

Investigating design thinking of a complex multidisciplinary design team in a new media context: Introduction



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The 21st Century design context demands a dynamically networked team of multidisciplinary consultants who work both individually and as a part of a diverse team. Communication and collaboration across team members is hence not only important but inevitable. In this new environment design is practiced in a new media context that demands meaningful convergences between digital tools, underlying processes, and user behaviors. In the past few decades, studies on creative design process, have focused primarily on individual design situations striving to capture detailed protocols. In more recent studies, team design processes have gained greater attention. However, most of these studies are limited to a homogeneous group of team members involving members within individual disciplines. This Special Section of Design Studies on *Investigating Design Thinking of a Complex Multidisciplinary Design Team in a New Media Context* presents a set of papers that provide a variety of insights into design thinking, creative behaviors and problem framing among a multidisciplinary design team in a new media context. It is a culmination of a five-year investigation involving researchers, industry partners, students and international experts on design research.

Most design studies projects are characterized by a project of limited scope, constrained to limited time involving a maximum of three or four team members. These constraints are often a function of limitations for data capture and the laborious nature of data analysis. Advances in technology for data acquisition, organization and analysis as well as the diversity of research skills represented within our team encouraged us to attempt more ambitious data capture with a larger design team. The uniqueness of these set of papers is that they involve a multi-level analysis of the creative design process in a relatively large dataset (almost 20 h of data). The data from the project meets all the characteristics of big data – high volume (the amount of data), high variety (the kind of data available) and high velocity (the pace at which data was generated and captured). While most design processes have focused on analyzing static data (capturing protocols in a specific time and person), this project provides opportunities to analyze dynamic data. By dynamic data we mean, the macro-level and micro-level interaction among team members.

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The project started in 2012, when a team of multidisciplinary faculty at the University of Missouri sought to investigate the impact of new media on the creative process. New media is defined as a multi-modal environment involving technology, software and interfaces working in confluence with traditional analog ways of doing. Creative process is defined as the act of doing novel products in an increasingly multidisciplinary and collaborative design context. During these deliberations, a leading greeting card company expressed interest in involving students to provide fresh vision to their industry which became a worthwhile problem definition for investigation of creativity and new media. The mission was to design a 21st century birthday celebration that goes beyond the old greeting card model of 'send a card' and a solution that responds to the new digital age user. The problem brief was *'to create innovative new concepts from existing archival resources of a greeting card company for products and/or services in new or unique formats (i.e. 3-D and/or emerging media) that enhance the way people under 30 years of age relate to one another to celebrate birthdays and create stronger connections.'*

Potential student participants were screened for diversity in expertise (e.g. graphic design, web design etc.), disciplinary affiliations (journalism, art, psychology etc.), and knowledge levels (e.g. freshman, juniors, and graduates). The project was conducted for four full days in a co-located university lab consisting of desktop and mobile workstations, a variety of graphic software and interfaces (tablet, electronic whiteboard). Day 1 was spent in visiting the greeting card company getting oriented to the brand strategy and design goals. Days 2, 3, 4 were utilized to create the product and Day 5 involved a pitch to the greeting card company. The final product involved a 3D interactive environment and greeting delivery system that interfaced with social media.

The project was extensively documented with three video cameras, screen captures of all interfaces, concurrent behavioral coding, nightly journal diary entries, and several personality survey instruments (motivation and flow, use of multiple intelligences, user analysis and collaborative abilities) (Figure 1). The video cameras were organized to run up to 40 min sessions with a short 10 min break between two consecutive sessions. At an average about seven sessions were conducted each day. Three coders tracked the design process, communication and media use during the project sessions to identify a quick first impression of the process as it unfolded. Coding categories and definitions were adopted from previously published research in design collaboration (Gabriel & Maher, 2002), design episodes (Lawson, 2004), word density and voice tone (Lloyd, Lawson, & Scott, 1995), design activity (Gao & Kvan, 2004), design strategy (Fricke, 1993) and concept synthesis (Nagai & Taura, 2006). We also tracked media use by each team member. Specific design artifacts were archived and later destroyed for proprietary reasons.

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