Direct/Indirect Touch

Win 8 Clamshell and AIO

Houston HFES 2013

Stephen Stoll / May 3, 2013

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Objectives and Intended Outcomes

Exploring Direct (touchscreen) and Indirect input

Objectives

- **Explore use of direct input during common tasks.**
  - Web browsing, Gaming, Watching videos, Reading.

- **Understand if there are differences in direct/indirect input preference between AIO and laptop use.**

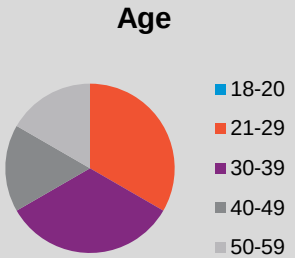
- **Determine if users liked having touch on a laptop**

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Equipment and Participants

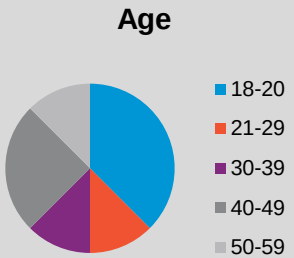
HP Spectre XT TouchSmart
Laptop

- 8 users recruited externally
  - 2 users were omitted due to complications
  - 2 male, 4 female remained



HP Envy 23 TouchSmart
All-in-One with touchpad

- 8 users recruited externally
  - 4 male, 4 female



All users had experience with touchscreen devices and touchpads/trackpads

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Procedure

- **Demonstrated Windows 8 on both touchpad and touchscreen**
  - Users tried each gesture before moving on.

- **4 tasks, 3 iterations.**
  - Internet browsing, videos, games, reading
  - Touchpad only, touchscreen only, free choice
    - Iteration order counter balanced
    - Input choices recorded for free choice task

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Procedure - Tasks

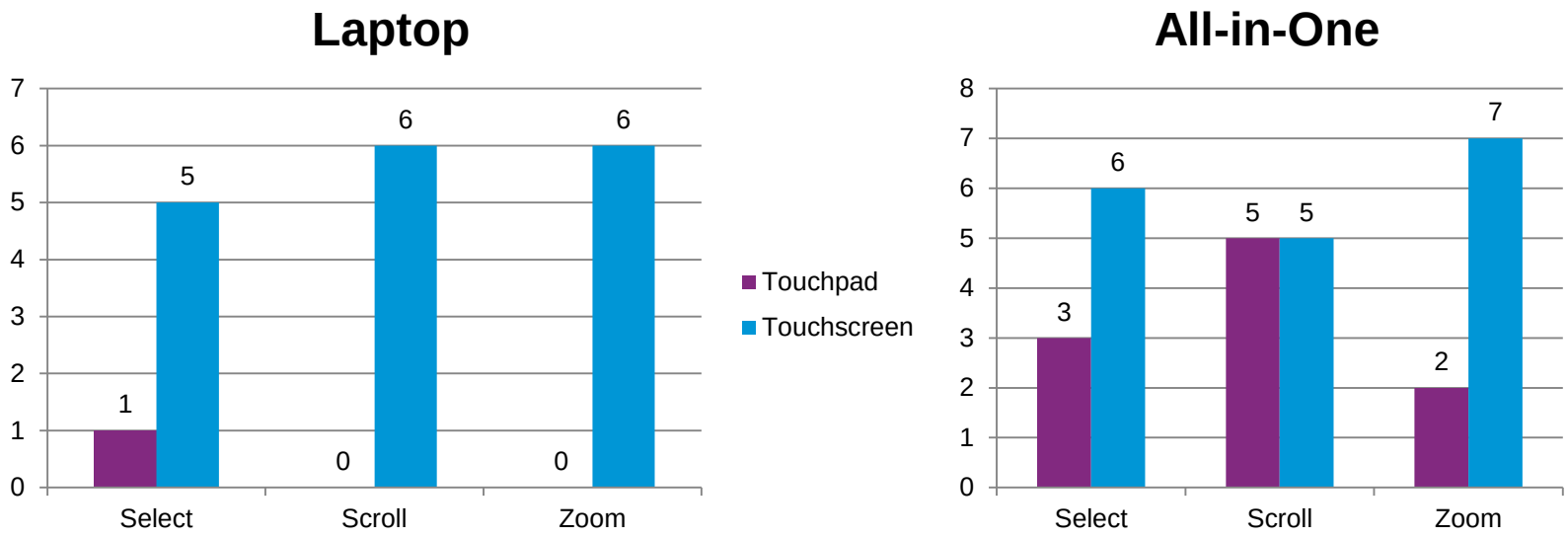
	Task description	Discrete steps
Internet Browsing	*Go to Wikipedia.org and look up* (tigers/lions/leopards), *find the map of their habitat and zoom in on it with the pinch/zoom gesture. Then return to start.*	• *Open IE* • *Select links* • *Type to search* • *Scroll* • *Zoom* • *Return to Start.*
Videos	*Search for the movie* (“The Blues Brothers”/“Who Framed Roger Rabbit?”/“The Wizard of Oz”). *Play the trailer, then skip to* (Time halfway through trailer) *and then pause it. Then return to start.*	• *Open Video Player* • *Open Charms* • *Type to search* • *Select film* • *Play film* • *Scrub* • *Pause* • *Return to Start.*
Games	*Play Solitaire.* (User must have dragged 3 cards and drawn from the deck at least 3 times before moving on) *Then use left swipe to switch to next task*	• *Open Solitaire* • *Draw cards* • *Move cards* • *Left swipe*
Reading	*Turn through 5 pages of the Dracula. Then use a feature that lets you skip ahead to page* (Page at least 200 away from current page). *Then return to start.*	• *Turn page* • *Top Swipe* • *Drag bar or Type Page Number* • *Return to Start*

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Results

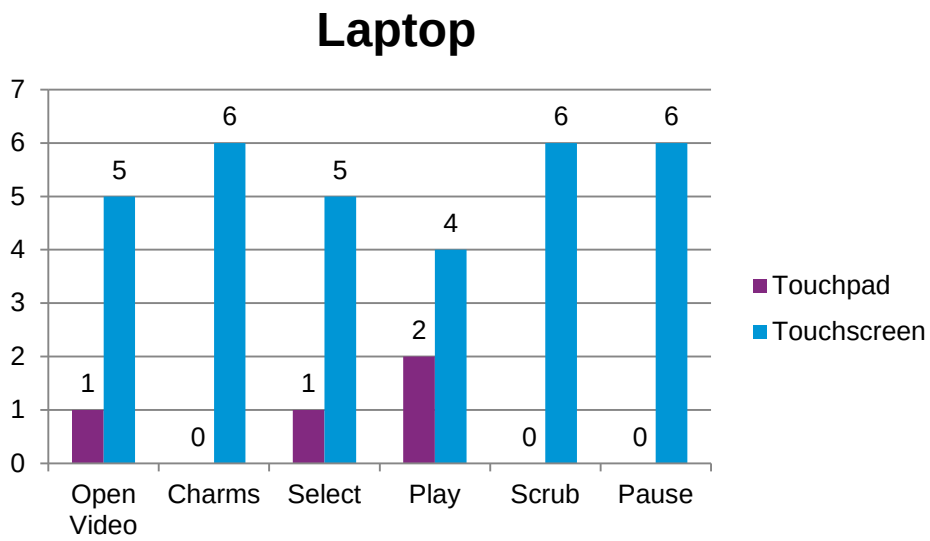
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

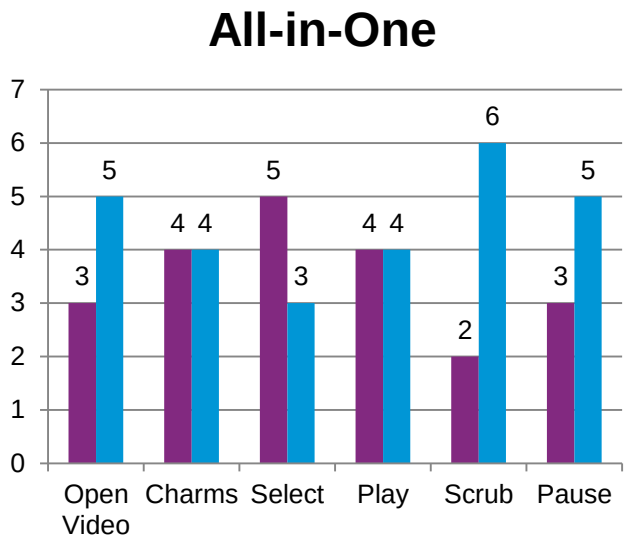
Web Browsing



© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

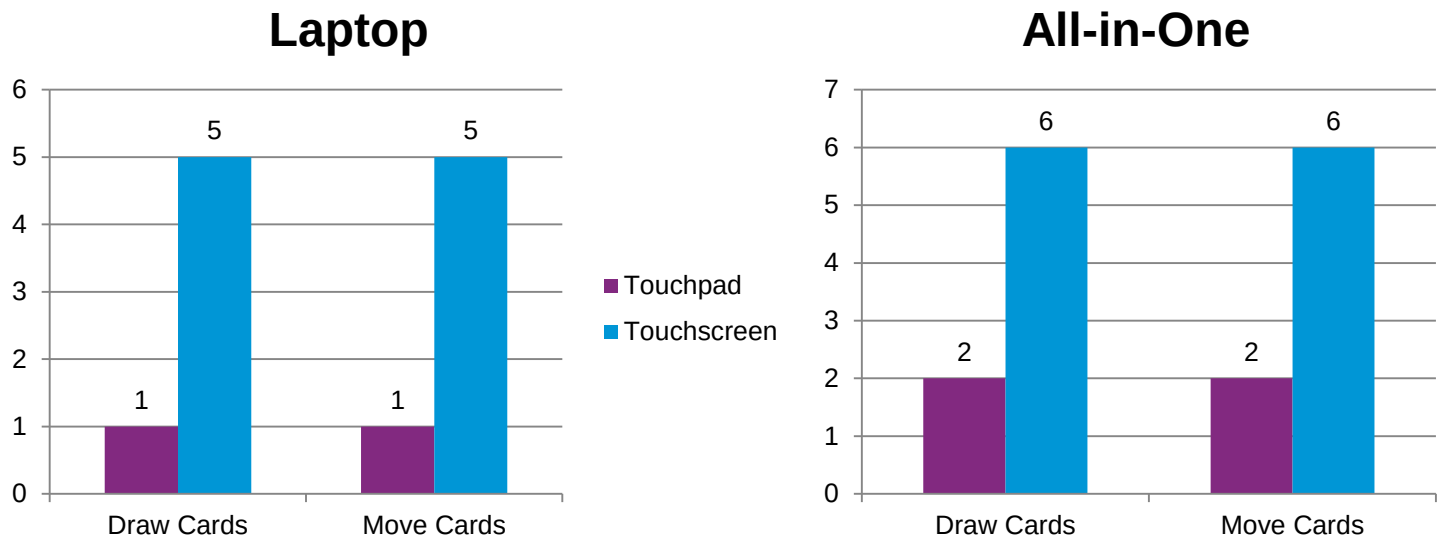
Watching a Video





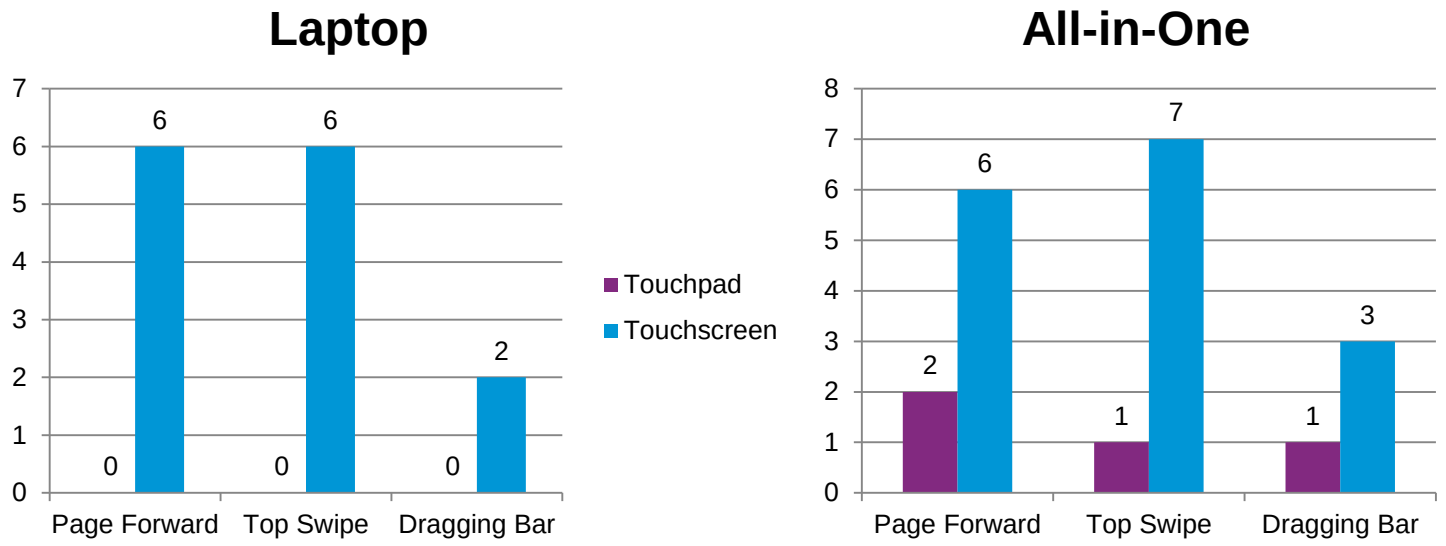
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Gaming



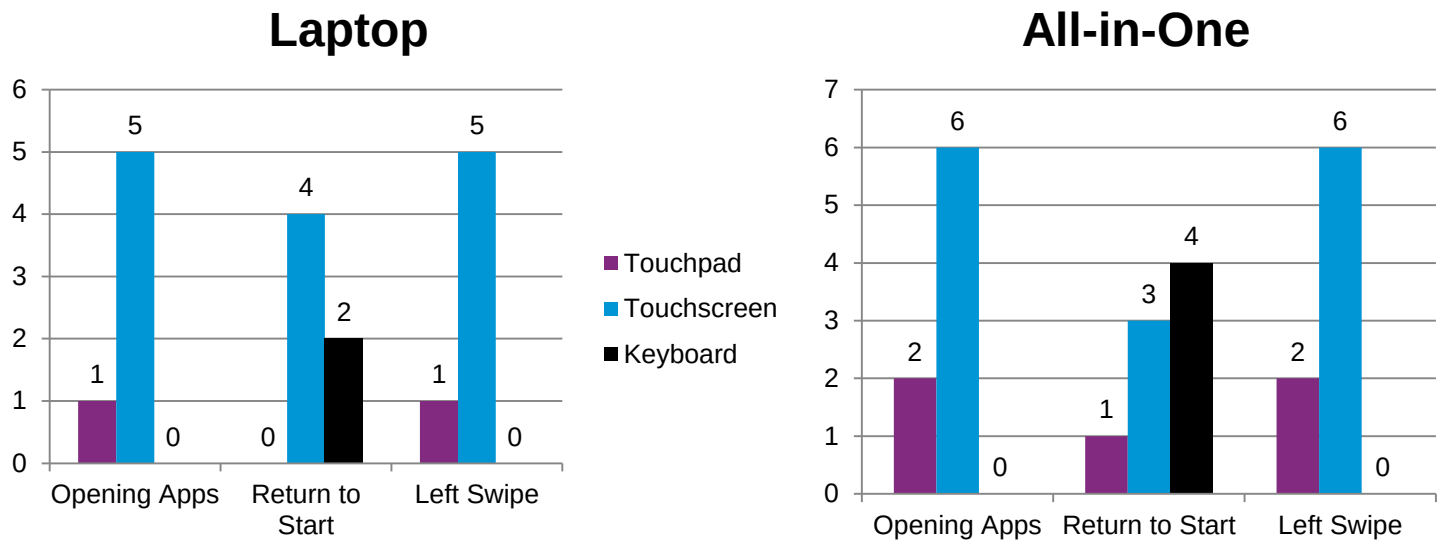
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Reading



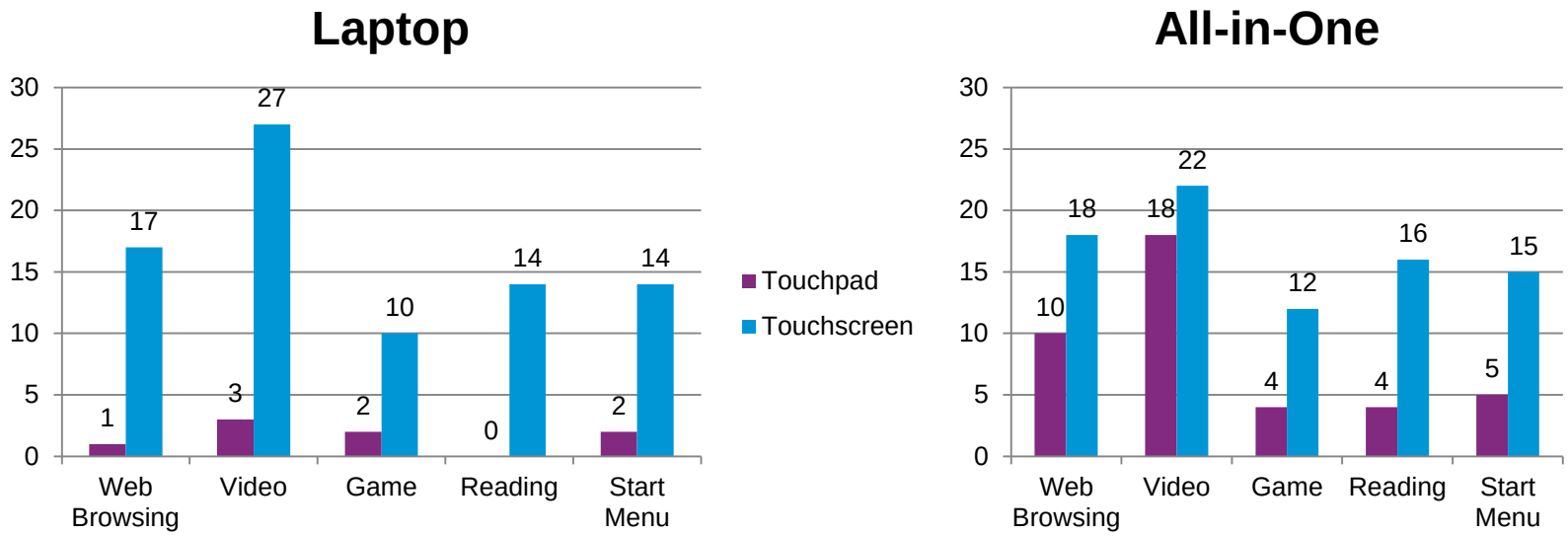
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Navigating w/ Start Menu



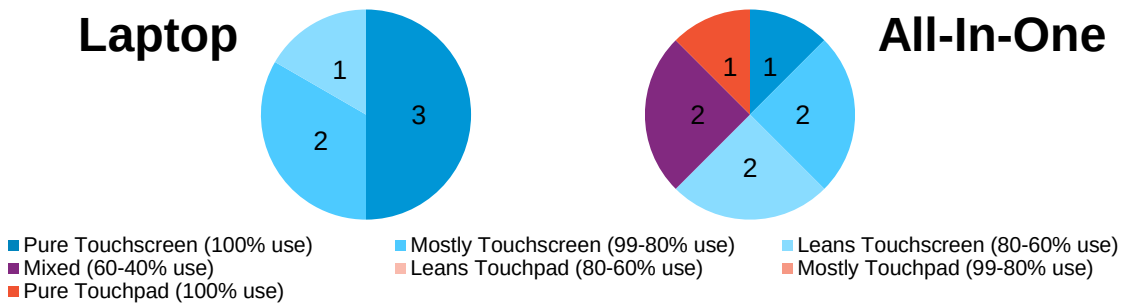
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Overall



© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Input Loyalty



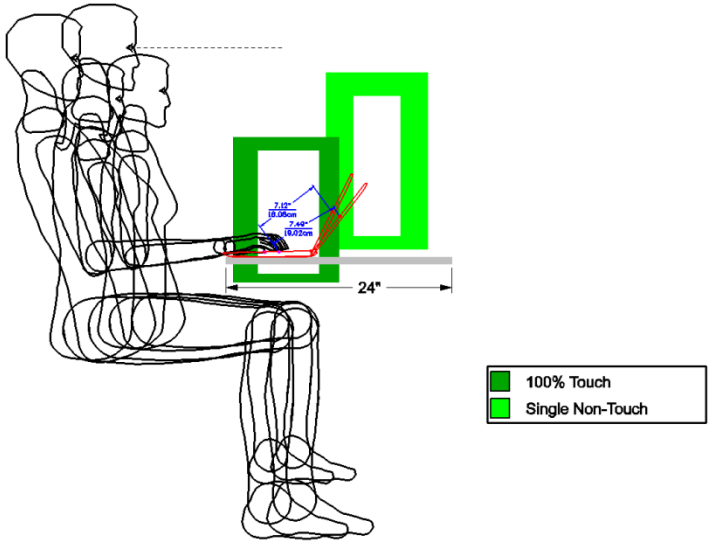
Most users used Touchscreen (Direct input) for most tasks, especially with laptop use

- **Reasons to switch from Touchscreen to Touchpad:**
  - Accuracy and fine navigation.
  - To avoid blocking the screen in video tasks
  - To play Solitaire, due to familiarity of playing that way
  - To leisurely read a book while sitting back
  - To activate charms and other Win 8 gestures

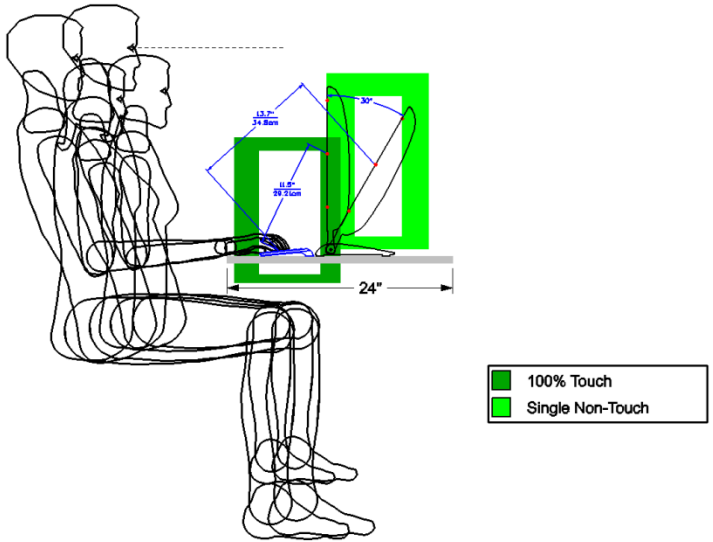
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Adjustability Zones

Laptop



All-in-One



© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Screen Shaking

6 of 6 laptop users noticed the screen shaking on the laptop

- 1 of 6 felt this a problem.
  - This user still used touch for all but one task
- 3 of 6 held the screen with the other hand when touching

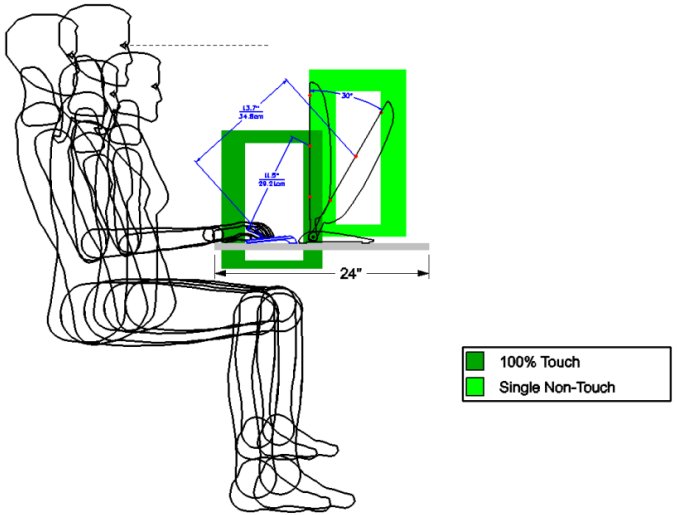
© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Summary/Conclusion

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Summary/Conclusions

- **Touchscreen (Direct) use was dominant on both platforms, though touchpad/trackpad (Indirect) use was more frequent on All-in-One's**
  - Screen shaking did not seem to discourage touching as much as thought
- **All-in-One users will not use the touchscreen as exclusively as laptop users**
  - All-in-One touchscreen use is mostly quick button presses and gross movement
- **Products that are meant to encourage direct touch input should have appropriate adjustability**

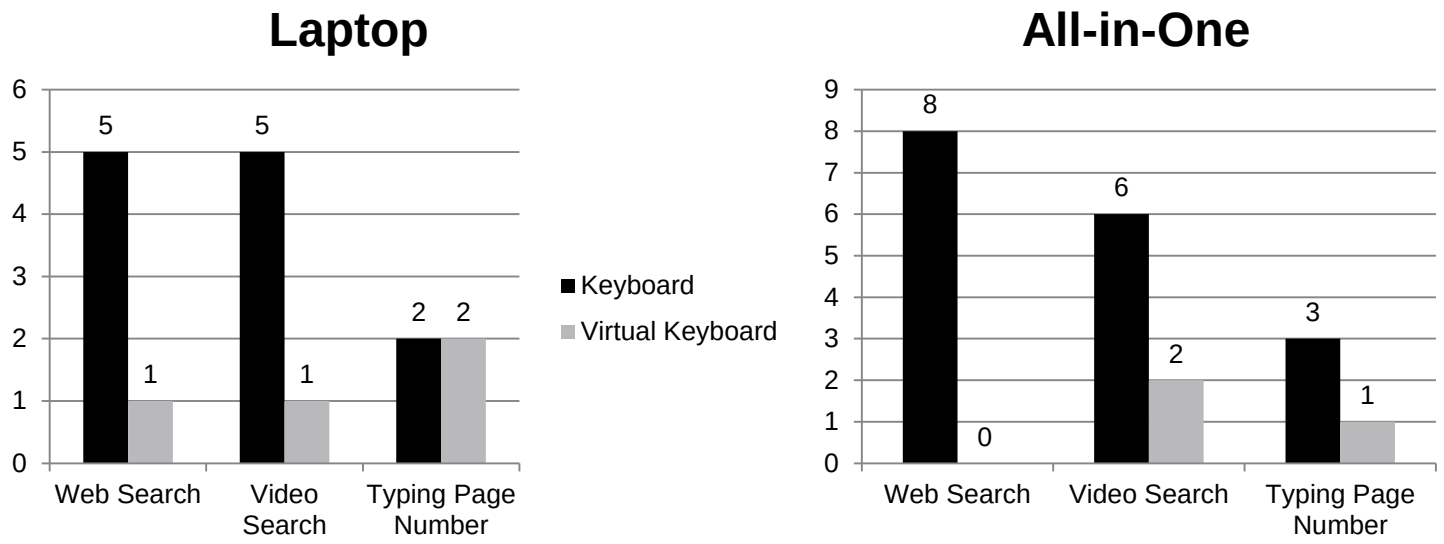


© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Appendix

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Keyboard Use



Users on both units were more likely to use the physical keyboard than the virtual one.

Some users opted to drag a bar rather than type a page number.

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Participant Comments

Touchpad/trackpad (Indirect) vs Touchscreen (Direct)

Touchscreen (Direct) Comments

- 3 Laptop and 3 AIO users commented that they liked the touchscreen (direct) because it reminded them of other devices.
- 3 Laptop and 5 AIO users mentioned that the touchscreen (direct) is quicker for because you don’t have to reorient a mouse.
- 2 Laptop and 2 AIO users said that the touchscreen (direct) was better for the game because they could drag in a single motion.
- 1 Laptop and 4 AIO users liked reading with the touchscreen (direct) because it emulated book reading.

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Participant Comments

Touchpad/trackpad (Indirect) vs Touchscreen (Direct)

Touchpad/trackpad (Indirect) Comments

- 2 Laptop and 2 AIO users commented that there is not enough room on the touchpads, and touch lets them move continuously (dragging, zooming, scrolling).
- 1 Laptop and 2 AIO users mentioned that touchpad is better for longer tasks that you would want to rest for.
- 1 user (AIO) commented that their use of touch was not because they liked touch, but because they disliked the touchpad for an AIO unit. They mentioned that if they had a mouse, their usage would be different.

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Fatigue and Input Style

Touchpad/trackpad (Indirect) vs Touchscreen (Direct)

Touchscreen Fatigue

- 4 users using the AIO commented that the screen distance was a problem for using the touchscreen (direct) , and anticipated fatigue.
- Only 1 Laptop user thought they would experience fatigue.
- 2 users using the AIO commented that it would be better if they could tilt the screen or lay it down.

Input Style Inertia

- 2 Laptop and 1 AIO users observed that they were more likely to use the touchpad after typing something.
- Similarly, 1 Laptop user mentioned they were inclined to use the virtual keyboard if they had just been working with the touchscreen.

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

Background

- **HRF 002-12 Win8 Touch on Clamshell**
  - Users on clamshell navigated the Start screen and performed common tasks such as opening apps, interacting with pictures, and browsing websites.
  - Emphasis not only on performing actions, but learnability
  - Users strongly preferred to use a touchscreen with the clamshell form factor.
  - The exception is for typing, where users prefer to use an external keyboard.
- **HRF 018-12 Direct Indirect study Phase 1**
  - Users on clamshell preformed common tasks such as web-browsing, playing games, watching videos, emailing and reading.
  - Focus on using programs rather than learning them.
  - Users showed no strong preference for touchscreen or touchpad
  - The exception for typing is seen again.

© Copyright 2012 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.