Tablet PC for Teaching
Usability Evaluation and Redesign

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Project Overview

- Determine usability level of tablet PC as a lecture tool for professors.
- Devised set of activities we thought professor would encounter when using the tablet.
- Based on collected data, developed set of recommended design changes to optimize tablet as a teaching tool.

Tasks of Interest

- As basis of data collection, came up with set of tasks professor would encounter with tablet:
- Tasks include:
  - Remove stylus from tablet PC
  - Draw and erase notes from screen
  - Change settings of stylus (color, thickness, type)
  - Create a new slide with stylus
  - Access the right-click menu with stylus
  - Holding tablet during a lecture

Data Collection Scheme

- Conducted experiment with live participants acting as professors.
  - Participants performed a list of common tasks associated with a professor presenting a lecture to a class.
  - Each participant completed survey that stated their opinion on difficulty of performing tasks
  - Observation were recorded by the researchers on separate forms to get better idea of user's mental model of tablet
- Wanted to know what aspects of tablet interfered with usability

Data Collection

- Data for tablet PC redesign came from 2 sources
  - Class participants for assignment 3
  - Team member participants with other selected persons
- Surveys for both groups have identical questions, but team more thorough usability evaluation
- Results of study:
  - (NOTE: If its possible to put any data in this space, we should show something)

Major Tablet PC Hardware Issues

- Weight (4.8 lb)
  - Current tablets range from 2.8 – 3.8 lb
- Stylus Design
  - Lack of right-click button
  - Location of stylus and its EJECT button
  - Poor design of the eraser
- Cable Placement
- Location of the Power Button
- Friction between the stylus and the screen

Figure 1: The original inside view of the tc4200

Power button moved from the left outside to the inside of the tablet PC

Figure 2: The modified inside view of the tc4200

Figure 3: The original stylus design for the tc4200

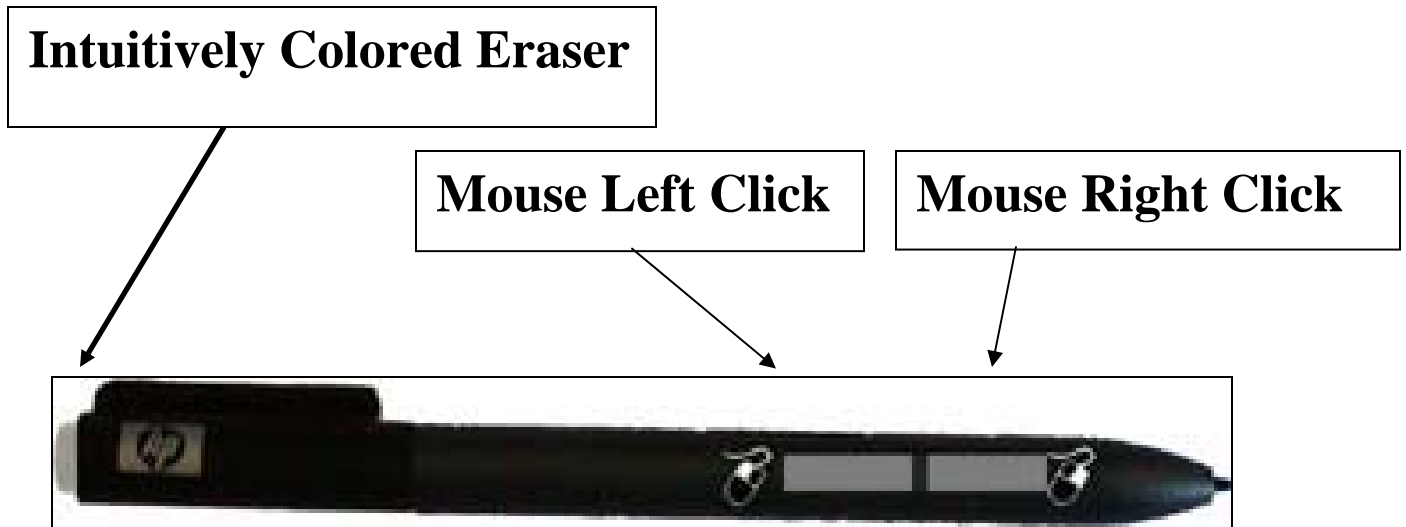Intuitively Colored Eraser

Mouse Left Click

Mouse Right Click

Figure 4: The modified stylus design with added mouse buttons and edited eraser color.

Original Design of The Stylus Ejection System

Original Right Side of the Tablet PC
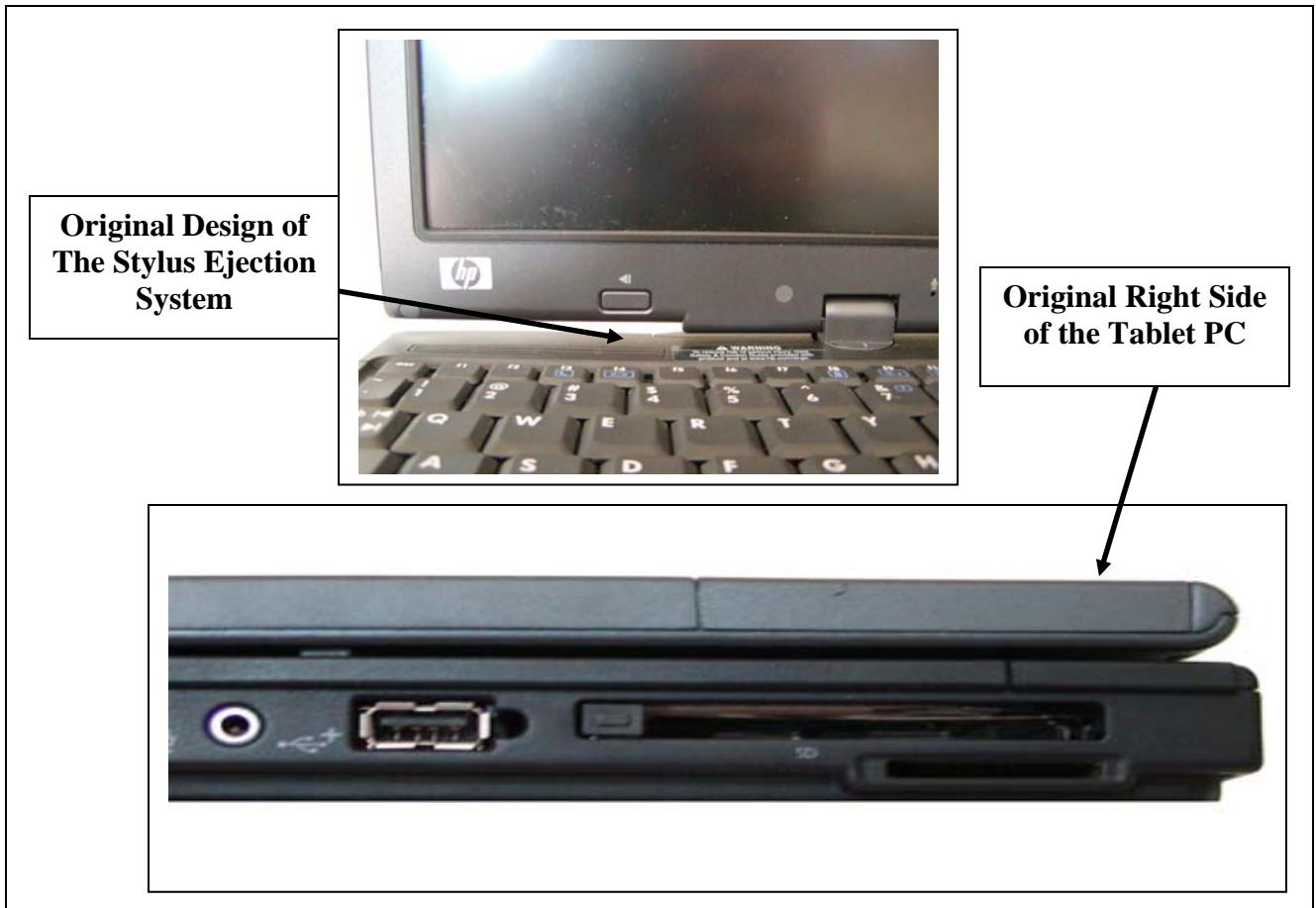
Figure 5: The original location of the stylus port and its ejection system.

New Design with Removal of the Ejection Button

New Design with Relocated Stylus Port and Stylus Icon
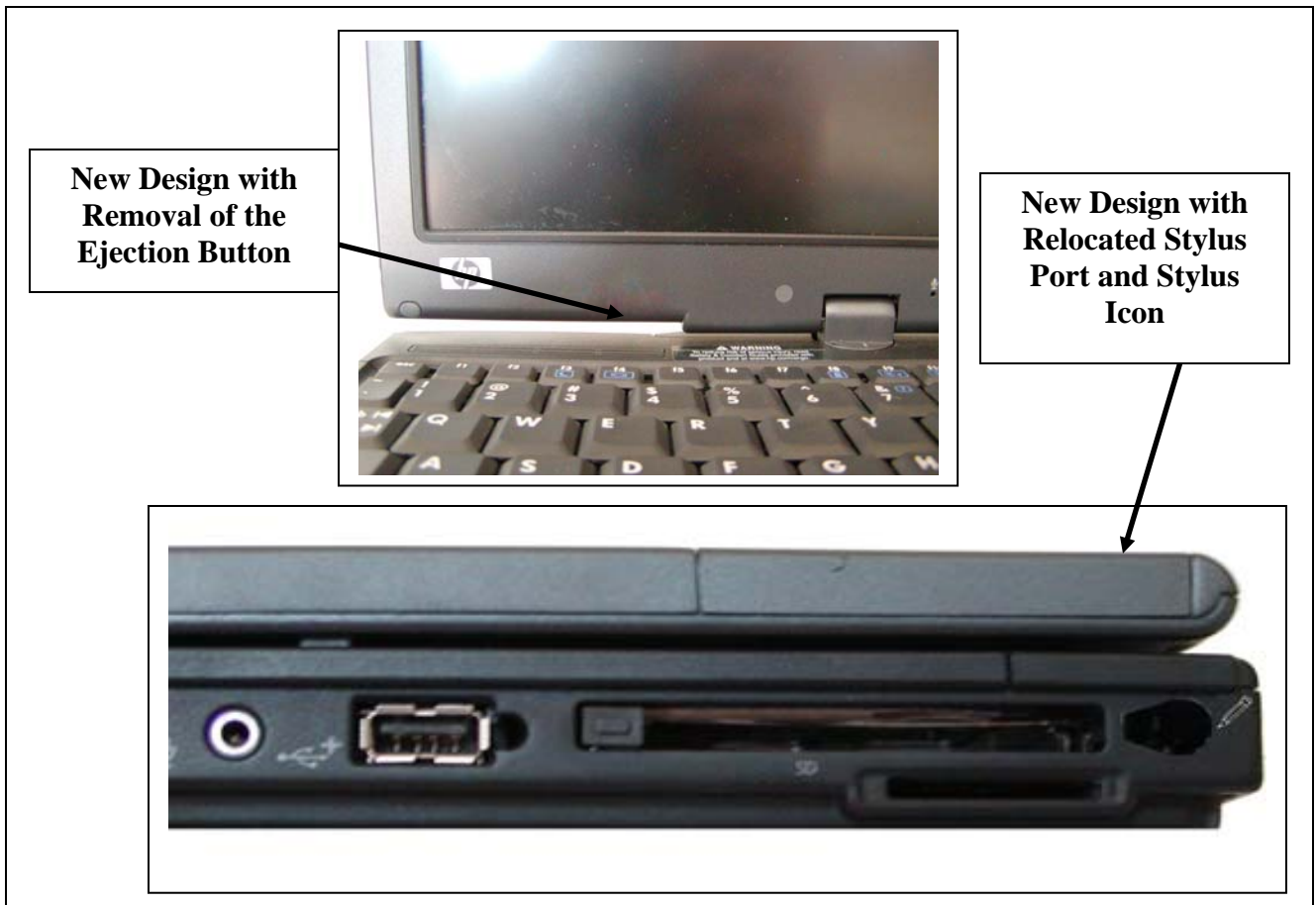
Figure 6: The modified location of the stylus port and its revised ejection system.

Figure 6: The original view of the left side of the tc4200

Added Power Connection

Erased Power Button

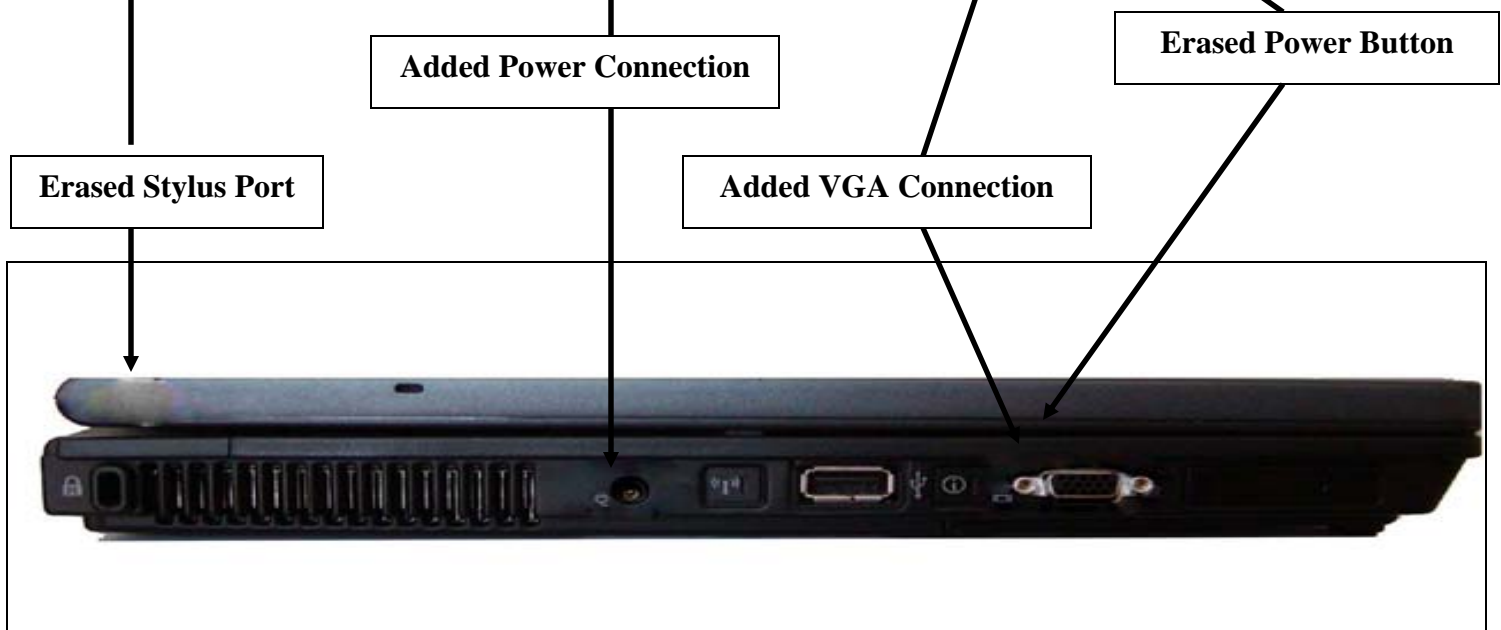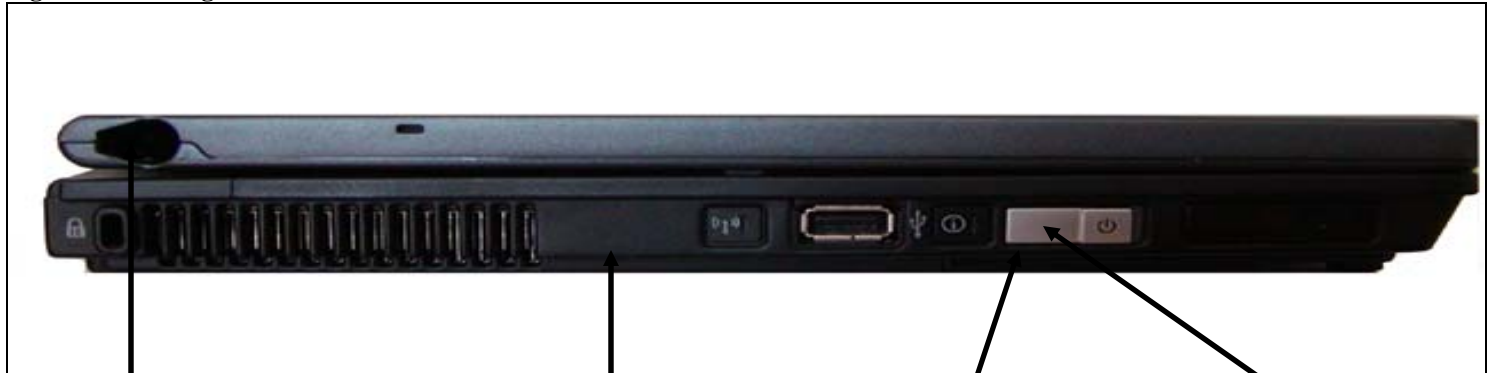**Erased Stylus Port**

Added VGA Connection

Figure 7: The modified view of the left side of the tc4200 with the added VGA connection and power connection and deleted power button.

Major Tablet PC Software Issues

- Display Orientation
  - User can only hold the tablet in one orientation

- PowerPoint Issues
  - Writing text with the stylus
  - Confusing icon for entering text with the stylus
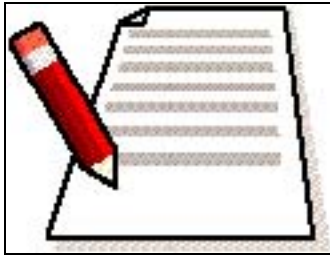 - Problems using a dual-monitor setup for presentations

Figure 11: This clickable icon would appeareach time the user could insert text with the stylus.

Figure 12: The floating stylus menu would appear on a professor's tablet PC, but would be hidden from view on a projector.
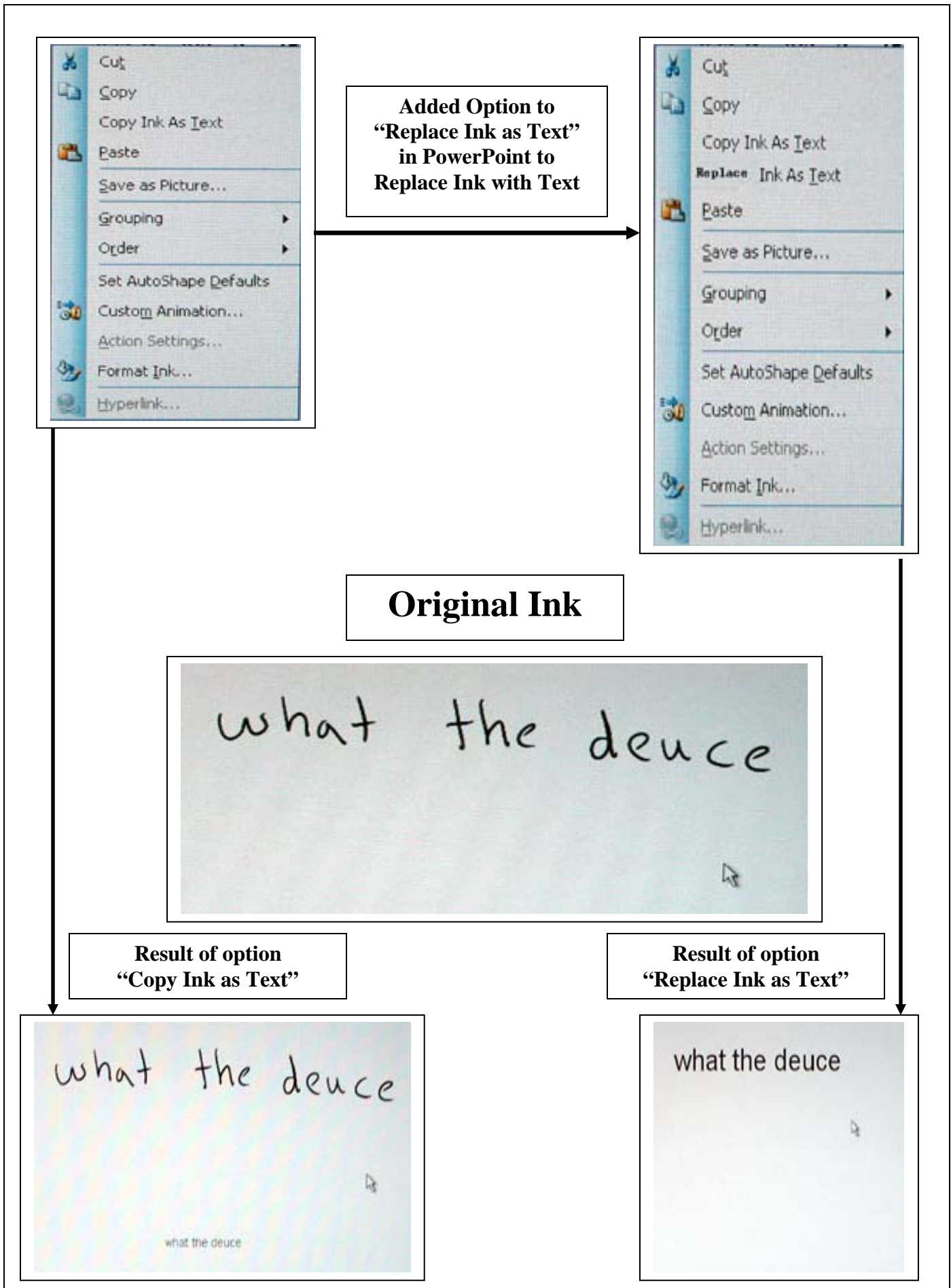
Figure 8: A conceptual idea for a new option to "Replace Ink with Text" in PowerPoint that appears in the right-click menu when using the "ink" feature to draw notes with the stylus.

Conclusions

- Many of the flaws we found with the tc4200 have been fixed in newer tablet models
  - Lenova Thinkpad
- Choice of wording is very important in both the survey and the list of tasks
  - Leading questions only enforce initial opinions rather than encouraging new ones.
- Believe that with the recommended changes implemented, the tablet PC can be an effective tool for teaching.

Questions