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Could Touch User Interfaces be the future?

In recent years the popularity of the touch user interface[1] (TUI), has skyrocketed. There are currently no signs for this trend to diminish; to the contrary future vision videos from leading technology companies show a future relying even heavier on this method of input (e.g. Microsoft, 2009). However, reviews of TUI implementations point to a number of problems, including: lack of overview of available options and nonexistent feedback on interpretation of TUI actions (i.e. touch and gestures). Furthermore, TUI is questioned as to whether complex actions can be expressed through this medium (Norman, 2010). In exploring these problems, this essay finds no reason to doubt the ability of TUI technology to become dominant in the future.

First off, contemporary TUI implementations lack overview of available actions. While GUIs[2] make use of menus and buttons; for exploration of options and as signifiers[3] of clickable areas, respectively, no similar system is commonly used for TUI applications at present (Norman, 2010). Further complicating the issue, available gestural actions (e.g. swipes) require yet another display technique (Nielsen et al, 2010). One theoretical solution would be to with usage of intelligent autocomplete algorithms display all available completions of a started upon gesture; initiated discretely only upon identification of pause in midst of a gesture. This suggestion illustrates that TUI should be able to sufficiently display available actions.

The next problem is the insufficient feedback given with completion of TUI actions. For example; in the case of a misinterpreted gesture, it is currently hard to recognize what went wrong: what gesture was interpreted and what was missing for the intended gesture. This is in part due to the transiency of gestures (Norman, 2010). As such, a feasible aid for mistake recovery could be a trace for gestural actions, possibly displayed through a function of gesture history. Thus, also the issue of insufficient gestural feedback should be possible to resolve with additional functionality.

Moreover, TUI has been criticized being to blunt a medium to support complex action. Norman (2010) compares the expressional capacity of gestures to the usage of a language consisting solely of

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[1] In this essay, the term 'TUI' refers only to touch displays or touch screens; interfaces where the very same interaction area is used both for the touch interaction and the display of content. This is to be contrasted with touch tablets or touch pads, where the display showing the content is separated from the touch area (Buxton, 2007).

[2] Graphical User Interface.

[3] A 'signifier' is anything that signifies critical information. An 'affordance' is a signifier created by a designers to signify how something is to be used and what for (Norman, 2008).

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verbs. This metaphor illuminates the requisite of additional interactive components, such as keyboards for detailed input, inside of TUI applications. Numerous such components exist by now, and future TUI applications should to an even further degree make use of complementary components.

To conclude; while some problems encountered in contemporary TUI applications may prove to become significant practical challenges for designers, in theory they all seem soluble. Although this suggests that TUI could become dominant in the future, it is wise to believe that it would be so in symbiosis with other complementary technologies.

References

Buxton, B. (2007). *Multi-Touch Systems that I Have Known and Loved*. Retrieved 2011-02-10, from http://www.billbuxton.com/multitouchOverview.html

Nielsen, J., Norman, D. (2010) *Gestural Interfaces: A Step Backwards in Usability*. In "interactions". Retrieved from http://interactions.acm.org/content/?p=1401

Norman, D. (2010). *Natural User Interfaces are not Natura.* In "interactions". Retrieved from http://interactions.acm.org/content/?p=1355

Norman, D. (2008) *Signifiers, Not Affordances.* In "interactions". Retrieved from http://interactions.acm.org/content/?p=1181

Microsoft. (2009) *Microsoft showcase: Productivity Future Vision.* Retrieved 2011-02-10, from http://www.microsoft.com/showcase/en/us/details/e7728af1-3fe4-4e25-a907-3dbf689fe11a