
Fostering Feedback Seeking Behavior in Novice Designers

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Abstract

Feedback is a staple of the design process, but little is known about why designers delay or refuse feedback collection. To fill this knowledge gap, my dissertation identifies triggers and deterrents to feedback seeking behaviors. Based on our findings, I propose and test two interventions to promote feedback seeking behavior: 1) helping designers plan when they seek feedback to increase commitment and 2) generating feedback templates based on design stage to reduce the effort of feedback seeking. We envision a future where creativity support and educational tools use our interventions to encourage designers to seek feedback earlier, more frequently, learn faster, and eventually create better designs.

Introduction

Getting feedback early and often in the design process is essential because it helps designers to learn and gain insight into the design problem. While research shows that some feedback seekers are intrinsically motivated to get feedback to improve themselves [1], this may not always be the case. Feedback seekers, in regard to general job performance in organizations, generally engage in feedback seeking behavior (FSB) when the perceived benefit of the feedback outweighs the effort needed to get it rather than when feedback would be most helpful [1]. Novice designers may also be

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Prior Prototype



Current Prototype



Figure 1: In the context shown condition, our platform displays the prototype(s) from the prior design stage (top image), the peer feedback received on that prototype, and the designer's response to that feedback. Students in this condition can review the context when writing feedback for the current prototype (bottom image). For the context not-shown condition, only the current stage of the prototype (bottom image) was shown.

deterred from seeking feedback when it is most helpful to them because of receiving harsh or low quality feedback [7,19] among other factors.

Many tools have been developed to help designers gather high quality feedback [2,3,5,12–14], reduce the impartial nature of online peer feedback exchange [11], and to help designers manage and reflect on the feedback that they receive [2,17,18]. Many of these tools assume that designers are already at a stage of the design process where feedback will be beneficial to them (typically at a milestone where the designer has a completed solution). However, feedback may be more useful at earlier time points in the design process. In my dissertation, I investigate FSB by designers and how the movement of feedback seeking processes to online platforms influences FSB. I then propose and test features to encourage FSB in novice designers.

Preliminary Work: Increasing Engagement with Feedback through Mentorship and Providing Context

In my preliminary work, I explored features to increase engagement in online feedback exchange by both feedback providers and designers. Online platforms can be impartial in nature [8] and may reduce the social connections typically formed in face-to-face interactions. We proposed and empirically tested two features inspired by Social Bond Theory [4] (peer mentorship and providing the context of a project's progression).

We conducted a 2x2 factorial experiment in a product design course. In the course, 59 students worked in teams (2-3 students) on a term project. Teams submitted prototypes and exchanged feedback at four

stages (concept, low-fi, medium-fi, and high-fi stages). Students in the course served as both designers and feedback providers. Students were assigned either as a peer mentor for one project for the entire term or randomly to different projects at each stage. Students in each assignment strategy condition were further allocated to one of two context conditions: shown vs. not shown (described in Figure 1).

We found that students, as designers, wrote longer responses to feedback provided by mentors. Students who were assigned as mentors reported being more receptive to the feedback they received as designers compared to students who were not mentors. Our results also showed that the feedback exchanged at the late design stages was of higher perceived quality when the context was shown.

Interviews with the participants following the study showed that participants preferred to receive feedback from and provide feedback to trusted feedback providers than unknown individuals. Students would also wait until they had fully thought out their solution before getting feedback. This prompted me to explore designers' feedback seeking processes.

Study 1: Identifying the Triggers and Deterrents of Feedback Seeking Behavior

I ask two questions in the first study. 1) how do designers determine when to seek feedback and 2) why do designers delay seeking feedback on their work. Answers to these questions will help to map out the current feedback seeking process of designers and motivate features to help novice designers seek feedback earlier and more often in their design process.

Triggers of FSB

Number of design alternatives (n = 10)
Level of detail (n = 9)
Confidence in the design (n = 5)
Deadlines (n = 4)
Being mentally stuck (n = 3)
Finishing revisions (n = 7)

Table 1: The six triggers of FSB. We note how many participants mentioned the trigger during the interview using "n=<val>"

Deterrents of FSB

Not enough time to get feedback (n = 5)
Evaluation apprehension (n = 3)
Too much input (n = 2)
Relationship with feedback provider (n = 5)
Feedback quality and relevance (n = 5)
Breaking the workflow (n = 3)

Table 1: The six triggers of FSB. We note how many participants mentioned the deterrent during the interview using "n=<val>"

We conducted semi-structured interviews with designers (n = 12) to answer these questions. The interviews were split into idea units and then grouped into 12 emergent themes. To further quantify the themes derived from the interviews, we conducted a survey (n = 41). In this survey, we also focused on how the themes occur at different design stages.

Of the 12 themes we found from the interviews, six themes were categorized as *triggers* of FSB (Table 1) and six as *deterrents* (Table 2). Designers used the *triggers* to determine if they were at a stage where getting feedback would be useful. Designers faced *deterrents* of FSB when they were at a place where they should seek feedback but were reluctant to do so. Through the survey instrument, we found that some triggers and deterrents were encountered more often in the earlier design stages (such as evaluation apprehension) while others were encountered at later design stages (such as getting too much input).

These results can be related back to prior work conducted in feedback seeking behavior in organizations [1]. I use the results of this study to motivate features in creativity support tools to increase the saliency of triggers of FSB and to minimize the deterrents of FSB. In Study 2, I address the former by using helping designers to create their own deadlines. I address the latter in Study 3 by providing designers tools to lower the cognitive effort to switch between designing and FSB.

Study 2: Helping Feedback Seekers Plan and Commit to FSB

While there are many opportunities to seek feedback, many are not taken advantage of. For example, many

designers may not share unfinished work online for the fear of getting critical feedback [9,16]. However, our results from study 1 showed that some designers created artificial deadlines to motivate themselves to get feedback. Designers created their own deadlines by getting feedback after finishing smaller segments of work or after a certain amount of time among other strategies. Receiving feedback earlier may help designers fix problems early and decrease the probability of receiving feedback that the designer cannot address at late stages of the design process. It may also assuage designers' worries about showing incomplete work to feedback providers.

My ongoing work focuses on how to prompt novice designers to seek feedback earlier and more often. Learners will set goals about their FSB using a planning technique. Planning is often used along with reflection to help learners think about how they can improve the strategies they use during the learning process [10]. I additionally add the component of helping the user track their own design process. The designer can use the tracked information to reflect on their feedback seeking strategy.

I will conduct a between-subjects experiment where users can request feedback at any time during a design session. Participants can request for feedback through an IM-type interface at any point during the design session by dragging and dropping their current design into the tool. A member of the research team will provide feedback to the participant to control for feedback quality. This interface will also help the participant to plan out when they will seek feedback and remind them to seek feedback at those times.

Participants will be asked to plan out when they want to seek feedback by placing markers on a timeline at the beginning of the design session. They will be required to plan to get feedback at least twice during the design session. To help the designer who may not have any idea about when they should seek feedback, we will provide an example showing when an expert might seek feedback. When the participants reach the times at which they stated they would like to seek feedback, they will get a reminder that they had previously planned to seek feedback that that time.

This project will reveal how forethought affects when novice designers decide to seek feedback. The results of this study will also provide insights into what signals that a designer is ready for feedback during their workflow.

Study 3: Reducing the Barriers to FSB by Providing Templates

My future work will focus on integrating FSB more closely with the design process itself. Designers have to decide who to ask for feedback, schedule the feedback meeting, decide what content to show feedback providers, and gather the materials to be presented. This can take time away from working. In this study, I intend to investigate ways to reduce the effort designers put into the creation of the feedback request.

One way to reduce feedback seekers' effort is to autogenerate a template based on the stage of the design and the identity of the feedback provider. If the design is at later stages, it may be useful to incorporate the design process [6,11]. Likewise, if the feedback provider is anyone who sees the project on a regular basis, showing context for the design may not be

necessary. When getting feedback from clients, the template may be simply a choice between the designer's favorite concepts. Another dimension of the template could be the amount of information that is shown to the provider. This could be a signal about how much effort was put into the design.

One underlying issue is if designers remember that templates are available as they are working. To address this, we could leverage reflection-in-action [15] to update the information our system uses as they work on their project. For example, after a certain amount of change to the design, the system could prompt the designer to update the last template they produced. After updating, this information the designer has the option to choose and share the template to get feedback. This may help integrate FSB into the design process itself and decrease this barrier to seeking feedback.

Dissertation Status and Future Plans

My dissertation focuses on features that can minimize the effects of deterrents of feedback seeking behavior in the design process. My on-going work looks at how planning the feedback seeking process can help novice designers to seek feedback earlier and more often. For last part of my thesis, I intend to investigate how to help feedback seekers reduce the effort they put into the process of seeking feedback by providing templates. By studying feedback seeking behavior, I contribute to existing literature by providing empirical knowledge and practical design guidelines. My work will influence the creation of educational tools and creativity support tools.

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