Keyboard Preferences: An Interactive Innovation

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ABSTRACT

This interactive poster collects information from participants, and displays it on a continually updating web page. It elicits notes from participants, indicating their preferred type of keyboard for a selection offered. The poster also gives the authors an opportunity to gauge the responses of participants to an innovative way of collecting data.
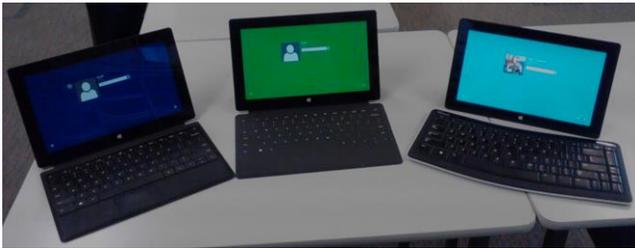
Categories and Subject Descriptors

K.3.1 [**Computers and Education**]:

General Terms

Design, Experimentation, Human Factors.

Keywords

Interaction, HCI, Surface, Hardware, Ergonomics.

1. INTRODUCTION

Recently Microsoft decided to significantly reduce the price of its "Surface RT" tablet computer. Whitireia School of IT took the opportunity to purchase several devices. These were offered to staff who had an interest in trying them out, and reporting back on their suitability for use in the organisation. The tablets were purchased with three Microsoft external keyboard options. Some staff prefer the printed 'touch' keyboard, others the limited-travel 'type' keyboard. Others are happier with a full-travel separate Bluetooth keyboard. There is a place for 'soft' onscreen keyboards, and this option is also considered.

The strength of feeling regarding keyboard preference was surprising. It was initially thought that one particular keyboard would be more popular, but preferences varied between staff.

This lends itself to researching what is behind this preference.

A tool was needed to conduct this research. The School of IT has used Google Forms for various non-critical data gathering and reporting functions in the past, so this was an obvious option to consider.

Further consideration was given to the way people might interact with a survey such as this. The survey questions were chosen to elicit more information than just the headline choice of keyboard type.

2. THE MICROSOFT SURFACE TABLET

Surface is the name used for a range of tablet devices marketed directly by Microsoft. This section outlines some characteristics of the range.

2.1 Operating System

Microsoft Windows 8 was launched in October 25 2012, in a typically choreographed significant launch event [1]. Versions were showcased for PCs, notebooks, tablet computers, and phones.

2.2 Processor Options & Software

The Surface Pro [2] uses the traditional Windows option of an Intel® Core™ i5 Processor. This computer runs Windows 8 Pro, and can use most existing Windows software.

The Surface RT [2] runs a version of Windows 8 based on the ARM instruction set. It uses an NVIDIA Tegra 3 processor. Microsoft only supports using software from the Microsoft Store [3] on this device.

The Surface RT is used for the current research.

2.3 Keyboard Options

The Surface tablet can optionally use either of two Microsoft 'covers' [4]. A cover includes one of two types of keyboard.

The 'Touch' cover is a flat, semi-rigid, panel, with key outlines printed on it. The key outlines are touch sensitive.

The 'Type' cover includes a rigid panel containing a keyboard with moving keys. The panel is 6mm thick.

Each cover includes a capacitive-sensing trackpad below the spacebar. The Touch cover is available in a variety of colours.

The Surface can be used with any Bluetooth or USB keyboard that works with a Windows PC.

For this research, the following keyboards are offered:

- A Type keyboard.
- A black Touch keyboard.
- A Microsoft Bluetooth Mobile keyboard 6000.
- Use of a tablet without a physical keyboard.

3. RESEARCH ENVIRONMENT
Participants in this research can be in the poster display location, or can post survey returns anonymously (although IP addresses will be tracked) from any location.

3.1 Google Form
A Google Form is available for participants to enter information about their keyboard preferences. Fields available include: Source IP, time of entry, & Google Account name (automatically collected – Google Account is optional); Keyboard type being commented on; Type of Device upon which the comment is based; Computer Use Environment relevant to the comment; User Preference Rating chosen by the participant; Other Participant comments.

3.2 Poster Medium
This poster takes the form of a web page designed to be displayed on a 23 inch screen. In the centre there is an automatically refreshing grid showing responses that have been entered. The research is described and explained around the poster. Text around the poster also invites further participation. A graphic displays an overall analysis of keyboard types, and the ratings they have been given.

The poster is accessible at: http://pcsupport.ac.nz/keyboards

3.3 Poster Display Location
Surface RT tablets will be available at the primary venue where the poster is being displayed. Participants can use these devices to try different types of keyboard, as they also fill out the form.

Participants will be advised that their interaction with the poster is being observed.

3.4 'Remote' Participants
Participation is encouraged from conference participants at the primary poster venue. Contributions will also be solicited from a wide range of other locations.

4. EXISTING LITERATURE
A review of the literature found considerable research on the effect of widespread availability of 'soft' keyboards on tablet and phone devices. There is, however, less relating to the preferences of computer users between different types of physical keyboard.

It was noted that there are a very large number of patents for different keyboards, leading the authors to ask if research into preferences between keyboard types is largely proprietary to keyboard suppliers, and not shared with the research community.

5. METHODOLOGY
Before the arrival of Surface tablets with a choice of keyboards, those selecting the equipment to be purchased by Whitireia School of IT expected there to be a clear preference for one or other of the keyboard options available. Experience has shown that preferences do vary.

This action research project will elicit a variety of responses. Those responses will be analysed in light of the extensive Human Computer Interaction literature available. That analysis will result in a matrix of the variables collected, and the keyboard that is preferred for a particular combination of variables.

As well as the information collected directly, the authors will observe interaction at the display location. That can be compared to responses entered, to look for correlations. Remote participants will have a different emphasis, and this too will be analysed.

The medium of this installation will also be explored further. In particular, it will be interesting to see if significant correlation exists between what participants see from previous comments, and their own subsequent comments.

6. FURTHER STUDY
Once initial results have been gained from this research, consideration will be given to wider factors affecting choice of portable computing hardware. Factors that could be studied in the future include: Operating System preferences; previous user experiences; relationship between a variety of computing devices used.

7. ACKNOWLEDGMENTS
Thanks to conference participants for hammering away on keyboards, some of which they will not like, and others who contribute to this on-going action research installation.

8. REFERENCES

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