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The challenges of integrating human factors in design

Dan Jenkins

When human factors specialists are asked why they work in their field, the answer often involves a desire to improve people's lives by shaping the products that surround them. It's a simple objective that can prove to be frustratingly difficult to achieve. Often the problem with a product can be glaringly obvious but human factors specialists are not involved at the right time. They are drowned out by other priorities or are unable to come up with viable ways of improving the product.

At the risk of oversimplifying things, there are three challenges to overcome before such an impact can be made irrespective of the industry. These are gaining a place on the design team, having influence in the design team, and having an understanding of how to improve the product or system.

A place on the team

In some industries a place for human factors specialists on the design team is guaranteed often by legal, or sometimes contractual, requirements. Even in non-regulated industries, clients and stakeholders now come with preconceived views of what human factors specialists do. Most people involved in the product design cycle have an understanding that user experience and usability are important and can help improve safety and efficiency and ultimately improve sales. However, the direct value to the project is, typically, less clear, particularly in relation to the associated costs.

Influence in the design team

While a mandated position of the project team addresses the first challenge, it can have a detrimental impact on the ability of the human factors specialist's ability to influence the team. There is the very real risk that human factors integration becomes a tick-box exercise.

Even in established teams there is a commonly held perception that the role of human factors specialists is to supplement a design team by

providing advice. In this perceived view there are clear points in the design process where the human factors specialist needs to be consulted. The specialists support the development of a product specification by providing key information, such as acceptable pushing or turning forces, and optimal handle heights and sizes, typically relying on standards and key texts. In the later stages of the design process the human factors specialist is called upon once more to assess the compliance of a concept, or range of concepts, against this specification. This assessment often involves testing the push forces required, compliance against usability checklists or acceptance testing with end users.

We can move from the rhetoric of evangelising the philosophy of user-centred design to letting the evidence sell the value of human factors.

Indeed, many international standards and guidelines provide graphical examples of a classic design cycle that is annotated to show what information is required from human factors specialists, at which stages of the project they should perform evaluations, and the kind of documentation that should be created. Somewhat reassuringly, for many who work as practitioners in design consultancies or in-house design teams, this disjointed, inflexible way of working will seem unfamiliar. However, the perception often prevails. As a result, the message needed has changed from one of evangelising the importance of considering human factors (gaining a place on the team) to one of explaining, or more importantly demonstrating, its value (gaining influence).

ABOUT THE AUTHOR

Dr Dan Jenkins is Research Lead at DCA Design International. Dan will be expanding on this article in his presentation at the Ergonomics & Human Factors 2014 conference in April.

Understanding how to improve the system

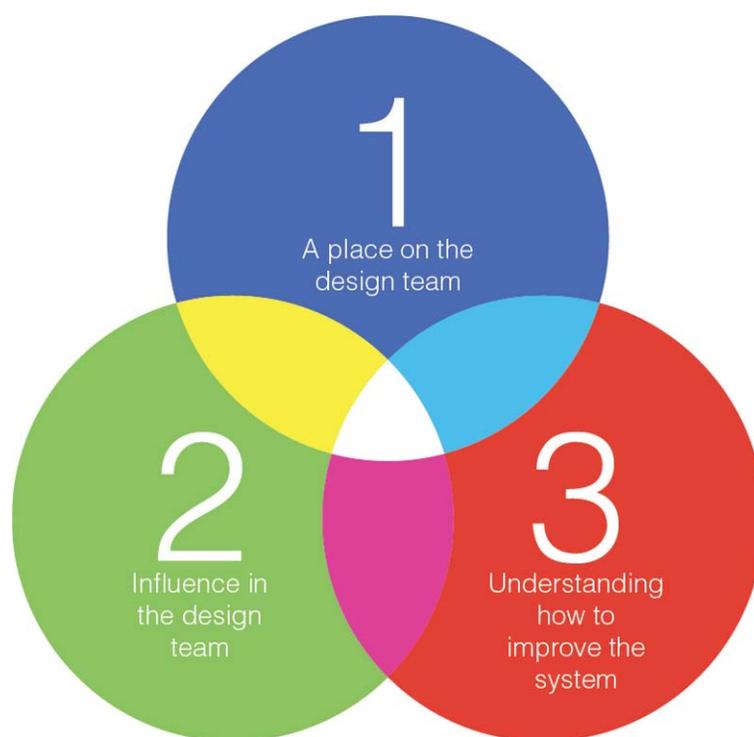
When considered in the context of the previous two challenges, understanding how to improve the system is often the relatively easy step. Fortuitously, human factors specialists come armed with a suite of suitable tools for observing and analysing systems and identifying how they can be improved.

Through an evidence-based approach to design, based on quantifying change, we can move from the rhetoric of evangelising the philosophy of user-centred design to letting the evidence sell the value of the proposed change and, in turn, the value of human factors.

It is expected that different challenges will resonate with different readers. The relevance of these three challenges will change depending on the industry in question and to some extent, the project. In the world of fast moving consumer goods and products, where human factors involvement is not mandated, the value of human factors involvement is paramount. As a result, efficient approaches must be adopted that identify improvements and communicate their impact.

By understanding how to improve products or systems, human factors specialists can feed in to the early stages of the design process, influencing the design team and earning a place on the team. In these environments efficiency of the adopted approach trumps thoroughness.

Where human factors involvement is mandated, typically in high-risk industries, the focus moves to gaining influence as there is the very real risk that, despite the extensive reports and documentation, the work conducted may have a limited impact on the design. This challenge



of influencing the team is often made all the more difficult if the prescribed tools do not lend themselves to identifying ways of improving the system. As such, additional, more appropriate tools may assist in creating a compelling case for change.

Ultimately though, if human factors specialists are to achieve their overall goal of having a positive impact on product performance through design, all three challenges apply regardless of the industry. Specialists not only need a seat at the decision-making table but also need influence and a clear strategy for identifying how to improve the product. ❖

FURTHER INFORMATION

Nielsen, J, & Molich, R (1990). Heuristic evaluation of user interfaces. Proceedings of ACM CHI'90, pp249-256.

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