Developing the Product Your Customer Really Wants: The Value of an Agile Partnership

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ABSTRACT
The art of creating software has changed dramatically over the last twenty years, particularly as organizations move from a Waterfall to an Agile development methodology. This study explores the benefits to customers of moving away from traditional Waterfall usability approaches to an integrated development model incorporating elements of Agile, user-centered development, and extended stakeholder feedback from customer councils. Thirty-four customers, seven business partners, and four internal customers participated in a multi-year project where participants were given the option to share product requirements during the early phases of the project, actively engage in monthly project design feedback sessions, or both. Results show that active participation by the customer yields more of their requirements into the final project, especially the high priority requirements. The results suggest that an iterative approach, that is both self-directing and self-correcting, can help teams develop products that are beneficial for both the product and customer.

KEYWORDS
Agile, Software Development, Usability, UX, Waterfall

INTRODUCTION
In 2011, Interactions featured an article by John Zimmerman arguing that we have actually taken a step backward. He states that “It is time to cast off the mantle of UCD before it makes us irrelevant.” (Zimmerman, 2011, p. 11) He proposes that we move to what he refers to as client-centered design where the focus is on how usability can move forward the value of the client’s products and services to the end user. For most organizations, the shift from user-centered development (UCD) to client-centered design has come in the form of Agile development.

Gartner research predicted that 80% of software development projects will be executed using an Agile development process by the end of 2012 (Murphy et al., 2010). Furthermore, research by the Project Management Institute (PMI) supported the prediction when they found that the use of Agile methodologies has tripled from December of 2008 to May of 2011(3). A study performed by Ambler and Associates (2014) determined that about 89% are using at least some Agile methods. This move away from Waterfall development is not surprising given that Waterfall was first used for defense applications in an era where hardware and static requirements dominated (e.g., see Benington, 1956 for first-known application of Waterfall).

Agile evolved as new IT requirements needed to become more fluid, rapid, and customer-driven (Ashmore and Runyan, 2014). The move toward Agile development has also elicited increased...
research in the area of Agile development with the focus on what it means to be Agile. While there are studies comparing Waterfall and Agile teams (e.g. Ashmore, 2012, Ji and Sedano, 2011), no studies have compared Waterfall-developed and Agile-developed products in terms of quantity and value of customer requirements using regular stakeholder feedback sessions.

CONCEPTUAL BACKGROUND

Waterfall Development

The Waterfall model advocates sequential phases of development with each stage completing before the next begins with a focus on structure. For example, all software designs are completed before the coding phase begins. Despite the popularity of Waterfall development, it has often been criticized in the field for being process heavy and unresponsive to the inevitable changes that arise during software development projects (McConnell, 2004).

The emphasis of usability in design evolved in an era when formal project management methodologies were also evolving and product development methodologies were firmly rooted in the traditional Waterfall approach (Mayhew, 1999). Jakob Nielsen (2012, p. 1) defines usability as “a quality attribute that assesses how easy user interfaces are to use. The word ‘usability’ also refers to methods for improving ease-of-use during the design process.” The usability professional was primarily involved in the early phases of the project while the conceptual framework, design specifications, and prototypes were being developed (Kaulio, 1998). The Waterfall process discourages changes in project requirements once the key stakeholders have approved the content. However, in market-driven applications, these requirements change continuously requiring extensive change management with the goal of securing more customers and exceeding the expectations of current customers. (Dasgupta and Vankayala, 2007).

During the early conceptual phase when content is still under debate, the usability professional may hold focus groups, administer surveys, and review feedback from previous releases of the product if it was not new to the market under scrutiny. The goal of this work was to get a better understanding of enhancements that would benefit the user experience most significantly. Once user requirements were decided and the product’s content was approved, the usability professional would begin their usability plan that included initial designs of the user interface or product specification for review by the development team. After review and approval of the usability plan, the usability professional may start working on prototypes that could be used for the usability study held with target users (Holzinger, 2005), although this step is often omitted. Feedback would then be analyzed, and changes that could be contained within the project budget and schedule would be made, while the rest of the feedback would be evaluated for future releases or discarded because it was divergent from the strategy for the product. Given these challenges, usability professionals were often required to justify the added expense of usability testing for the product (Karat, 1990, Karat, 1994). For suggestions not able to make it into the current iteration of the product, there could be a significant delay before they were eligible for inclusion. It is not surprising that this was frustrating for both users and usability professionals alike (Anderson et al., 2001, Cockburn and Williams, 2003).

Agile Software Development

At the turn of the century the world of technology became increasingly inundated with requests for new features (see Kessler and Bierly, 2002 for an empirical analysis of the effects of the increased speed of innovation). This was particularly true for Web site development because society was becoming more dependent on Internet conveniences such as electronic mail, e-commerce, and real-time news updates. Product development teams needed a new way to respond quickly to these demands to stay competitive in the changing market. The solution came in the form of iterative development.

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