

The Myth of the Usability Toolbox

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Abstract: The concept of a usability toolbox, filled with ready-made techniques waiting to be applied to domain is a mythology of HCI. Usability Evaluation Methods (UEMs) are developed for specific domains, to be used in a specific cultural setting. Development of UEMs for E-Commerce sites must be treated with the same rigor as those developed for Graphical User Interfaces (GUIs).

Keywords: Usability Evaluation Methods, E-Commerce, Cross-Cultural Design

1 Introduction

Usability evaluation methods (UEMs) are often presented as a suite of tools which fill a practitioner's tool box (Pearrow 2000). The assumption is that a usability practitioner can arrive on the job, and rummage about in their toolbox and find a predefined tool ready to meet to the occasion. In reality, techniques need to be adapted, particularly in assessing the usability of E-Commerce Web sites. This process of adaptation is difficult for two reasons; first it is difficult to adapt a UEM technique developed for one domain to another domain. In other words a technique developed for GUI might not be directly transferable to the Web. Secondly, UEMs are created with a cultural framework in mind. Techniques which work in one country frequently prove problematic in others. In the remainder of this paper, we will give supporting evidence for these claims, and outline their relevance to E-Commerce.

2 Domain Specificity

Numerous UEMs have been developed, and have been subject to much testing and discussion comparing their performance. They tend to compare analytic techniques to each other, or specific analytic techniques to user observation (See Figure 1 for chart showing UEM comparison). Many of these studies have been questioned on grounds of construct, internal, external or statistical validity (Gray and Salzman 1998). Gray & Salzman argue

that mono-method bias, a type of construct validity, prohibits extending the results of these UEM studies beyond the environments they were evaluating. In other words, if the experiment evaluates a UEM with regard to software you can not extend the results to a new domain such as E-Commerce. Only one of these 15 comparison studies addressed E-Commerce (Kantner & Rosenbaum 1997). Scapin and Berns (1997), in their review of UEMs, question the applicability of current methods to "new technologies." This suggests UEM comparison for E-Commerce is an open research area, and must be given the same rigorous consideration already given to GUI evaluation.

3 International Testing

The very nature of the Web permits easy access to E-Commerce sites from across the globe, but designing to meet the needs of a global prospective client base is a different matter. A technique that works well in one country can not necessarily be applied in other cultural settings. Think Aloud protocols for instance, work well in cultures where individuals are comfortable voicing personal opinions; however they do not work in societies where opinions are kept to oneself. Curriculum Focused Design is an example of adapting a technique to work outside its country of origin (Rode, et al. 2003). This was an attempt to adapt Druin's Cooperative Inquiry to work in British schools. Our experience with CFD suggests that applying UEMs outside their countries of origin will be particularly problematic for E-commerce, because

		Bear et al 97	Connel & Hammond 99	Cuomo & Bowen 92/4	Desurville et al. 92	Doubleday et al 97	Dutt & Johnson 94	Jefferies et al 91	John & Marks 97	John & Mashyna 97	Kantner & Rosenbaum 97	Karat et al. 92	Lavery et al 97	Nielsen & Phillips 93	Sears 97	Virzi et al. 93
Analytic	UI Specs								X							
	Guidelines/ Principles		x	x				x								
	HE		x	x	x	x	x	x	X		x		x	x	x	x
	Heuristic Walkthrough														x	
	CW	x		x	x		x	x	X	x					x	
	Indiv. Walkthrough											x				
	Team Walkthrough											x				
	GOMS								X					x		
	Claims Analysis								X							
	UAN								X							
Task Analysis												x				
Empirical	User Testing					x		x		x	x	x	x	x		x
	Think Alouds	x														x
	Ethnography, CI, QUIS															

Figure 1. Experimental Comparison of UEMs grouped as empirical or analytic techniques.

E-commerce centers on social institutions, like banking, pharmaceuticals and education which are subject to significant cultural variation. Finally, the length and nature of the Total Customer Experience varies significantly based on cultural factors. In Japan many manufacturers have continued relationship with customers significantly past the time of purchase, whereas in many US companies the customer relationship closes on delivery of functional goods.

UEMs vary in their applicability to a foreign market; some will be wholly inappropriate, and some require extensive modifications. A technique which may be appropriate to evaluate a company's product in one country market may not hold to other countries' markets.

4 Conclusion

If we wish to continue using the metaphor of the usability toolbox, we must realize it doesn't contain ready to use screwdrivers or hammers, it contains wrenches (spanners) of the adjustable, imperial and metric variety. Tools must be selected based on the culture in which they are to be used, and will need to be adjusted to the particular task domain before use. E-commerce represents a relatively new arena for

usability testing, and much of the foundation work of UEM technique comparison with respect to E-commerce still needs to be done.

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