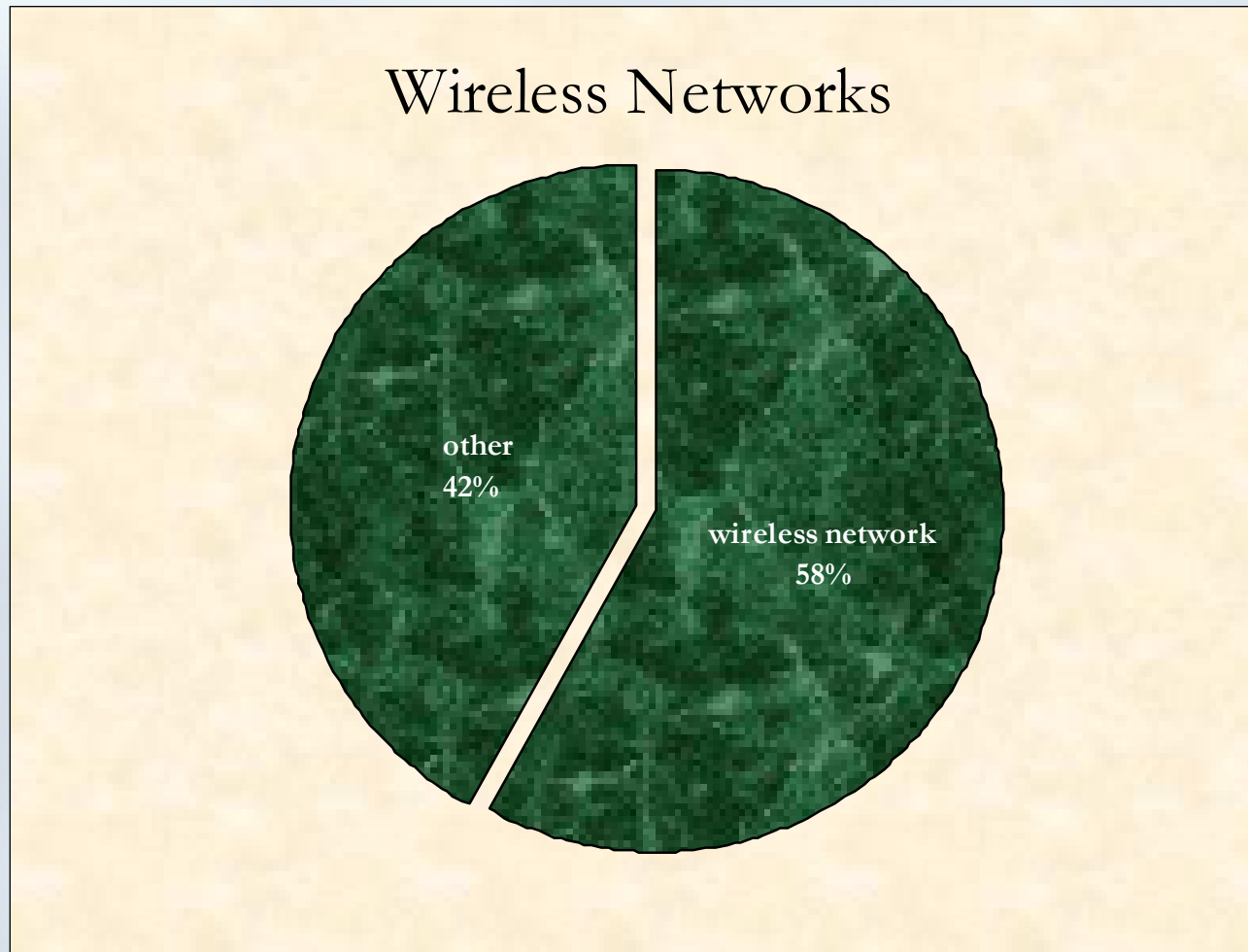
70% shared computer use

- 47% shared with 3-4 users
- 44% shared with 1-2 users
- 9% shared with 5 -8 users

Results: File Sharing Programs/Networks

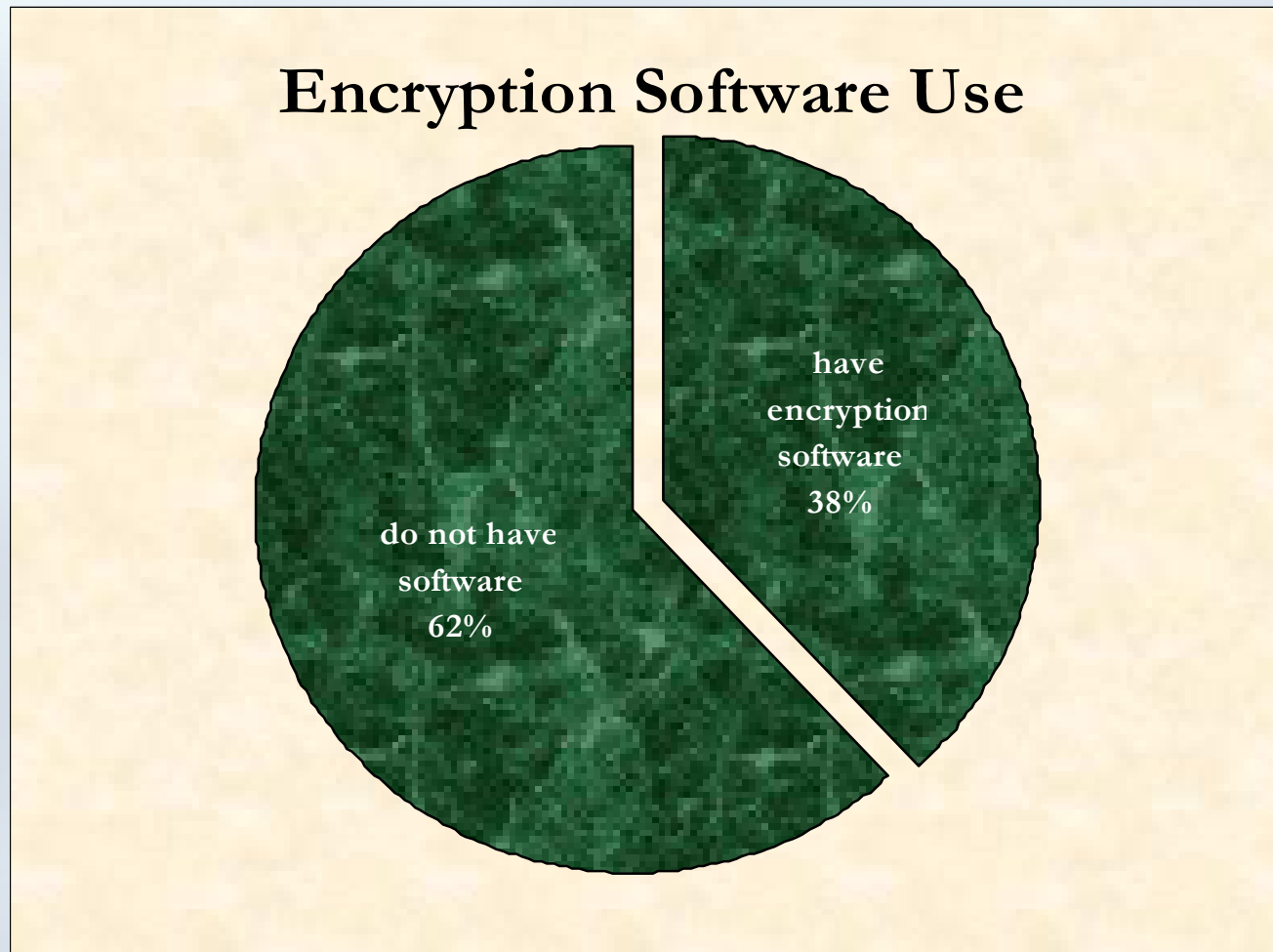


Results: Wireless Networks



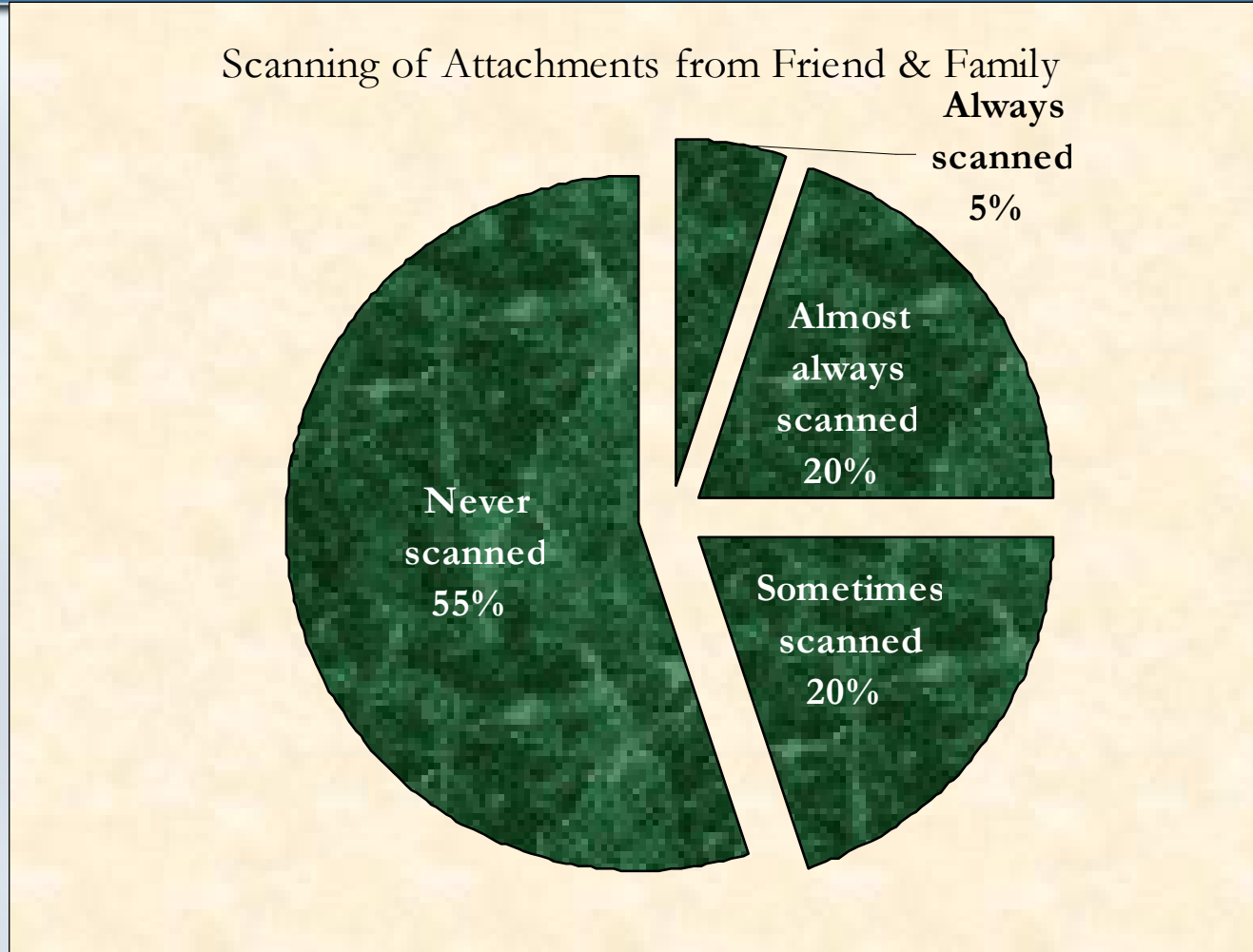
- Only 8% secured their wireless network

Results: Encryption



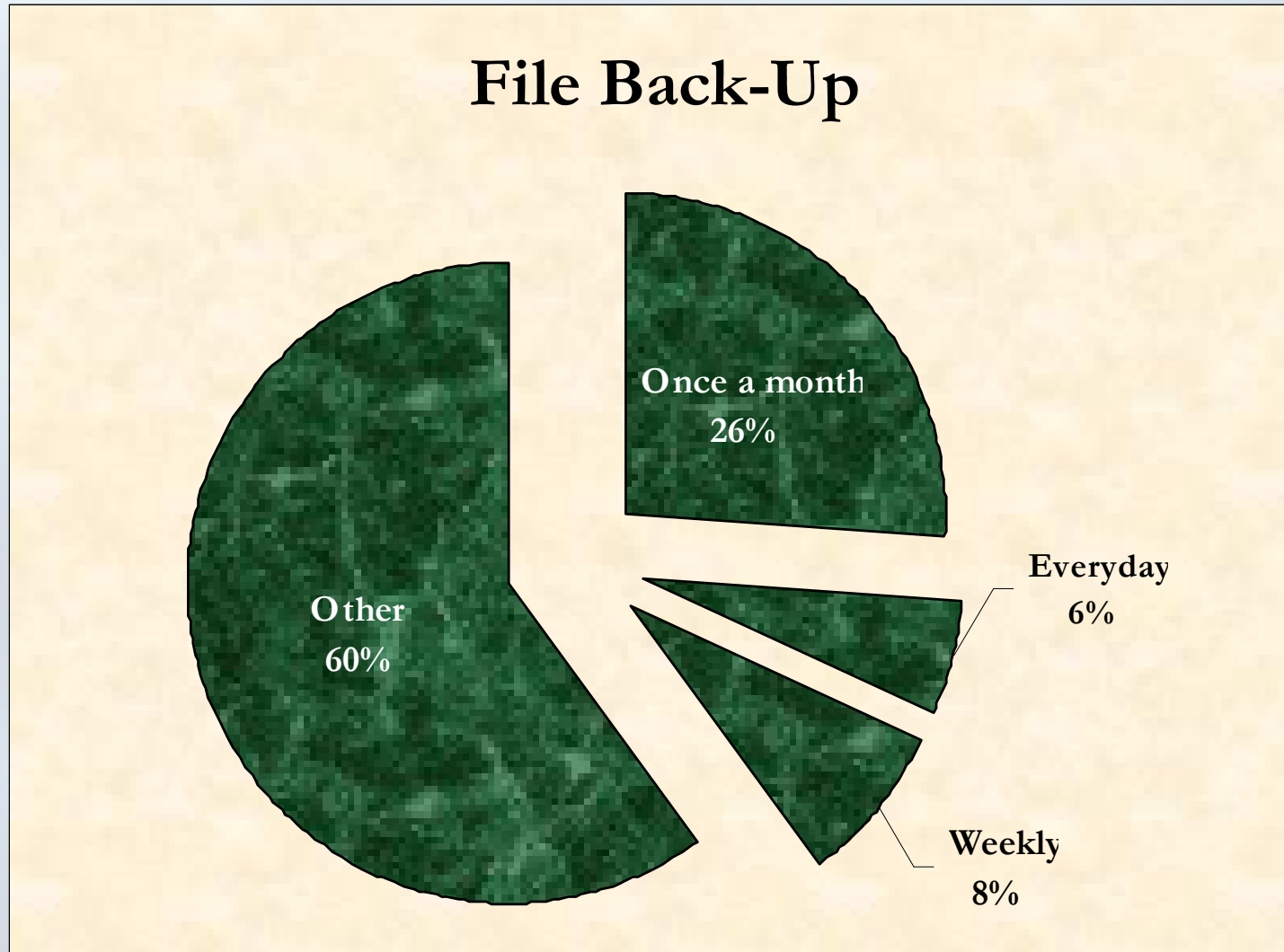
Of the 38% that have encryption software,
only 6% encrypted files and emails

Results: Scanning Attachments



- 45% scanned **all** attachments
- 11% scanned sometimes
- 9% always scanned
- The rest scanned when they felt like it

Results: Backing Up Files



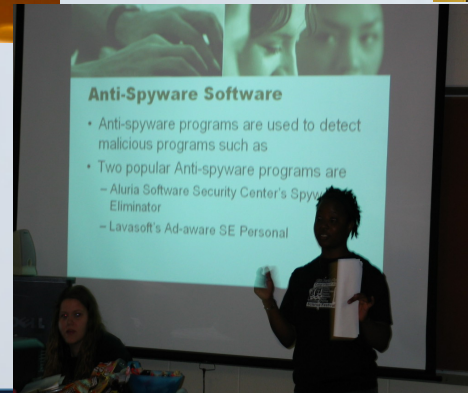
Conclusion of Results

- Lack of understanding in many of the areas of computer security, especially encryption, wireless networks, and file sharing.
- A tutorial was created to emphasize the importance of computer security to the general computer user.

Phase 3: Public Awareness

- Goal was to promote awareness of the importance of computer security.
- Presented at the 2005 IUP Natural Science Festival to 3 groups of local high school juniors and seniors.
- Presentation highlighted some of the most popular security tools and the importance of computer protection.

2005 Science Festival



Related Presentations

- Paper presentation at 2006 PACISE (Pennsylvania Association of Computer and Information Science Educators) Conference held at IUP on April 7, 2006.
- Posters were presented at IUP Women in Sciences Poster Session April 9, 2006 and IUP Undergraduate Scholars Conference April 4, 2006.
- Presentation at Slippery Rock University on September 21, 2006.

Challenges & Experiences

- Research is important in all aspects of education.
- It can be difficult to work around schedules and find time to complete work.
- Working on research with all females, in a predominantly male major increases recidivism for the students.

Special Thanks

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 - mentor/sponsor (shumba@iup.edu)
- IUP Computer Science Department
 - Department Chair, Dr. William Oblitey
- CREU
 - Collaborative Research Experience for Undergraduates
- IUP Natural Sciences & Mathematics
 - Dean's Office

Conclusion

- The 2004 – 2005 research was a great opportunity to perform research at the undergraduate level.
- Computer security is an ever changing field and it is imperative that there is increased awareness for everyone.

For More Information

- IUP Computer Science Department -
<http://www.cosc.iup.edu/www/index.html>
- Women in Computer Science -
http://www.cosc.iup.edu/www/studentResearch/womenofcs_files/index.html

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