Design Frameworks

John Knight
University of Central England, UK

Marie Jefsioutine
University of Central England, UK

INTRODUCTION

Design frameworks are a phenomena appearing in the field of new media (e.g., Brook & Oliver, 2003; Fiore, 2003; Dix, Rodden, Davies, Trevor, Friday, & Palfreyman, 2000; Taylor, Sumner, & Law, 1997). They appear to be a response to the multi-disciplinary nature of the field and have a number of things in common. They are usually developed in response to a perceived lack of common understanding or shared reference. Frameworks often advocate a set of principles, a particular ethos, or expound a philosophical position, within which a collection of methods, approaches, tools, or patterns are framed. They aim to support design analysis, decision-making and guide activity, and provide a common vocabulary for multi-disciplinary teams. In contrast to some design methods and models, they tend to be broad and encompass a wider area of application. Rather than prescribe a single "correct" way of doing something, they provide a guiding structure that can be used flexibly to support a range of activity. This article describes one design framework, the experience design framework (Jefsioutine & Knight, 2004) to illustrate the concept.

BACKGROUND

The experience design framework (EDF) illustrates a number of the features of design frameworks identified previously. It was developed in response to the low take-up of user-centred design observed by the authors and identified in the literature (e.g., Landauer, 1996; Nielsen, 1994). For example, Säde (2000, p. 21) points out that some of the large-scale user-centred design (UCD) methods "do not suit the varied and fast paced consulting projects of a design

firm." Nielsen suggests that one of the key reasons why usability engineering is not used in practice is the perceived cost. He argues that a "discount usability engineering" approach can be highly effective and describes a set of "simpler usability methods" (Nielsen, 1994, pp. 246-247). Eason and Harker (1988) found that, as well as perceived cost and duration, user-centred methods were not used because designers felt that useful information was either not available when needed or was not relevant and that methods did not fit in with their design philosophy.

The authors thus set about identifying a set of user-centred methods that would be cost effective, flexible enough to apply to any design life cycle and, most importantly, would be useful and relevant to the needs of the designer. Through a combination of literature reviews and application to practice, the authors identified different aspects of designing a user experience and the way in which these aspects can be drawn together to focus design research and practice. The EDF is thus based on the principles of user-centred design and represents a way of using a range of methods to achieve a set of qualities that work at all dimensions of experience.

USER-CENTRED DESIGN PRINCIPLES (UCD)

Human-centred design processes for interactive systems identifies the following characteristics of a user-centred design process: "The active involvement of users and a clear understanding of user and task requirements; An appropriate allocation of function between users and technology; The iteration of design solutions; Multidisciplinary design" (International Organization for Standardization, ISO/IEC

13407, 1999). Additionally, Gould and Lewis (1985) emphasise the importance of early and continual user testing and integrating all aspects of usability.

These principles of UCD set out a clear approach around which to plan a design life cycle, but they focus very much on design for usability. The EDF proposes that the same principles be applied to other qualities of design.

Qualities, Dimensions and Effectors of an Experience

It was felt that one of the reasons UCD methods were seen as irrelevant and limited was that the traditional focus on usability does not capture other aspects of the user-experience. The EDF identifies a broader set of qualities that address the less tangible aspects of an experience, such as pleasure and engagement. It then identifies the different dimensions of experiencing, visceral, behavioural, reflective, and social (from Jordan, 2000; Norman, 2003) that need to be addressed to design a holistic user experience. It identifies a number of aspects that have an effect on an experience, such as who, why, what, where, when, and how, that help to guide research, design, and evaluation.

METHODS AND TOOLS

Product design, HCI, and human factors research are awash with methods and tools that can be used to support user-centred design. Generally, tools have focused on technological aspects of design, either in terms of making coding easier or automating aspects of design. Where tools have related to usability, this has often focused on evaluation. A less developed area is in tools that support the understanding of the user at early stages of design and supporting the entire user-centred design process (some rare examples are HISER, 1994; NIST's WebCAT, 1998).

Jordan (2000) describes a collection of empirical and non-empirical methods suitable for the "new human factors approach" to designing pleasurable products. Rather than prescribing a process or a set of key methods or tools, the EDF suggests that a range of tools and techniques can be employed provided they cover four basic purposes of observing/exploring, participation/empathy, communicat-

ing/modelling, and testing/evaluation. Furthermore, by applying these methods in the context of the EDF, a better understanding of the user experience as a whole can be achieved.

Observation and Exploration

These methods are about finding out and can be drawn from demography, ethnography, market research, psychology, and HCI (e.g., task analysis, field observation, interviews, questionnaires, focus groups, affinity diagramming, laddering, and experience diaries). The EDF indicates the kind of information that should be sought, such as the range of user characteristics including personality, motivations, social affiliations, physical or mental disabilities, and so forth.

Communicating and Modelling

These methods serve to communicate the research data, design requirements, and ideas to a multidisciplinary team who may not have a common vocabulary (e.g., user profiles and personas, use cases or task scenarios, scenario-based design, mood boards, written briefs and specifications, storyboarding, and prototypes). Again, the EDF helps to focus the information that is communicated on issues pertinent to the whole user experience.

Participation and Empathy

These methods represent an approach aimed at gaining a deeper understanding and empathy for users, socio-political and quality of life issues (e.g., immersive methods such ethnographic participant-observation and the "eat your own dog food" approach). Other methods such as participatory design advocate designing *with* users rather than *for* them (see Schuler & Namioka, 1993).

Testing and Evaluating

Gould and Lewis (1985) recommend iterative design based on empirical testing (e.g., usability testing through controlled observation and measurement). The EDF broadens the test and evaluative criteria from the traditional focus on cognitive and behavioural measures, like the time taken to complete a task or

Related Content

Virtual Learning Environments for Culture and Intercultural Competence

Amy Oganand H. Chad Lane (2011). *Handbook of Research on Culturally-Aware Information Technology: Perspectives and Models (pp. 501-519).*

www.irma-international.org/chapter/virtual-learning-environments-culture-intercultural/45057

Informal Education of Energy Conservation: Theory, Promotion, and Policy Implication

Wang-Kun Chen, Yih-Ruey Juang, Sheng-Hua Changand Ping Wang (2012). *International Journal of Technology and Human Interaction (pp. 16-44).*

www.irma-international.org/article/informal-education-energy-conservation/70760

The Perceived Hazard of Sound Scheme and Desktop Theme Auditory Elements: Experimental Results and Implications for Adaptable User-Interface Design

T. S. Amerand Todd L. Johnson (2021). *International Journal of Technology and Human Interaction (pp. 59-74).*

www.irma-international.org/article/the-perceived-hazard-of-sound-scheme-and-desktop-theme-auditory-elements/266423

Critical Analysis of Expansion Strategies of SAP, IBM, Oracle and Microsoft in the area of Business Intelligence

N. P. Singhand Mohammad Jaffer Nayeem M (2013). *Strategic Adoption of Technological Innovations (pp. 104-125).*

www.irma-international.org/chapter/critical-analysis-expansion-strategies-sap/74258

Can Cognitive Style Predict Adoption of an Emerging Technology?: A Study of Cognitive Style and Its Influence on the Perception of a New Technology

Ho-Chang Chae, Chang E. Kohand Minjun Jeon (2020). *International Journal of Technology and Human Interaction (pp. 18-35).*

www.irma-international.org/article/can-cognitive-style-predict-adoption-of-an-emerging-technology/239529