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From Microsoft Word 2003 to Microsoft Word 2007: Design Heuristics, Design Flaws and Lessons Learnt

Yin-Leng Theng, Eng Kiat Ting and Xuehong Tao

Wee Kim Wee School of Communication and Information
Nanyang Technological University, Singappore 637718.

Abstract. By tracing and comparing the number of key-presses taken to complete the functions in Word 2007 and Word 2003, the paper identifies eight design heuristics Word 2003 and Word 2007 could have violated, creating design flaws leading to potential usability problems. This paper concludes with design implications for software.

Keywords: Microsoft Office Word 2003, Word 2007, design heuristics.

1 Introduction

Designers are often faced with the huge challenge of designing software and websites for a large number of different users, and do so by making the functionality of the software and websites as extensive as possible. In this one-size-fits-all approach, common goals of different types of users are identified. When introducing new interfaces or upgrades of existing software and websites, initial user confusion and poor adaptation are common user problems identified. The recent migration from Microsoft Office Word 2003 to Microsoft Office Word 2007 in late 2006 [3] is one such example that has generated poor reviews. This was evident from the numerous articles and blogs which have sprouted in the internet discussing this migration [4,6].

In this paper, we carried out an investigation of the learning problems faced by novice and expert users of Word 2003 when they migrating to Word 2007. We employed a heuristic evaluation of Microsoft Office Word 2003 and Office Word 2007 carried out to identify new or existing functions in Word 2007 that might cause usability problems based on established design heuristics [5].

2 Study and Findings

In our study, the *Word Ribbon Mapping Workbook* [2] was used. This workbook, aimed to facilitate users with the transition, listed the *Word 2003* commands along with their corresponding *Word 2007* commands (if any). The changes in locations/forms of these commands were then noted. The few hundred commands listed in the workbook were analysed one at a time. The changes in locations of these

commands were noted. Those changes of locations of commands which could cause confusion for Word 2003 users were selected. Using the *Word Ribbon Mapping Workbook* [3] provided by Microsoft, we went through the 338 commands (menus and *Standard toolbar*) listed. Twenty-seven of such commands that could cause potential usability problems for *Word 2003* users were selected and classified into eight types of potential usability problems as shown in Table 1. Table 2 summaries each of the eight violations.

Due to space constraints, we show one example to illustrate the principle of each group. Table 2 (row1) shows the steps taken to perform function of creating a new *word* document in *Word 2003* (column 2) and *Word 2007* (column 3). The main source of confusion is that the sequence of clicks for *Word 2003* was located under the *File menu* whereas in *Word 2007*, it was located under the *Office Button* (see Figure 1). As such, *Word 2003* users could experience trouble finding the command to create a new document in *Word 2007*. Type 1 potential usability problem is also about changing associated icon (double jeopardy) for locating file function, and hence creating "cannot-find-the-command" user experience.

Table 1. Eight Types of Violations Against Design Principles

THE EIGHT PRINCIPLES				
Principle	**Principle Description**	**Example Ref**	**Microsoft Word 2003 Command Paths**	**Microsoft Word 2007 Command Paths**
1	Same command but located under different top menu.	1a	[File > New > Blank document]	[Office button > New > Blank document > Create button]
		1a	[File > New > Close button]	[Office button > New > Blank document > Cancel button]
		1b	[Tools > Macro > Macros]	[View > Macros > Macros > View Macros]
		8a	[Format > Columns > OK button]	[Page Layout > Page Setup > Columns > More Columns > OK button]
		8a	[Format > Columns > Cancel button]	[Page Layout > Page Setup > Columns > More Columns > Cancel button]
		10a	[Tools > Spelling and Grammar]	[Review > Proofing > Spelling & Grammar]
		10b	[Edit > Paste Special > Unformatted Text > OK button]	[Home > Clipboard > Paste > Paste Special > Unformatted Text > OK button]
		10b	[Edit > Paste Special > Unformatted Text > Cancel button]	[Home > Clipboard > Paste > Paste Special > Unformatted Text > Cancel button]
		12a	[Tools > AutoCorrect Options]	[Office button > Word Options > Proofing > AutoCorrect Options]
		12b	[Tools > Customize]	[Office Button > Word Options > Customize]
		14	[Window > Split]	[View > Window > Split]
2	Change of visual search direction.	2a	Vertical search direction: [Insert > Symbol]	Horizontal search direction: [Insert > Symbols > Symbol > More Symbols]
		2b	Vertical search direction: [Tools > Word Count]	Horizontal search direction: [Review > Proofing > Word Count]
3	Change of top menu's position.	3a	[View] at 3rd position	[View] at 7th position
		3b	[Insert] at 4th position	[Insert] at 2nd position
		15	Help as a small text menu next to the main menu group.	Help as a tiny icon on the far right, away from the main menu group.
4	Cannot locate toolbars in Word 2007 and so user has to learn the corresponding commands.	4a	User depended on [Standard > Print] toolbar	Instead use: [Office button > Print > Quick Print]
		4b	User depended on [Standard > Zoom] toolbar	Instead use: [Status Bar > Zoom Slider]
		7a	User depended on [Drawing > Autoshapes] toolbar	Instead use: [Insert > Illustrations > Shapes]
		7b	User depended on [Standard > Insert Table] toolbar	Instead use: [Insert > Tables > Table > Insert Table]
5	Same top menu, same terminal menu, but different paths.	5a	[Insert > Date & Time > OK button]	[Insert > Text > Date & Time > OK button]
		5a	[Insert > Date & Time > Cancel button]	[Insert > Text > Date & Time > Cancel button]
		5b	[Insert > Field > OK button]	[Insert > Text > Quick Parts > Field > OK button]
		5b	[Insert > Field > Cancel button]	[Insert > Text > Quick Parts > Field > Cancel button]
6	Multiple ways for the same task in Word 2007.	6a	[Insert > Text Box]	First Way: [Insert > Text > Text Box > Draw Text Box]
		6b		Second Way: [Text Box Tools > Format > Text > Draw Text Box]
		13a	[Table > Draw Table]	[Home > Paragraph > Borders > Draw Table]
		13b		[Insert > Tables > Table > Draw Table]
7	Some commands need to be set up before use.	9a	[Format > Frames > New Frames Page]	[Office button > Word Options > Customize > All Commands > New Frames Page]
		9b	[Edit > Clear > Contents]	[Office button > Word Options > Customize > All Commands > Contents]
8	Certain group functions have been removed.	11a	[Tools > Online Collaboration > Meet Now]	Removed from Word 2007
		11b	[Tools > Letters and Mailings > Letter Wizard]	Removed from Word 2007

Table 2. Eight Types of Violations Against Design Heuristics

[1] Push, hold, drag, and release left mouse button to define size of table.

Type	*Word 2003*	*Word 2007*	*Type of Potential Usability Problem*
1	File | New | Blank document	Office Button | New | Create button	Change in location
2	Insert | Symbol | β | Insert button | Close button	Insert | Symbol | β	Change in visual search direction
3	View menu located at the third left	View tab located at the seventh left	Change of top menu's position
4	Standard Toolbar (Insert Table) | <Col x Row> Table	Insert | Table | <Col x Row> Table	Cannot locate corresponding toolbars
5	Insert | Field | CreateDate | <Date> | OK button	Insert | Quick Parts | Field | CreateDate | <Date> | OK button	Same top menu, same terminal but different paths
6	Table | Draw Table | <Table>[1]	First Way: Insert | Table | Draw Table | <Table>[1] Second Way:	Multiple ways for doing the same task in Word 2007

		Home | Borders | Draw Table | <Table>[1]	
7	Edit | Clear | Contents	Office Button | Word Options | Customize | All Commands | Contents | Add button | OK button	Some commands need to be set up before use
8	Tools | Letters and Mailings | Letter Wizard | OK button	Removed from product	Some menu-driven commands have been removed

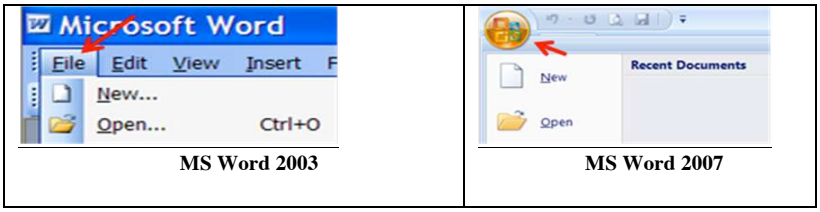

Figure 1. Type 1 Violation

3 Discussion and Conclusion

The study reported in this paper was motivated by two concerns on users and usability research work on interactive systems [7]. Firstly, as evaluation techniques evolve to be more and more complicated and comprehensive, the impression designers/developers have towards usability engineering is often blocked by intimidation barriers such as "difficulty to conduct", "too time-consuming", "tedious" and "expensive". Secondly, there is a lack of practical evaluation techniques that designers can use to design and build more usable systems while meeting the time constraints of the design process.

Using Microsoft Word 2007 as a case in point of committing serious design violations against well-known design heuristics, this paper argues that ignoring common sense design heuristics could lead to detrimental outcomes such as user confusion and usability problems.

Despite much work done on improving software accessibility, usability can still be improved as shown in Word 2007 [1], and is worsened with new technologies and applications. Many argue that it can be too slow and costly for the financial and time constraints of the design process. It is not good enough to design an interactive system without subjecting it to some form of evaluation, because it is impossible to design an optimal user interface in the first try. Even if one has used the best methodology and model in the design of usable interactive system, one still needs to assess the design and test the system to ensure that it behaves as expected and meets end-users' requirements. Nielsen's [5] advice is that designers should simply conduct some form of testing. If designers were to do things well at the start, these types of usability problems could be ameliorated and/or prevented. Otherwise, remedial work after the new interfaces or upgrades have been done could be costly and time-consuming.

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