What's in Your Computer?

An Instructional Module on Replacing Your Legacy Windows Operating System
Consent to Participate in Research Project:
An Instructional Module on Replacing Your Legacy Windows Operating System

My name is Dal Wong. I am a graduate student at the University of Hawai‘i at Manoa (UH), in the Department of Learning Design and Technology. I am conducting research for an individual class project. My interest is in reducing e-waste through re-purposing older computer hardware through education and training. The purpose of this research project is to evaluate an instructional module on replacing your legacy Windows operating system. I am asking you to participate in this project because you are an adult computer user and you are also enrolled in the University of Hawai‘i Outreach College.

What activities will you do in the study and how long will the activities last? If you participate, I will have you take my instructional module. The module will last for about one hour. The module consists of a pre-survey, a pre-test, instructional presentation, a posttest, and a post-survey. Your answers to the surveys and tests are recorded on a digital spreadsheet so I can later type a written record of participant reactions to the module. I will evaluate the information from the surveys and tests. If you participate, you will be one of a total of approximately fifteen Outreach College students who will take the module individually.

Benefits and Risks: You may benefit from this project by learning how to replace the operating system on your computer and even extend the useful life of older hardware. The results of this project might help me learn more about adult college students’ ability to learn about upgrading a computer. I believe there is little or no risk to you in participating in this project. There is a possibility you may become uncomfortable or stressed by receiving online virtual instruction. If that happens, you may take a break, or stop the module. You may also withdraw from the project altogether.

Confidentiality and Privacy: I will keep all information from the module surveys and tests in a safe place. Only my course instructor and I will have access to the information. The University of Hawaii Human Studies Program has the right to review research records for this study.

When I report the results of my research project in my typed papers, I will not use your name or any other personal information that would identify you. No data will be presented outside of the class environment.

Voluntary Participation: Participation in this research project is voluntary. You are free to choose to participate or not to participate in this project. At any point during this project, you can withdraw your permission without any loss of benefits.

Questions: If you have any questions about this project, please contact me via e-mail (dahwyncw@hawaii.edu).

If you have any questions about your rights in this project, you can contact the University of Hawaii, Human Studies Program, by phone at (808) 956-5007 or by e-mail at uhhrb@hawaii.edu.

You may request a copy of this document for your records.

If you agree to participate in this project please read the following electronic consent notification:

Electronic Acknowledgement of Consent:

By continuing with this instructional module I acknowledge that I have read the project description as detailed on this consent form and I agree to join in the research project entitled, "An Instructional Module on Replacing Your Legacy Windows Operating System". I understand that I can change my mind about being in this project, at any time, by notifying the researcher.

I AGREE

I DO NOT AGREE
Introduction
(Lesson Topics)

- Is your computer old and slow?
- Is your operating system outdated?
- Windows XP
- Linux Mint
- Learn how to replace your operating system with a free, modern, and efficient operating system
Pre Survey and Pre Test

Please complete the following pre-survey and pre-test. Your responses will greatly assist in the completion of this research project.

Continue to Pre-survey

(Please be patient while the survey loads.)
Pre Survey

Hint for Google Forms: After you select your response click in the white space outside of your question. You can then use the keyboard scroll arrows to move up and down the page. You can also use the the web page scroll bar to move up and down the page.

* Required

Alias Name *
Your real name is not needed because I am not connecting your responses to specific individuals. Since there are four questionnaires (pre-test/post test and pre-survey/post survey), I am correlating the responses from each participant. To create your alias name choose a color then choose an animal, plant, or fruit. For example: Color - green / Fruit - apple. Your alias name would be: green apple. Example: Color - orange / animal - cat. Your alias name is: orange cat. Please use the same alias name for all four surveys/tests.

What is your age group? *
- 18-25
- 26-35
- 36-45
- 46-55
- 56+
- Prefer not to answer

What is your education level? *
- Less than a Bachelors
- Bachelors
- Masters
- Doctorate
- Professional
- Prefer not to answer
- Other: 

Which devices do you own or use? *
select all that apply
- Smartphone
- Tablet
- Laptop computer
- Desktop computer
- Prefer not to answer
- Other: 


How do you rate yourself in regards to computer knowledge? *

1) Prefer not to answer
2) I have no knowledge of computers
3) I know a little about computers
4) I have some knowledge of computers
5) I have a good amount of knowledge of computers
6) I have extensive knowledge of computers

Are you comfortable with installing computer software or upgrading your laptop? *

1) Not comfortable (don't want to blow it up); 2) Somewhat comfortable (will give it a try with instructions); 3) Very comfortable (I perform updates with my eyes closed)

What operating system does your computer use? *

- Windows XP
- Windows 7
- Windows 8
- Mac OS
- Chrome
- Open source (Linux / Ubuntu)
- Don't know
- Prefer not to answer
- Other:

How old is your primary computer? *

- less than 6 months
- 6 months to 2 years
- 2 years to 4 years
- 4 years to 6 years
- over 6 years
- Prefer not to answer

Submit

Never submit passwords through Google Forms.
Pre-Test

* Required

Alias Name *

Enter Aliases Name created in Pre-Survey

What is BIOS? *
- Basic Internet Operating System
- Broadband Interface Output Source
- Basic Input / Output System
- Biographic Information On Server
- Prefer not to answer

RAM is? *
- Radio Amplitude Modification
- Random Access Memory
- Robotic Arm Manipulation
- Resource Allocation Module
- Prefer not to answer

What is Linux Mint? *
- a new version of iOS
- a computer chip that compresses disk space
- a Free/Open Source computer operating system
- a high-speed computer virtualization tool
- Prefer not to answer

A hard drive is *
- The power source for a computer
- a computer data storage device
- used for volatile computer memory storage
- only found on desktop computers
- Prefer not to answer

CDs and DVDs are used for
- Computer drives and digital virtual drives
- only recording music
- storing computer data
- determining a common denominator
- Prefer not to answer

Linux operating systems are not as popular as Windows or Mac OS because *
- it costs too much
- it will not work on modern computers
- many people are not familiar with its capabilities
- it is difficult to install
- Prefer not to answer

Productivity software for Linux is difficult to find *
- True
- False
- Prefer not to answer

Where can you find software for Linux? *
- Windows store
- Apple Store
- Amazon and ally
- Software Manager in Linux
- Prefer not to answer

Linux has ______________ software packages available for download. *
Choose one


A torrent is? *
- computer operating frequency interference
- high frequency Wi-Fi generator
- a computer file that transfers data using the BitTorrent system
- excessive email traffic on a network
- Prefer not to answer

A flash drive *
- is a portable storage device
- is also known as a thumb drive
- comes in various storage capacities
- all of the above
- Prefer not to answer

Computer files should be backed up *
- only when necessary
- frequently
- during a power outage
- as required by law
- Prefer not to answer

Submit

Never submit passwords through Google Forms.

Click the blue Submit button then click HERE to continue to Tutorials
What’s in Your Computer?

An Instructional Module on
Replacing Your Legacy Windows
Operating System

There are five lessons in this module. Take your time in
completing them. Each lesson consist of multiple slides.
Please scroll down the page to view the entire lesson. Audio
tracks may be replayed by clicking on the audio play
button ▶️. After you complete the lessons there will be a
short quiz and a post-survey. Thank you for participating in
this project.
Introduction

- Rapid technology changes hasten the introduction of new hardware products resulting in aging hardware with an unsupported operating system
- New hardware may be good to have, better performing, and costly
- Newer may not always be better
- Older hardware can be kept in service longer
- Train users to extend the life and efficiency of aging computer hardware by replacing an old operating system with a contemporary, easy-to-use operating system
- User friendly and environmentally friendly

Scroll down to continue
Objectives

- Windows XP background
- Linux background
- Computer terminology
- Configure a computer with Linux Mint operating system and install productivity applications
Computer Terminology

- **Torrent** - Computer file used to initiate download of specific files from other computer repositories using a bit-torrent system
- **RAM** - Random Access Memory
- **Hard Drive** - Device for storing data on a computer
- **CD** - Compact Disc, removable media used for data storage
- **DVD** - Digital Video Disc, removable media used for data storage, higher capacity than CD
- **Flash drive** - Data storage device available in various capacities (thumb drive)
- **BIOS** - Basic Input/Output System (contains startup instructions for computer)
Windows XP Background

- Windows XP released in 2001 by Microsoft Corporation
- Support ended in 2014 - No technical updates, no security updates
- Still in use on many older computers
- One of the most popular operating systems
- Closed source, commercial software (paid licensing fees)
- XP runs well on older hardware from the early and mid 2000's
- This older hardware may not be capable of running Windows 7 and Windows 8
Linux Background

- First developed in 1991 by Linus Torvalds for a graduate student project as a free operating system for the Intel x86-based personal computers
- Linux is free and open source - the source code may be used, modified, and distributed by anyone under the GNU General Public License
- Linux facts:
  - There are many distributions of Linux - Linux Mint is one of them
  - Linux powers many of the world's fastest super computers
  - Other variations of Linux run on embedded systems such as tablets, phones, and video game consoles
- Linux is free of cost
- Linux is safe and reliable: easy software updates, requires minimal maintenance (no anti-virus)
To begin the Linux Mint download go to the website at www.linuxmint.com. Select the Download tab or the CD icon.

www.linuxmint.com
From the Download tab you can retrieve a PDF of the Linux Mint User Guide. You can also scroll down to view all the software download options....
This installation of Linux Mint will utilize the Cinnamon desktop, 32-bit version. This build contains multi-media support and offers a clean desktop. Most older machines can only handle 32-bit software so you can ignore the 64-bit version which is used for current generation processors.

**Download links**

<table>
<thead>
<tr>
<th>Edition</th>
<th>Multi-media Support *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinnamon</td>
<td>Yes</td>
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<tr>
<td>Cinnamon No Codecs</td>
<td>No</td>
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<tr>
<td>Cinnamon OEM</td>
<td>No</td>
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<tr>
<td>MATE</td>
<td>Yes</td>
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<tr>
<td>MATE No Codecs</td>
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<td>MATE OEM</td>
<td>No</td>
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<tr>
<td>KDE</td>
<td>Yes</td>
</tr>
<tr>
<td>Xfce</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Missing codecs and extra applications can be installed with a simple click of the mouse.
- Linux Mint - Easy download and retrieval
- Large image downloaded through a torrent
- Torrent is a file with download instructions for the computer
- Linux image burned to DVD
- Following example is a Torrent download
Primary download mirrors or software hosting servers are located worldwide, including a mirror located in the Advanced Network Computing Lab at the University of Hawaii. These mirrors are the one-source download centers for your Linux Mint file image.

<table>
<thead>
<tr>
<th>Country</th>
<th>City</th>
<th>Location</th>
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<tbody>
<tr>
<td>Europe</td>
<td>United Kingdom</td>
<td>Bytemark Hosting</td>
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<tr>
<td>Europe</td>
<td>United Kingdom</td>
<td>University of Kent UK Mirror Service</td>
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<tr>
<td>North America</td>
<td>Canada</td>
<td>University of Waterloo Computer Science Club</td>
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<td>North America</td>
<td>Ecuador</td>
<td>CEDIA</td>
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<tr>
<td>North America</td>
<td>USA</td>
<td>Advanced Network Computing Lab at the University of Hawaii</td>
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<tr>
<td>North America</td>
<td>USA</td>
<td>advancedmirrors.com</td>
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<td>USA</td>
<td>Department of CS at Utah State University</td>
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<td>North America</td>
<td>USA</td>
<td>PSGNet</td>
</tr>
</tbody>
</table>

Click to play audio.
Burn File Image to DVD

To create the iso DVD open the DVD burning utility on your computer and select the “Burn image” function. Do not select “Disc copy” as this function does not insure that all the file codes are transferred properly.

Click to play audio.
Image Burning Setup

When you select “Burn image” you will be prompted to select a disc image to write and a disc to write to.

Click to play audio.
Select Disc Image

Select the Linux Mint file image then the “Open” button.

Click to play audio.
Image Burning Setup

The Linux Mint disc image is selected to be written. Since the image is 1.2 GB it is too large for a CD you must replace the CD with larger capacity media such as a DVD.
Image Burning Setup

The disc image is selected and a DVD is in the disc burner. You can now select the “Burn” button to created your file image on the DVD.

Click to play audio.
Burning DVD

Creating your iso image DVD may take a few minutes and depends on your computer and the speed of the media burner. The "Burning DVD" window shows the progress of the file image being burned to the DVD.

When the image is successfully burned to the DVD the progress bar will show complete. To finish the session select “Close”.

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Booting and Installing Linux Mint

- Let's run through a typical Linux Mint installation...
- Insure your files are backed up frequently, and definitely before making changes or installing any software. The boot installation will run from the DVD but a complete installation will overwrite your hard drive.
- Insert DVD into drive
- Linux will boot from the DVD
  - If Linux doesn’t boot from the DVD you may need to change the BIOS to boot from CD/DVD drive first

Scroll Down
Linux Mint Running from DVD

- Linux Mint Installs with minimal applications
- Greyed out “Install Linux Mint” icon indicates that you are running this distribution from the DVD and your computer is not altered
- This configuration allows exploration of Linux and testing its different features
- For permanent installation of Linux Mint click on the “Install Linux Mint” icon.
- The remainder of Lesson 4 will take you through a permanent installation of Linux Mint.
Installing Linux Mint

The first step is to choose your installation language. If you don't want English, there are many other languages to choose from...
Next the installation confirms that your computer has adequate hard drive space (7.6 GB), is connected to power other than a battery (to insure the installation is not interrupted due to loss of power), and is connected to the internet (for additional software updates).
The next step is deciding what type of installation to accomplish. Choose from the following options:

1. Install Linux Mint alongside your current operating system.
2. Perform a “wipe and load” installation which erases everything on your hard drive prior to installing Linux Mint.
3. The remaining choices allow custom configuration of the installation.
4. I recommend either of the first two options.
Installation continues:

Select your time zone

Select your keyboard layout

Click to play audio.
Add Profile Information

The next step asks for your profile information:
1. Your name (this will be used in creating the default computer name)
2. Computer name is generated automatically or your may change the default name.
3. Choose a user name.
4. You can set a password and require it for login or select the “Log in automatically” for non-password login.

Who are you?

Your name: Dal
Your computer's name: dal-ThinkPad-T400
Pick a username: dal
Choose a password: •••••••
Confirm your password: •••••••
Log in automatically
Require my password to log in
Encrypt my home folder
Informational Slides During Installation

After clicking *Continue* on the Profile Information page the installation process begins. The installation takes a few minutes so relax and view the Linux Mint informational slides while waiting.
Web Browsing and Audio

Linux Mint offers Firefox as a web browser and supports Flash and Java for multimedia content.

Audio is supported through Banshee.
DVD's, Videos, and Photos

VLC is the default video media player...

... and photos can be managed with gThumb or Picasa
Social Media, SMS, Email, and Productivity Apps

Keep in touch with your friends through Linux with Thunderbird, Pidgin, and Hexchat for email, messaging, and chat.

For productivity, LibreOffice is compatible with Microsoft Office and offers word processing, spreadsheet, database, and presentation applications.
Web Applications and Software

Thousands of applications are available for Linux including Steam, Skype, Google Earth, and Picasa.

Still have old Windows programs you want to run? No problem. Wine is a built-in Windows emulator and with Virtualbox you can even experiment with other operating systems on your very own virtual computer.
Desktop Customization and System Updates

Customize your desktop

Make yourself at home and modify any aspect of your desktop. Choose from a large variety of themes, icons and backgrounds. Linux Mint is open and easy to customize.

Create your own custom desktop from a large selection of backgrounds, themes, and icons.

System updates and patches are easily installed through Linux Mint’s Update Manager.
Installation is complete!
You can choose to continue testing Linux from the DVD or restart the computer to boot to Linux from the hard drive.

Help is available through the Linux Mint install guide and various forums.
Installing Application Software

You have now successfully installed Linux Mint on your computer and are ready to install your application software. Linux has over 40,000 applications to choose from in “Software Manager”.
Linux Software Manager

Linux Software Manager has over 40,000 software packages available for web browsers, audio and video utilities, graphics, office productivity, games, and more. All packages are available with every distribution of Linux, and because they are all Free and Open Source Software there are no licensing fees.

Click to play audio.
Software Titles Available in Accessories:

- Calculator
- Document Viewer (view PDF)
- Shutter (for screenshots)
- Terminal (Command prompt)
- Text Editor
Software Titles Available in Graphics:

- GIMP - Image manipulation
- gThumb - Photo organizer
- Image Viewer - Photo viewer
- LibreOffice Draw - Graphics sketching
Software Titles Available in Internet

- Firefox Web Browser
- Hex Chat (Internet Relay Chat (IRC) client)
- Pidgin Internet Messenger (multi-protocol instant messenger)
- Thunderbird mail (email, newsgroup client)
- Transmission (bit-torrent client)
Software Titles Available in Office

- LibreOffice (MS Office)
- LibreOffice Base (Access)
- LibreOffice Calc (Excel)
- LibreOffice Draw (Visio)
- LibreOffice Impress (Power point)
- LibreOffice Math (equation editor)
- LibreOffice Writer (Word)

Click to play audio.
Software Titles Available in Sound & Video

- VLC Media Player (multimedia player)
- Banshee (media player and organizer)
- Brasero (CD and DVD creator)
- Videos (movie player)
Preferences

The preferences section provides options and utilities to setup and customize your computer.
Administration

The administration section contains the utilities needed to access and configure computer performance options.
Conclusion

Congratulations on completing the lessons! You now have the knowledge to extend the life of your old computer, and keep it out of the trash bin. You've even saved yourself hundreds of dollars in the process by not needing to buy a new computer and software.

To finish the module please take the Post Test and the Post Survey.

Thank you again for participating in this project.
Post Test

* Required

**Alias Name**
Enter Alias Name created in Pre-Survey

**BIOS is an acronym for?**
- Basic Internet Operating system
- Broadband Internet Output Source
- Basic Input / Output System
- Biographic Information On Server
- Prefer not to answer

**What is RAM?**
- Radio Amplitude Modification
- Robotic Arm Manipulation
- Resource Allocation Module
- Random Access Memory
- Prefer not to answer

**Linux Mint is?**
- A new version of iOS
- A computer chip that compresses disk space
- A Free/Open Source computer operating system
- A high speed computer virtualization tool
- Prefer not to answer

**A hard drive is?**
- The power source for a computer
- A computer data storage device
- Used for volatile computer memory storage
- Only found on desktop computers
- Prefer not to answer

**CD's and DVD's are used for?**
- Computer drives and digital virtual drives
- Only recording music
- Storing computer data
- Determining a Common Denominator
- Prefer not to answer

**Linux operating systems are not as popular as Windows or Mac OS because**
- It costs too much
- It will not work on modern computers
- Many people are unfamiliar with its capabilities
- It is difficult to install
- Prefer not to answer

**Productivity software for Linux is difficult to find.**
- True
- False
- Prefer not to answer

**Where can you find software for Linux?**
- Windows Store
- Apple Store
- Amazon and ebay
- Software Manager for Linux
- Prefer not to answer
How many Linux software packages are available for download? *
(choose one)
- Over 20,000
- Less than 1,000
- Between 5,000 and 10,000
- Approximately 20,000
- Prefer not to answer

A torrent is: *
- A computer operating frequency interference
- A high frequency Wi-Fi generator
- A computer file that transfers data using the Bit-torrent system.
- Excessive email traffic on a network
- Prefer not to answer

A flash drive *
- Is a portable storage device.
- Is also known as a thumb drive.
- Comes in various storage capacities.
- All of the above
- Prefer not to answer

Computer files should be backed up *
- Only when necessary.
- Frequently.
- During a power outage.
- As required by law.
- Prefer not to answer

Submit
Never submit passwords through Google Forms.
Post Survey

* Required

Alias Name *
Enter alias name created in Pre-Survey

How would you rate your understanding of computer hardware and software? *

(0) Prefer not to answer (1) Poor (2) Fair (3) Good (4) Very Good (5) Excellent

How would you rate your understanding of computer hardware and software?

Do you feel confident in your ability to upgrade your computer's operating system? *

- Very confident
- Confident
- Somewhat confident
- Not confident

If your computer were running Windows XP how likely would you convert your operating system to Linux Mint? *

- Very likely
- Likely
- Somewhat likely
- Not likely

Prior to completing this module what other operating systems were you aware of? *
Check all that apply.
- Linux
- Windows
- Mac OS
- Android
- Chrome
- Ubuntu
- Other:

With the instructions provided in the module how confident are you in changing your computer operating system? *

- Very confident
- Confident
- Somewhat confident
- Not confident
How would you rate the overall layout of this module? *

(0) Prefer not to answer  (1) Poor  (2) Fair  (3) Good  (4) Very Good  (5) Excellent

Rate the instructional language of this module.

(0) Prefer not to answer  (1) Poor  (2) Fair  (3) Good  (4) Very Good  (5) Excellent

Rate the instructional content of this module. *

(0) Prefer not to answer  (1) Poor  (2) Fair  (3) Good  (4) Very Good  (5) Excellent

Rate the content navigation of this module. *

(0) Prefer not to answer  (1) Poor  (2) Fair  (3) Good  (4) Very Good  (5) Excellent

Comments and Feedback *

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1. Click the blue Submit button then click HERE to end
Mahalo
The End