



Tech Info Library

PowerBook Wins Usability Study (7/92)

Revised: 5/17/94
Security: Everyone

PowerBook Wins Usability Study (7/92)

=====

Article Created: 31 October 1991
Article Reviewed/Updated: 31 July 1992

TOPIC -----

Apple's new Macintosh PowerBook notebook computers scored highest in a usability study conducted by an independent industrial design firm. The PowerBook models 170 and 100 won over eight competitive notebooks from Compaq, Toshiba, NEC, Sharp, Zenith, IBM, AT&T, and Zeos. The study involved more than 450 tests of design, ergonomics, functionality, portability, and ease of use.

DISCUSSION -----

A New Approach

Most notebook computer reviews deal with "speeds and feeds," an approach more for technologists than for end users. Apple hired GVO, an independent design company not involved in any of the systems tested, to put the leading notebook computers through a series of real world usability tests, to quantify their designed-in advantages. They performed tests across the whole spectrum of notebook use: from the time the user first opens the box, through extended use in the office and in the field (including use in airplanes and cars).

The NCAT (Notebook Computer Aptitude Test)

GVO specialists evaluated the machines according to four key criteria:

- Function/Purpose: How well the product fulfills the user's purpose
- Physical Fit: How well the product meets the user's ergonomic needs
- Learning/Understanding: How easy the product is to learn and understand
- Satisfaction: How satisfying the product is to see and to use

The study applied these values to out-of-the-box experience, installation and set-up, mechanics, initial use, long-term use, and use while travelling. In all, they conducted more than 450 individual design and usability tests,

including true size and weight of all necessary components, set-up and tear-down effort for movement, desktop and laptop footprint, briefcase fit, ergonomics, balance, fit & finish, durability, image, power management, screen viewing angle and visibility, typing, GUI navigation, and usability in the office, on an airplane and in a car. They graded individual tests on a scale of 0 to 4 (4 being the best), and averaged the grades to compute a final score, giving all tests equal weight.

The Results

The Macintosh PowerBooks ranked the highest. The overall scores on a scale of 0 to 4 (4 being the best) were:

Macintosh PowerBook 170:	3.07
Macintosh PowerBook 100:	2.93
AT&T Safari:	2.65
Zeos 386SX:	2.35
NEC Ultralite 286F:	2.29
Toshiba T-2000SX:	2.28
Zenith MasterSport 386SX:	2.22
Compaq 386S/20:	2.15
Sharp 6641:	2.02
IBM PS/2 L-40:	2.00

The PowerBook 140 wasn't included in the test due to its similarity to the PowerBook 170.

The DOS-based systems were equipped with Windows 3.0 and a Logitech TrackMan Portable track ball, in order to compare graphical environments.

Some Quotes From The Findings

"The PowerBook 170 and 100 represent the best notebook value available in the market today.

"The PowerBooks are easily the most portable and flexible of the 10 notebooks tested."

"Through a clever integration of engineering, design, and ergonomics, Apple has created the first notebook computers that can actually be used comfortably in someone's lap."

"The combination of small size, low weight, elegant design, integrated trackball, palm rests, active matrix LCD, and software-controlled floppy drive makes the PowerBook 170 the most usable, versatile, and desirable system tested."

Putting The Tests In Perspective

The Ingram benchmark study showed that the PowerBooks deliver faster performance than competitive notebooks running Windows 3.0. The NCAT gives evidence that the PowerBooks are more usable than the competition. And the DRI studies show what that means to users -- they say they are more productive and satisfied than

people who use PC clones running DOS or Windows 3.0.

About GVO

GVO is an independent industrial design firm, located in Palo Alto, California. It was not involved in the design of any of the machines tested. GVO has designed other notebook computers, and is experienced in human engineering, electronics packaging, product planning, and cognitive psychology.

NOTE: If the NCAT results are to be used in a public document, our contract with GVO requires Competitive Analysis to review it first. Please send your drafts to COMPETITION.

Support Information Services

Copyright 1991, Apple Computer, Inc.

Tech Info Library Article Number:9065