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Feedback Crowdsourcing in Graphic Design: A value-added intervention

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Critique in design education

Critiques have long been a dominant feature in art and design education. As part of a structured studio-based learning method within the 'signature pedagogy' (Shulman 2005), critiques provide students an avenue to uncover gaps between their communication intention and the audience's interpretation (Elkins 2012), articulate their design goals and underlying rationales (Feldman 1994), receive progressive feedback (Cennamo et al. 2012) and learn as part of their course assessment. Students also learn rudimentary skills such as gathering, synthesising and processing essential comments of a critique, and subsequently incorporating the comments in their revised designs. More importantly, students must learn to be receptive to criticisms of others and respond to criticisms with dispassionate qualities in order to improve their design works. As a learning process, Hokanson (2012) acknowledges that a critique is intrinsically challenging to students.

Critiques as a pre-professional communication activity that promotes verbal interaction in design education (Dannels 2011) prepare students for professional contexts whereby design practitioners need to present, defend and justify their design works to clients (Oak 2000). Educating students about the design process via critiques can be restrictive because students typically do not have direct and authentic interaction with the actual users. Notwithstanding that many design curricula have incorporated a capstone or multidisciplinary element in their project-based studio programmes as a springboard to inculcate authentic interaction with the real world, students generally only receive selective feedback from a small circle of reviewers involving their instructors, collegiate peers or pre-determined real users. Since the industry entrusts higher education design programmes to equip students with different skills for design and innovation careers, there exists a need to prepare students with skills to attune to genuine opinions and authentic marketplace voices.

The highly diversified and fragmented audience today exemplify a rising challenge for graphic design, where designed communication demands customisation.

Frascara (2004) underlines the importance of customisation in graphic design, and further asserts that each year, graphic designers worldwide seek to engage both general and targeted audience through their 'understandable, usable, interesting and if possible pleasing' (Frascara 2004, p. 54) design creations. Therefore, it is imperative that graphic design students be trained to engage with authentic audience rather than perceived personas as an imaginary audience.

Design critique across digital domain

Studies adopting technology in design critiques (McCormack & Taylor 2006; Taylor & McCormack 2008) discussed the potential and opportunities of extending traditional studio critiques into the digital realm. These early researches in design critiques openly argued the ineffective studio critiques in supporting design students' learning. As a result, audio-recorded online critique feedback was introduced. This was the time before Jeff Howe's proverbial concept of crowdsourcing (a portmanteau of online *crowd* and *outsourcing*) became popular. Crowdsourcing, an internet-based collaborative practice is used for a wide range of activities, including problem-resolution, business innovation (Estellés-Arolas & González-Ladrón-de-Guevara 2012) or vote-casting on an assigned task or question in an open call manner.

The tenets of crowdsourcing, when applied in design process can be provocative and illuminating, as student participation extends beyond the institutionalised social space of a studio classroom into the digital realm. Throughout the design process, crowdsourcing can potentially be applied at different stages of a design process, from brainstorming and idea-generation to prototyping, but this paper is only centred on critiquing of students' design creations.

In recent years, researchers have been exploring the potential of the online crowd to leverage its scale, diversity and speed to gather feedback (Dow et al. 2013; Luther et al 2014; Xu et al. 2015). The contemporary Web serves as a reservoir of multi-functional social networking platforms where designers can share their design ideas and receive feedback from online crowds. Among the most salient works of crowdsourced feedback applications are Xu et al.'s *Voyant* (2015) and Luther et al.'s *CrowdCrit* (2015). Both *Voyant* and *CrowdCrit* are feedback systems that engage the online crowd as a simulated audience to share their interpretations of a posted visual design. These systems offer a new alternative approach to help designers iterate and gather feedback on their emergent designs. However, the focus of these feedback

crowdsourcing systems is on developing a niche software, aimed to generate structured visual design feedback from a non-expert crowd.

This paper focuses on exploring online critiques from an academic perspective as a complementary learning method in graphic design education. Based on Schon's theoretical concept of reflection-in-action, I propose a model of *reflection-in-crowdsourcing* to illustrate the integration of online crowd feedback in a student's learning process. Crowdsourcing activities engage students in a social negotiation necessitated by taking into consideration what others view and interpret their design creations. Such engagement incorporates essentials of reflexivity into students' developing practice as designers. In doing so, students are placed in a situation that Schon, in his book *The Reflective Practitioner*, describes as one of 'uncertainty, instability, uniqueness, and value conflict' (Schon 1983, p.50). Through integration of actual critiquing voices in students' works, the design process becomes a more challenging enterprise. Students can no longer rely solely on their growing grasp of the normative curriculum Schon refers to as 'technical rationality' (1983, p.30) but will have to confront the diversity of authentic opinions in an ideally dispassionate way.

Reflection in design practice

To date, Schon's (1985) works on design critiquing remain significant. In *The Design Studio*, he describes how design knowledge is conveyed and what a studio teacher does in a one-to-one critique (known as desk crit) using the concept of repertoire.

In work, practitioners rely on their repertoire of experience, together with certain resourcefulness gained during their practice, rather than solely on knowledge-bound curricula learned throughout their design education. Schon defines the repertoire as:

The practitioner has built up a repertoire of ideas, examples, situations, and actions. [...] A practitioner's repertoire includes the whole of his experience insofar as it is accessible to him [her] for understanding and action". To a design practitioner, a design problem can be analysed from various angles such as learned knowledge and skills, input from peers and audience, tools, and resources (Schon, p. 138).

According to Schon (1983), the design process is a conversation with materials, in which the design practitioner attempts to build a connection between his cognition and discoveries, and ultimately learn from the present situation. These activities are

referred as *reflection-in-action*, an activity that the practitioner consciously or subconsciously engages in. Practitioners do not have all the answers. *Reflection-in-action* serves as a tool for practitioners to engage with complex situations and construct new answers, consequently providing them an opportunity to be effectively engaged in new complex situations (Schon 1983, p. 20). The work produced can be described as outcome of an engaged negotiation with the challenging complexities in a situation. Schon's other reflective practice known as *reflection-on-action* is termed as a post-design cognitive process that cultivates an experiential re-thinking about design processes and activities undertaken by the practitioner.

Developed with Schon's concept of repertoire, this paper proposes crowdsourcing activities as a guided new set of 'repertoire' for contemporary graphic design students. The objective of providing a guide or scaffolding to students is to progressively expose them to a new skillset that encompasses online crowd engagement as part of their design process. Most design curricula are taught "by doing". Students therefore can learn from the immersive quality of crowdsourcing, leading to consummate autonomous learning in making choices and decisions that inform their designs from the general public in a digital environment.

Schon's association of the notion of repertoire with the theory of reflection brings into the central understanding of the way professionals work. Repertoire is imperative in problem-solving, which means, a practising designer builds an initial mental scaffolding to the repertoire as a starting point, subsequently selecting, discarding and restocking it, and periodically keeping the repertoire updated. There is a need for explicit and systematic management of knowledge and skills and this can be taught to students in a pre-professional context such as crowdsourcing.

Reflection-in-Crowdsourcing

The notion of repertoire befits the practice of crowdsourcing feedback as a reflective learning method. Crowdsourcing encompasses several central activities that lead to a set of reflective skills for graphic design students. By undertaking different crowd activities, reflection-in-action surfaces.

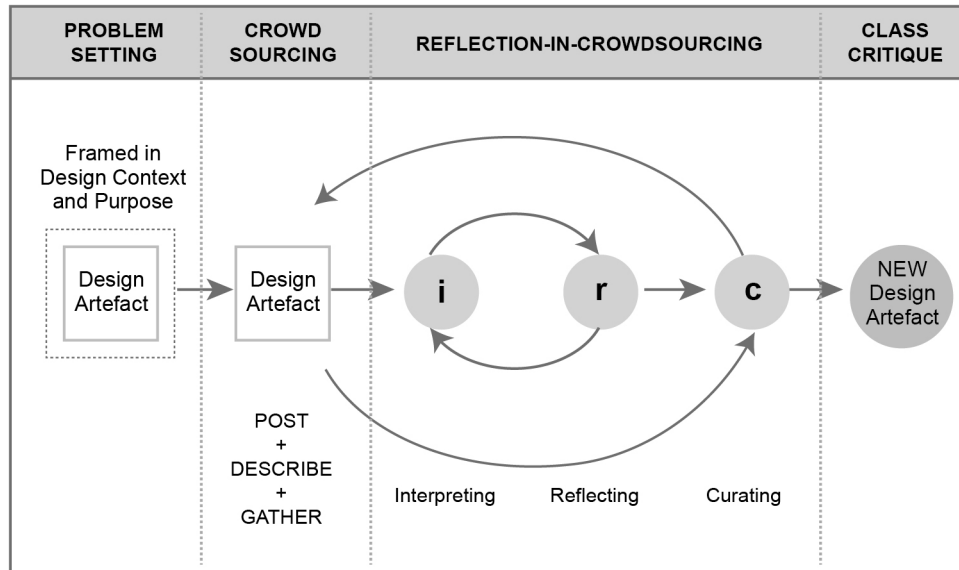


Figure 1: 'Reflection-in-Crowdsourcing' conceptual framework

Figure 1 illustrates a graphic design student's ideation process with the integration of crowdsourcing. Designed communication demands customisation. Customisation starts with framing of a design problem into a purposeful context, which generally is presented as a design brief. A design artefact is posted and an iterative process of interpreting, reflecting and curating follows until the final design artefact emerges. During this process, desk and group critiques concurrently take place in the studio classroom. In a crowdsourcing process, students can potentially be guided to take the initiative to post their works in an online community/forum to collect feedback. Subsequently, students learn to understand, interpret, make connections and understand the implicit and explicit meanings of the feedback. Unlike a face-to-face critique, students have to make independent decisions based on their judgments and interpretations. As new interpretations emerge, students initiate reflective thinking in the process of gathering and giving meaning to the feedback. When these actions involve collecting and organising crowd feedback amidst curatorial processes, 'Reflection-in-Crowdsourcing' takes place. Collecting and organising feedback through iterative reflection and interpretation is how Schon in *The Reflective Practitioner* (1983) (1985) addresses the importance of reflection and interpretation as major cognitive components in divergent thinking.

In reflection-in-action, doing and thinking are complementary. Doing extends thinking in the tests, moves, and probes of experimental action, and reflection

feeds on doing and its results. Each feeds the other, and each sets boundaries for the other". (Schön 1983, p. 280)

Students who attempt to amass feedback for an unfinished artefact from an online crowd open up the innovation opportunities to a wider array of possibilities, insights and ideas. When students are engaged in reflection, they can focus on the importance of interaction and deliberate on the pool of gathered ideas. Within the pool of raw crowd feedback, a new model of integrated ideas is formed and finally, interpretations are derived. Besides engaging with materials (Schon 1985), students also can learn reflection through doing. Schon's famous concept "reflection-in-action" articulately describes the progressive process.

Comment messages gathered from an online crowd can play an important role in how represented ideas are interpreted. Subjective interpretations can be ambiguous, which can aid creative design (Gaver et al 2003). Crowdsourcing engenders multiple interpretations that can change and evolve through curation of the myriad interpretations. Crowdsourcing is an explorative design learning method. Students perceive and build connections among ideas by composing information derived through comparison of contextual qualities, visual relevance and relationships in the interpretations.

In crowdsourcing feedback, students are involved beyond just doing and thinking. There are choices to be made, decisions to be justified, incorporation of varying feedback that are highly subjective. As students continuously progress through the ideation process, they have to curate the feedback based on their designerly judgment and interpretation to make the feedback meaningful to their design refinement. Thus, reflection-in-action illuminates the conceptual, experiential aspects of crowdsourcing and supports its role in design learning.

Presentation of design artefacts in class critiques can be enriched by integration of crowdsourced feedback. Students bring with them authentic input from crowdsourcing, thus, adding value into their artefacts for discussion with instructors and peers.

The central role of reflection-in-crowdsourcing in student-centred learning

Crowdsourcing leads to reflective conversation with a design situation, materials and real audience and critique that students have to manage without the presence of the

instructor, unlike Schon's example of a master and apprentice sharing conversations that act as a designerly conversation to facilitate understanding and progress. Situated within a process of self-regulated learning mode, crowdsourcing activities train students to cultivate skills to be autonomous designers in a pre-professional learning environment.

Conclusion

The Reflection-in-Crowdsourcing conceptual framework described in this paper promotes a new reflective learning approach in graphic design process that leverages ubiquity of social network technology to support students' learning outcome. Further research is required to systematically collect and examine students' understanding, best practice examples of crowdsourced critique, innovations and affordances of emerging social network technology, and online design communities in leveraging crowd dynamics for adding value to students' learning outcome. As a ground for future research, it is arguable that if reflection is purposively woven throughout a semester of design curriculum, and crowdsourcing tasks that are implicitly integrated in the learning environment encourage students' reflective response (Tummons 2011), then crowdsourcing feedback in graphic design learning is conceivably successful.

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