From Rookie to All-Star: Professional Development in a Graphic Design Community of Practice

Jennifer Marlow
Human-Computer Interaction Institute
Carnegie Mellon University
5000 Forbes Avenue, Pittsburgh, PA
jmarlow@cs.cmu.edu

Laura Dabbish
Human-Computer Interaction Institute and
Center for the Future of Work, Heinz College
Carnegie Mellon University
dabbish@cmu.edu

ABSTRACT
Communities of practice have traditionally supported learning and knowledge exchange within a professional field. However, little work to date has examined how individuals use social network functionality for professional development in these types of communities. We present a qualitative investigation into how the social transparency provided by SNS functionality influences two important components of professional activity: social learning and professional identity development. We focus on activity within Dribbble, a social media enabled community of practice for graphic designers. Through a series of interviews with novice and experienced Dribbble users who work within and outside of traditional organizations, we identified ways they leverage social media features for learning and skill development. We find that benefits of the site are dependent on extensive social capital development activities in order to garner attention for posted work. Our results inform the design of online social settings for professional development.

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Social network software; Professional development; Online communities; Communities of practice

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H.5.2 [Information Interfaces and Presentation]: User Interfaces - Interaction styles.

General Terms
Human Factors; Design; Measurement

INTRODUCTION
With the rise in popularity of social networking sites (SNS), communities oriented around particular professional domains are beginning to incorporate social networking functionalities into their site design. On these sites, which we refer to as social media-enabled communities of practice [1], individuals can improve their skills and manage a professional identity independent from traditional institutions like universities or corporations. In many fields such as software development, these sites are becoming the means by which potential employees are identified and evaluated for employment [6]. In creative professions such as the design field, the profiles built on these social networks can serve as portfolios to attract freelancing or contract-based work.

Despite the popularity of these sites, it remains unclear whether and how individuals are actually using social networking functionality for professional development. Previous research in CSCW touches on limited aspects of this issue. A majority of the research on SNS use has examined relationship and well-being impacts of different types of social interaction on Facebook (e.g. [5]). Research on professional SNS use has focused predominantly within organizational boundaries (e.g. [26, 34]) and found that members use SNS for non-work activities such as photo-sharing or to build connections outside of their own team or department.

Instrumenting communities of practice with SNS features increases the degree of social transparency within the community by providing increased visibility of an individual's identity, the content (or artifacts) they have created, and interactions with others around these artifacts [33]. Early work on social translucence highlighted its potential for supporting different types of communication and collaboration, letting people learn through observation and imitation, and enabling people to notice and follow social conventions [11]. Research in socially transparent collaborative settings such as GitHub suggests that social transparency can radically improve collaboration and learning in complex, knowledge based activities like software development [9].

However, it is unclear whether these benefits translate from a peer production setting to professional communities of practice that do not involve interdependent work or where members may have other motivations for participation besides learning. The professional nature of communities of practice may lead to different dynamics when social networking functionalities (such as publicly-visible personal profiles, displays of connection, and directed interactions) make one's activity viewable to a variety of potential audiences.

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On one hand, this increased transparency of who does what could support social learning by making it easier to navigate relevant content, observe the design process of experts and learn community norms by seeing how others react to content. On the other hand, when the community is large, access to all members' connections and creations could make seeking and allocating attention more difficult. People may need to learn and develop strategies for getting the attention they need to achieve their goals. Finally, when a community of practice is public and work linked to an individual's real identity can be viewed by both site members and outside observers, the way in which professional identity management occurs may happen differently depending on one's targeted audience.

In this paper, we examine how the transparency provided by SNS features in a social media-enabled community of practice influences professional activity outside the boundaries of an organization. We focus on the following research question:

> ***How do social networking functionalities support learning and professional identity development in a design-oriented community of practice?***

In particular, we were interested in the influence of site functionalities on social learning and on how perceived attention and audience shaped member behaviors with regards to building a professional identity through sharing their work and interacting with others. We conducted a series of semi-structured interviews with members of the SNS site Dribbble. We selected Dribbble because it is an example of a social media-enabled community of practice, is growing in popularity, and is increasingly used for hiring and employment opportunities [40]. We examined how and why people used the various social networking functionalities within the site for social learning and professional identity management. We also include some quantitative analysis on general site use as background for our descriptions of user behavior.

We found that the combination of a community of practice with artifact sharing and social networking functionalities enabled people to navigate design examples within a connected community of creators and to use this to develop their own skills. Our results suggest the importance of community level signals of attention to shared work artifacts in social media-enabled communities of practice. Visible cues about aggregate patterns of member attention supported professional development opportunities provided by the site (e.g. feedback on work shared, promotion by other users, enhanced reputation). Reputation building in this context, given the meritocratic nature of the design field, often involved strategic work-sharing and interaction behaviors to gain more attention from other designers and potential clients. Members were strategic about using the visible social network to maximize attention to their shared work examples. Our findings highlight social and design related challenges in supporting the site's dual use as a community of practice and a place to show off. We conclude with recommendations for the design of social media-enabled communities of practice in other professional domains.

RELATED WORK

In our research, we examine how a professionally focused, social media-enabled community of practice for designers supports community of practice activities associated with learning and information sharing as well as identity management. Our work builds upon previous literature on communities of practice, social networking, and artifact sharing in hobbyist domains, which suggest that online tools are important for transferring certain types of knowledge among community members.

Participation in online communities of practice/ communities of interest

Professionals often participate in online special-interest groups in order to gain professional status and reputation, as well as to improve work-relevant skills [36]. To achieve these aims, people have traditionally turned to communities of practice (CoPs). These groups share several defining characteristics, where members: (1) Focus on a domain of shared interest, (2) interact and learn together by engaging in joint activities and discussions, helping each other, and sharing information, and (3) develop a shared collection of experiences, stories, best practices and ways of solving problems [37]. Social networking functionality, such as the ability to communicate around shared artifacts, should support these types of activities, particularly the ability to interact, learn, and share information through viewing and navigating networks of people and content.

Perhaps unsurprisingly, activities undertaken in professional communities of practice differ from non-professional ones. According to Amin & Roberts [3], professional communities of practice share defining characteristics that imply the importance of social interaction for learning. The type of knowledge that circulates in professional CoPs focuses on how to perform activities associated with the profession (e.g. for doctors how to manage patients but also how much pressure to use during a particular surgical procedure). This knowledge includes conventions, rules of thumb, intuitions and shared world views that can typically only be transferred through face-to-face social interaction, the use of artifacts and in-person observation of and imitation of experts [3].

However, there is at least one study suggesting that after members have achieved mastery in the professional activity, they can better transfer this knowledge in virtual communities [30]. This albeit limited work on online interaction and learning in professional CoPs suggests that the value of different types of social interactions or social information may depend on a member's expertise in the particular field.

The way a professional CoP works and the degree to which it is successful also depend on the dynamics of the professional domain (while non-professional CoPs are less affected by these issues). For example, while teachers freely share practices aided by tools like Twitter [13], architects or scientists have difficulty forming communities of practice partly due to the competitive nature of these fields [12]. Therefore, the area of practice (i.e. the broader professional domain) could influence the ways in which individuals interact within communities of practice in that field. Norms about collaborative activity, the nature of work in the domain, the value of interactivity, and how learning takes place could affect what work people share and why they share it.

Social networking functionality may support knowledge transfer and exchange of best practices among members of CoPs in new and potentially unanticipated ways. In the next section we consider the features a social networking site provides and potential implications for professional communities.

Social networking site functionalities

Whether they are intended for a general audience or a more specific community of practice, many online sites aimed at encouraging interaction share a common set of social networking features and functionalities. These include visible *individual profile spaces* for each member, facilities for uploading *content, public displays of connection* with other members, and the ability to message other members [4,17] or engage in *directed interaction* via comments or "likes" [5]. These features have been used in social and friendship contexts for impression management, building social capital and learning about people in one's social circle [21].

The majority of the previous research on online work sharing has focused on settings involving amateurs or people engaged in "serious leisure" for fun or entertainment. Several studies have examined how people use photo sharing sites like Flickr. This work has revealed that photo enthusiasts often used artifact-sharing sites both to improve their practice and develop a social network around the activity. On Flickr, photographers browse photos uploaded by others to find inspiration or models of good technique. They post photos to receive feedback on their work. Amateur photographers use photo-sharing sites to connect with others in the field, build relationships with other photographers, generate interest in their work, and establish reputation [5, 19, 27].

Other research looking at work sharing in DIY craft communities found that skill development was also a motivation for participation [13, 23]. Similar to photographers, DIYers and crafters participated in work-sharing sites to learn new things and get feedback on their projects. The previous work on social networks of hobbyists also suggests the unique potential for the social aspects of these sites. These studies noted that work-sharing sites allowed individuals working alone to connect with a larger community of individuals also building a similar skill. The work on hobbyist work sharing also showed that connecting with a broader social network is an important motivation for participation. DIYers had a similar desire to improve their reputation within the community [35].

Social media-enabled communities of practice differ from other types of social networking sites (or SNS) in a few ways. First, they are dedicated to professional activity rather than friendship or leisure pursuits (e.g. Facebook or Ravelry.) Second, they are typically very narrowly focused around one professional activity or field (e.g. Thingiverse.com for 3D prototyping, Dribbble.com for graphic design) versus professional activity more generally (e.g. LinkedIn). Third, the central activity of the site is sharing and interacting around digital artifacts connected to the professional practice (e.g. posting images of graphic designs) rather than text-based communications or non-work related artifacts. Shared artifacts are tied to individual social network site user's profiles and represent or embody elements of work practice associated with the skilled activity or field. For example, Thingiverse.com supports posting CAD diagrams for 3D prototype projects users have created and allows users to comment on those projects.

Professional identity development, attention, and audience

The previous work suggests that work-sharing sites can support skill development through exposure to others' work and interaction around created artifacts. The site design also shapes the ways in which users appropriate the technology available to them to create a professional identity [2]. In artifact sharing sites, users first make a creation and then decide whether or not to share it on the site, and work artifacts are not interdependent or part of a larger collective activity. When work sharing is directly connected to a professional activity, patterns of behavior may be quite different. People may be more reluctant to share and post work they typically create for pay. The goals for participation in this kind of site may therefore vary considerably from a hobbyist work-sharing site.

People using professionally-oriented communities of practice may also use them to develop a professional identity, both by observing role models and imitating what they see [16]. The kind of professional identity people seek to build may depend on who they want to see their work and who they think is looking at what they do. In addition to fellow community members, the audience for professional work (as opposed to hobbyist work) could include potential employers. The presence of dual audiences with access to publicly visible behavior has the potential to influence what kind of work people share and how they share it. Related work in open source software development suggests that developers motivated by career concerns may wish to signal their talent to a different audience than developers seeking peer recognition [22].

In the next section we describe the setting for our study, Dribbble, a social media-enabled community of practice for graphic designers. We discuss the professional context of graphic design, how designers develop skill in the domain and the social norms of the professional community. This informs our qualitative investigation of how members of the Dribbble community use the social networking functionality to support professional goals.

DRIBBBLE: A SOCIAL GRAPHIC DESIGN COMMUNITY

Our research focuses on a social media-enabled community of practice for graphic designers called Dribbble. We chose the graphic design domain because of the existing body of research describing the role of social interaction in design activities (e.g. [6, 18, 25]). This research highlights the importance of in-person critiques of created designs for learning and improving the quality of work output [28] and suggests social interaction is important both for skill development and reputation building, meaning participants should be likely to leverage social networking functionality for professional goals.

In addition, there are several studies describing the ways graphic designers leverage the Internet for their work prior to SNS development (e.g. [28]). These studies found that designers used the web to seek out examples created by others. Designers used the examples they found online to get ideas and learn how to create specific examples [8, 11]. This existing body of research provides a baseline that lets us examine what social features may influence a known set of design activities.

The Dribbble site was founded in 2009, and as of March 2013, had over 270,000 registered users. The site describes itself as "Show and tell for designers," where "web designers, graphic designers, illustrators, icon artists, typographers, logo designers, and other creative types share small screenshots (shots) that show their work, process, and current projects" [41].

In order to be a full member of Dribbble (known on the site as a "player,") a person must be invited to the site, or "drafted," by an existing member or by the site admins. Full members can post shots, follow other members, view the work of others in the community and "like" or comment on their work. Non-members (known on the site as "scouts,") can also follow players, view their work, and like (but not comment on) individual posts.

Dribbble provides a good setting for understanding how SNS functionality supports professionals because it incorporates the following key aspects of SNS [4,5]:

1. **Profiles**: Players on the site each have a personal profile where work items they have chosen to share (called "shots") are displayed (see Figure 1). Profiles contain information about a person including:

a) Biographical details (including name, location, website, Twitter handle);

b) Shots: Images of a person's work (limited to a 300x400 pixel view.) Details below each shot include the number of views (how many times someone has clicked on the thumbnail to view the larger version of the shot,) number of comments, and number of likes (see Figure 2.) Clicking on an individual shot takes a user to a more detailed view of the work, where one can see it in a larger view along with further details such as a short description and any likes or comments that other people have given it, and

c) Number of people the user follows and is following.

2. **Public displays of connection**: Network information including details and links to profiles of a user's followers and people the user is following.

3. **Directed interactions**: Dribbble supports the ability to directly (publicly) communicate with other site members through commenting on their work. It is also possible to "like" their shots as a more lightweight means of communicating approval or admiration.

4. **Activity feeds**: Activities are featured in a profile's "activity feed" (see Figure 3,) where an individual's most recent actions are displayed and it is possible to see what shots they have uploaded, who they have followed, and what work they have commented on and liked.

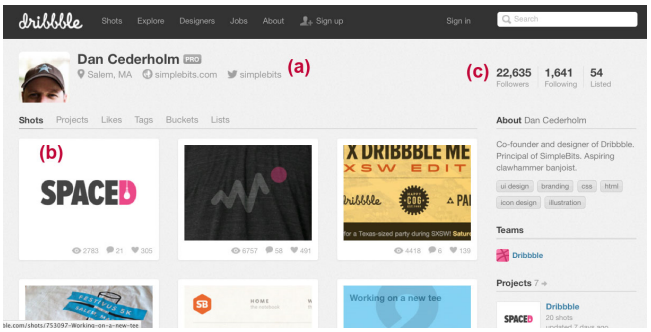

Figure 1. Dribbble profile of site co-founder Dan Cederholm

Figure 2. Shot overview with number of views, comments, and likes

Figure 3. Activity feed on member's profile

INTERVIEW STUDY

In order to understand how graphic designers used Dribbble for professional development, we conducted interviews with 23 Dribbble users. In the next sections we describe participant recruitment and our interview technique.

Participants

Participants were recruited from a subset of recent site users. Using the Dribbble site API, we first identified a list of 332 people who had posted something the most recently (within the last two months.) We used the approach of Torrey et al. [35], focusing on users with recent activity, because this meant interviewees would more accurately recall specific details about their activities on the site. We next contacted a random sample of 139 people selected from the list of recent posters via e-mail, inviting them to participate in an interview about how they used Dribbble and other sites to accomplish their work as a designer. We received 23 responses from the active Dribbble members we contacted. This 16% response rate is consistent with participation rates reported in other studies of this type [29].

Our 23 interviewees (4 females and 19 males) represented a diverse segment of the Dribbble site population and the broader design community. Fourteen were primarily graphic designers, eight were UI/UX/web designers, and four also did illustration. Four participants were students (referred to here as S1-S4), thirteen worked for companies but also engaged in part-time freelance work (PT1-PT13), and six were full time, independent freelance designers (FT1-FT6).

They varied in terms of the length of time they had been members of Dribbble, and level of activity/followers on the site itself. They were also geographically dispersed: 19 were based in various cities throughout the United States (ten in large metropolitan areas and nine in smaller towns,) three were located in Europe and one was in Asia. Table 1 summarizes basic characteristics of the interviewees' relative standing in the community, broken down by employment category. These are displayed alongside general site statistics for all "active" players on the site based on data obtained through the site's API in March 2013.

	Studnt	PT freel.	FT freel.	All interviews	All active members
	Mean			Mean (median)	
# shots on profile	25	27.3	43.5	31 (22)	19.48 (10)
Followers	47.5	141.92	351.16	181 (35)	174 (34)
Following	32.5	114.76	88.3	93 (54)	110 (50)
Length of time on site (yrs.)	.93	1.08	1.06	1.11 (1.08)	1.59 (1.58)

Table 2. Characteristics of interview sample (student, part-time/full-time freelancer), and all active site members

While all of our interviewees had been members of the site for roughly one year, there were some disparities in their statistics. In particular, members who were full time freelancers and using Dribbble as a tool for their livelihood were on average more active in uploading shots and had more followers than the rest of the interviewees.

Method

We conducted semi-structured interviews focusing on the participant's most recent activity on the Dribbble site. Interviews lasted between 30 and 45 minutes and were conducted over Skype, with screen sharing enabled so that interviewees could share their Dribbble accounts and refer to specific examples of items on the screen.

First, participants explained how they originally got involved in Dribbble and why they had last visited the site. We then followed up with additional questions about a work creation they had recently shared, someone else's work they had recently looked at and comments made on other people's work. For each activity on the site, we probed about what happened and their motivations for engaging in the activity.

In our analysis we wanted to identify how SNS features of Dribbble supported skill development and reputation building. All interviews were transcribed and then analyzed using an iterative process. First, we identified all examples of recent items people had looked at and shared and their reasons for doing so. Using qualitative analysis software we first categorized these examples based on the rationale provided by the participant for looking at or sharing something. Behaviors were coded as either motivated by skill development or relating to giving or seeking attention. Within these two categories we used focused coding [7] based on the behavior undertaken, the rationale provided by the participant for the behavior, and the role of SNS features in supporting this behavior. This second level of coding revealed sets of skill development and reputation building behaviors. We then compared answers across

expertise level and job role to look for similarities and differences. Our analysis also identified cross-cutting themes associated with using the site for professional activities.

RESULTS

Our interviews suggested that Dribbble users relied heavily on visible indicators of community level attention to derive professional benefit from the site and navigate the large volume of posted work. Visible cues of member attention supported community level agreement on best practices and norms for the field. They allowed members to find solutions to problems in their work and locate examples that demonstrated particular skills. In addition, members used these cues to gauge the quality of their work in terms of its 'fit' with member expectations. Members used their own mental models of site usage to structure their own actions in terms of seeking out work and making personal connections.

An individual's status in the community was based on the attention to them (followers) and their shared work. Attention conferred status and raised an individual's professional profile and reputation. Thus a great deal of effort was put into leveraging the social features of the site to increase the likelihood posted work would get attention. Designers who were serious about advancing in status within the community observed and learned models of behavior from high status users and then strategically used the site to garner more attention. In the next sections we present examples of how these behaviors occurred.

SOCIAL LEARNING

The first area of professional development we focused on was social learning, both in terms of learning skills through observing others' behavior [27] and in learning how to make use of the site technology [32]. We were interested in how members leveraged the site to improve their own graphic design abilities and learn over time. Skill development took two unique forms that lined up with behavior found in the previous work: 1) observation-based social learning of skills (through looking at examples of others' work) and 2) interactive learning through engaging with feedback provided by others.

Learning through looking at others' work

The social functionality on the site, particularly being able to find and follow other members, supported learning through access to others' work. Specific examples from particularly skilled users supported inspiration and learning a specific skill, while trend-spotting let users understand community norms. Being able to follow other designers in order to have access to their latest work in one place was an important functionality that supported inspiration and trend-spotting. Navigating the social connections on individual profiles and by seeing who interacted with who helped newcomers to the site figure out who was most influential as a source of learning and inspiration.

Inspiration

Inspiration, as mentioned by many interviewees (S1, S2, S3, PT1, PT2, PT3, PT13, FT1, FT2, FT3, FT4, FT5), consisted of searching for specific examples of a particular style or object in order to inform a personal approach to designing something specific. Social functionalities allowed people to find and follow respected others and to easily keep up with what they were doing. For example, one person mentioned how as a result of following some of his favorite developers on Dribbble, he could easily access their work and get inspiration from it:

> *"it's really nice to be able to go around my [Dribbble] feed and see how other people…are able to mimic Apple's aesthetic… this one's one of my favorites because the way it uses-- what do you call it?-- the perspective. The way the perspective works, it's a square icon, but it looks 3-D, and I really like the creativeness of that. It's nice to see what other people are doing. It gives you ideas." (FT4)*

Reverse-engineering skills through observing examples

Another type of learning behavior facilitated by the site was looking at examples of a skill or technique and then trying to replicate that independently. One person described how he was able to teach himself how to do hand-drawn typography through looking at examples of work on the site. He used the visible social connections on the site to deduce who were the big players in the area of hand-lettering by seeing who interacted with who:

> *FT2: There was a lot of trial and error and a lot of looking at people who are already doing it extremely well and seeing what they're doing-- just studying everything that they did and trying to redo it. So.*
>
> *Q: Okay, how did you find people who were doing it really well?*
>
> *FT2: Dribbble. Dribbble is huge. I mean, I was able to, through people that I found early on-- seeing who they were following and who they were interacting with and seeing who were friends and who worked together and who did this and that.*

This participant, who started out on Dribbble with no formal design training and knew no one in the design community, was able to gradually improve his skills through observing and imitating work done by well-known members. By seeing who well-known people were connected to via their social network and directed interactions, he expanded his set of quality examples.

Trend-spotting (continuing development by keeping up)

A third type of learning and skill development that occurred on Dribbble was the ability to understand general trends and popular styles in the industry at the moment by looking at the body of work as a whole that was displayed on the "popular" page. It is possible to filter the work on Dribbble by the members one follows ("Following"), most recent ("Everyone"), most popular ("Popular"), and the first shots from new members ("Debuts"). Work featured on the popular page generally had received a large number of likes

and comments from other members in the community, and this caused many people to use these social signals to infer the types of styles that were most appreciated by the community at large. One person described using this as part of his general inspiration search process:

> *I'll also usually browse what the popular shots on Dribbble are just to see what is some of the best work right now. (FT1)*

Access to the most popular work allowed people to see what styles and types of work were trendy and current. However, frequent visitors to the site noticed that the popular content was often repetitive and homogeneous:

> *you'll clearly see some very, very, very visible trends. Like icon design-- very popular, and in very specific 3-D styles. You can see trends in logo design. There's kind of a retro-minimalist style going on. (S2)*

Through learning what was gaining attention in the community at large, new designers could decide to what extent they should try to emulate current trends in developing their own style:

> *Like say if I wanted to go into advertising, I mean, if I can do what we're seeing now in these kind of emerging trends, it'll make it easier for me to get a job and come off as avant-garde or very groundbreaking, and that sort of thing. So I think it makes it easier to keep up with what's trending, what's cool, what's appealing, but it also sacrifices a little bit of that individuality as well. (S2)*

As a result, several interviewees who were starting out in the design field used the popular work to give them a sense of how they could create new and different styled work in order to stand out from the crowd.

Getting feedback on work in progress

The social functionalities of likes and comments also supported skill development by supporting feedback on posted work from others in the community (S1, S2, S3, PT4, PT5, PT6, PT7, PT8, FT2.) In describing what they shared and why, there were two main types of feedback that people reported seeking. The first of these was to get help improving specific aspects of a piece of work that was not yet finalized.

> *I specifically asked if the ampersand looked too much like an E and asked if anybody had any particular things that they saw that looked really weird or anything that maybe me having looked at it for several hours and not having fresh eyes on-- something they might see that I missed or something. And a lot of them said the ampersand looked fine, but this looks like an F. This is crowded, and because I prompted for that feedback, they all gave me excellent feedback. So that was cool. (FT2)*

In this case, the participant received useful feedback through comments that other site members gave him.

People also used site feedback about attention to their work to get an overall sense of the community's relative like or dislike of a given creation. Designers would post work without asking explicitly for feedback, but would use likes and views as a proxy to infer community interest in or acceptance of their work compared to other designers and to other shots they had previously posted.

For example, one interviewee posted a logo he had designed in order to see if it would get the same amount of views and likes as other high-quality creations he had seen on the site.

> *It did not, so I guess I missed the mark…I have 135 views which is more than most of my others. So that means from the small thumbnail view on the homepage of Dribbble, it probably looked really good, and then when they got more into it-- I don't know, maybe it started to look less great. (S1)*

He interpreted the different social signals, in this case, the ratio of views to likes, as an indication that his work missed the mark. Whether or not the feedback desired or received came in the form of useful written comments or number of "likes," the interaction transparency helped people assess the quality of their posted work in a way that would not have been possible on a personal portfolio website.

Novices vs. experts

While inspiration was used almost universally, the main difference between novices and experts came with regards to the desire for and type of feedback received. Moving from a novice to an expert involved determining who one's desired audience was and then both needing to learn to improve one's skills, but also on learning what strategies or site norms were needed to achieve success. Experts rarely sought substantive feedback on specific things. In some cases, they felt that their skills were developed enough that they knew what they were doing.

> *I'm happy, personally about what I'm doing at the moment with it, so-- yeah, as I said, I wasn't looking for, like, anybody to kind of solve problems for me. (PT3)*

In other cases, getting detailed feedback from other fellow designers could not impact work that had already been completed for a client, but was useful for general reactions:

> *definitely I don't use Dribbble as a feedback-- I mean, after my client approves something, I upload it here. Then, depending on if they like it or not, it doesn't matter, because I got paid, but definitely for next project it gives me a sort of insight what people think. (PT9)*

In contrast, novices were most likely to want feedback on work in progress. They were also the least likely to get it. When they did, it came most often from people they knew already and who were at a similar level of expertise as themselves.

> *I was working on these buttons and my initial idea was to have it kind of animate a little bit like you can see happening in this preview here. And so I thought I'd toss this up and see what people thought. Nobody actually commented on it but I did get some comments from other friends I shared it with. (PT4)*

In terms of interviewees' willingness to offer feedback to others, the number of followers a person had was often a

cue that factored into deciding whether or not to comment on others' work. People were often less likely to give feedback to prominent designers, either because they felt intimidated by their celebrity, or because they felt their voice would be lost among the crowd. Fewer followers was a signal that a person might be more receptive to comments:

> *If that person especially has less followers and they're looking for feedback, I'm much more willing to put my time in and say, "Hey, you really want feedback and no one's giving it to you. I'll help you out. Whereas the other people who are posting stuff who might not even be looking for feedback, and they're getting a ton of feedback. (FT1)*

This highlighted the importance of building up one's social capital on the site. An important prerequisite for getting feedback on work was gaining followers who would be more likely to see the work an individual member posted. Members worked to build interpersonal relationships with other designers who would then be more likely to respond when a new piece of work was shared. We address ways people pursued some of these community aims in the next section.

PROFESSIONAL IDENTITY DEVELOPMENT

The second major activity we were interested in investigating on Dribbble was how people appropriated the site and its features to develop a professional identity. We found that members on the site attempted to gain attention to enhance their professional identity and improve their standing in the community. Compared to other online sites focused around making and sharing creative artifacts, such as Scratch or Newgrounds [15, 23], professional identity was often a concern for people deciding how to position themselves either within their professional community, to outside observers or to both audiences simultaneously.

Attention from whom?: Membership and status

The fact that membership in Dribbble was invite-only seemed to increase the value of attention from site members (versus the internet at large). The first step to becoming a Dribbble member was to receive an invitation to become a "player" and fully participate in the community by sharing work and commenting on others' work. This invitation-only requirement was, for many people, a motivation to join the site because an invitation signaled some level of skill in and of itself. Many Dribbble site members (S1, S2, PT1, PT5, PT9, PT10, FT1,FT4, FT6) mentioned how being invited to the site helped to build their reputation both with other designers and with clients or employers. The signal of site membership helped members gain employment or other work opportunities.

> *my manager directly said, "Oh, the presentation of your website and the added fact that you had a Dribbble account really appealed to us." Because the people I work with were familiar with Dribbble; they don't use it very frequently, but I think that having an account and being able to upload your work is almost a bit of-- it seems a bit of a status symbol at this point, especially for students, because it's a heavily vetted process. (S2)*

The impact of the invite-only system not only had implications for the reputations of the designers who were accepted, but also was seen as beneficial for the creation of a repository of high quality work as a source of examples.

> *You can upload almost anything on Deviantart be it beautiful or crap but I can only find an essence of great works on Dribbble. The preliminary evaluation guarantees that only good designers get into the community so being a member gives you kinda proof that you reached a level of quality. (PT7)*

However, although site members had all demonstrated a certain baseline of quality to be invited, hierarchies still emerged with some people becoming more popular than others (as determined by the number of followers they had and the number of likes their work typically received.)

> *but there's definitely a sense of hierarchy…It's all about-- it's also about seniority, like who's been on Dribbble the longest, and who has the most followers. I think who has the most followers is probably the strongest way to tell. (S2)*

With so many members and so much content, the number of followers a person had and the likes their work received was often a quick and easy way to assess quality. Work with little audience response would reflect badly on the individual, because audience response to work was a signal of quality. By comparing the response various works received, people would remove an individual piece if it didn't achieve a certain level of success (as determined by likes and views.)

> *there are things that I like-- I put on the site because I want to put on the site because I think it's going to get a lot of attention. And then there are things that I think I'm going to put on the site, and then I'll get to that point where I put it on and I realize, "You know what? This isn't actually that great, so I'm going to pull it down." (PT2)*

One problem with this was that the audience's response was not always predictable, especially for non-established designers. Interviewees mentioned encountering discrepancies between what they felt was their best work and what received the best response on Dribbble.

Sharing work to show off

Once they had "made it," members were strategic about how and what they shared and who they sought out to advance their status in the community and with outside clients. In describing why they had shared recent examples of their work, members talked about "showing off" or sharing examples that indicated a particular level of skill or effort invested that only other designers on the site, or peers could appreciate (PT2, PT7, PT9, PT10, PT11, FT2, FT4, FT5). For example, one person uploaded a 3D phone icon he had created in order to showcase his approach:

> *it was showing off how you could have-- like it's showing the 3-D and a really subtle line-- like just really subtle accenting around edges and stuff…. Well, normal people-- like they'll see, but they won't look in depth and think about the amount of work that has to go into make a-- to do detailing like that.*

Whereas designers will-- they don't really need to read this to see that a lot of work went into it. (FT4)

Another person wanted to "show off" to other designers in the community some work he had put a lot of time into for a prestigious client:

Because some people know who my clients are or you can guess it from the colors. I don't know if that's relevant for you but I think if you're a designer and you know me and you know my company then you can see the colors, where they came from, so yes, I post it to show off. (PT12)

These kinds of examples were shared to impress other members of the community and to earn credibility as a very skilled member of the profession. Showing off to other designers was seen as useful in terms of not only forming new friendships and mutually giving feedback to each other, but also for the possibility of collaborations or getting referrals for clients.

On the other hand, some members, particularly full-time freelancers, were interested in increasing their reputation with the goal of being viewed by potential clients.

I post stuff so it's current with what I'm working on, as current as I can be. And just a way to demonstrate to potential clients that this is what I do and this is kind of the best of what I'm working on. Because I actually don't have a dedicated portfolio. (FT1)

It was not necessarily always clear who was actually viewing the work that was posted. Different site members had different hypotheses about who was looking at their work. For example, one person thought it was fellow designers:

I really don't think that people are really looking at it beyond kind of like an exclusive group of design people. (PT6)

Another thought it was external observers:

I think there's a lot of designers who post to it and use it. There are more people who watch it who are not creative people. You know like they're in the marketing field or they're in communications but they don't know how to design a logo. (FT5)

Lack of audience awareness meant that for people who sought attention, it was not always easy to tell if they were getting the right amount of attention from the audience that they were targeting or how to interpret the amount of attention they got. For example, it was possible to see the number of views a work received but not the details of who had looked at it. There was also the issue in which signaling quality to outsiders vs. insiders may have taken different forms. While some people mentioned that other designers would "get" what they were showing off by appreciating the inherent skill being demonstrated, they also felt that outsiders would be more likely to rely on things like popular work as signals of quality.

Novices vs. experts: Strategies for gaining attention

Gaining reputation through getting more followers and likes involved getting more attention to oneself and one's work. We found that interviewees who were more concerned with these objectives were likely to adopt strategies in order to increase the attention they received from site members, often leveraging the work size constraints of the site and utilizing the visible network connections to their advantage.

Users who were concerned about rising in the community were careful about how they displayed their work within the size limits imposed by Dribbble. Two people mentioned participating in an unspoken norm amongst serious users to create what they called "Dribbble bait," or specially-formatted versions of their work designed to look good in the particular setting.

I particularly made a 300 by 400 layout with a focus on this. I designed a Dribbble shot rather than just posting a screen shot of something I'm working on… So by Dribbble bait, I mean it was specifically customized to be on Dribbble and to get feedback or likes on Dribbble. (FT1)

Using the visible activity traces of directed interactions between other members served as another strategy for gaining attention and reputation by increasing one's following from other members. Members interested in advancing within the site's hierarchy used the activity traces of people they already followed to discern social networks featuring the top members and then decided to follow these people as well in order to start learning about who was who.

I was able to, through people that I found early on-- seeing who they were following and who they were interacting with and seeing who were friends and who worked together and who did this and that. And clicking through to their portfolios and things from their Dribbble profiles and following them on Twitter and listening to what they were saying and viewing all the new work that they were putting out there. (FT2)

In addition to discovering new people who were important to know in the community, an additional step in gaining their attention was to reach out to them via commenting on their work.

I feel like-- I kind of comment strategically. When I comment on people's stuff, I either am looking for them to look at my profile back, so kind of showing my face on their shot so that they can kind of see what I'm doing, like, "Oh, I want to check out this guy's stuff"…And that's kind of how I got the attention of the more popular Dribbble users is continually commenting on their shots. (PT2)

The outcome of networking with other site members in this way was frequently the formation of friendships or feedback relationships. In some cases, people were invited to collaborate or contribute to projects based on people they networked with through Dribbble.

So by commenting on stuff for other people, you can get involved with things that could-- you can get involved with

people that could potentially turn into people that you could collaborate with later down the road. (PT2)

DESIGN IMPLICATIONS

Augmenting a community of practice with social networking features may enhance a community's ability to develop shared understanding of best practices and standards. Transparent signals of community attention helped members of Dribbble easily find work artifacts and other professionals to serve as sources of inspiration and learning. The site's design at the time of our interviews may have been responsible for these social dynamics, making popular work most readily accessible and explicitly highlighting followers, likes, and comments. These design choices emphasize the importance of attention and popularity for people seeking to advance within the site. Although the design focus on community-level attention supported professional development in some ways, it also led to tensions between groups of users with different levels of status and with different objectives (e.g. getting feedback vs. showing off.) In addition, the fact that work on Dribbble can simultaneously be viewed both by other designers and by external clients leads to the "context collapse" seen in other social sites such as Facebook or Twitter [25], where people may often wish to target their posts to different audiences, some of whom leave no trace.

To some extent, the behaviors seen on Dribbble may be unique to the design profession. For example, the type of work being shared is visual and easy to quickly and rapidly view and assess. For the most part, people were able to freely share their work (either after it had been launched for a client or because it was their own creation.) In addition, the intrinsic role of critique and feedback inherent in design as a profession makes it easy to carry out this type of behavior online, although there are still challenges in enticing people to give helpful feedback, both on Dribbble and elsewhere [39].

Changing elements of the site design could influence the social dynamic and social importance of attention. For example, currently the site showcases "popular" work on its landing page for non-members, and showcases "Following" work as the default landing page for members who are signed in to the site. This creates incentives for those who wish to make it onto the Popular page by copying popular styles, reformatting their work to look as good as possible in a small format, or seeking to expand their network so that more people will see their work in their "following" feed. Removing signals about how much attention a particular shared artifact has received may reduce its importance in evaluating quality.

We also found evidence that skill development on the site was limited by the focus of attention. In order to receive feedback in the form of detailed critique on posted work, it was necessary to attract the attention of an audience. Novices who could most benefit from this type of feedback were least likely to have this type of audience. Domain focused SNSs need to think about how to support novice members who may want to develop their skills while simultaneously supporting established professionals who want to "show off." It is not clear whether the same site can support both of these goals. On Dribbble there is currently no dedicated section of content for people seeking in depth feedback on works in progress. It is not always easy to understand who wants critical comments in response to a piece of posted work, especially given that many of our interviewees did not. Therefore, creating a special section of the site where people can explicitly call for feedback could facilitate that behavior.

Supporting professional development elsewhere

Some aspects of Dribbble's site design (invite only, sharing small parts of work rather than the whole, and incorporating social media functionalities) could be used in other types of professional sites in related fields where people produce and share digital work (e.g. journalism, translation, academia.) Professionals in other fields beyond design also have the ability to share their work and interact in sites focused around their field. Most sites devoted to professional skill development and practice are currently either focused on learning or primarily dedicated to self-promotion. In the former case, MOOCs provide a rising context in which encouraging peer feedback is a challenge. In the latter case, sites like oDesk or specialized sites for freelance translation like Proz.com act as digital matchmakers to help translators get work, with crowdsourced "kudos" serving as signals of their expertise [19]. Work-sharing and invite-only sites are also taking hold in the field of journalism (e.g. Svbtle.com), a professional field which is evolving towards more independent work. However, challenges seem to exist when an individual's activities on a single professional site receive attention for both hiring and non-hiring related purposes.

Another example of a site which is starting to be used for hybrid purposes is GitHub, a software development site where people collaborate on open source projects. While the main use of the site is to create an artifact (software code,) each individual on the site also has a profile that shows a history of their work and interactions. Employers are increasingly paying attention to these profiles to recruit and hire software developers, viewing GitHub membership as a signal of certain positive characteristics such as passion for coding [24, 31]. This has implications for the types of behaviors people will engage in on the site if and when they think another unrelated audience may see what they have done, such as removing old projects that could help others but may not be an accurate signal of their current abilities.

CONCLUSION

Social media-enabled communities of practice have the potential to provide great professional benefits to members. By increasing social transparency regarding who created what, how they created it, and who paid attention to it, a

site like Dribbble allows users to engage in skill development through learning from and interacting with others in a wider community and to build a professional identity to an intended audience. Dribbble provides a unique case of a site that has evolved from a feedback-oriented community to a site that, once it was opened up to view from a wider audience, enabled dual uses (some of which involved conflicting goals between learning for novices and self-promotion for full-time freelancers.) Our findings illustrate the challenges of designing increased transparency through social networking features into a site for users with different levels of experience and diverse professional objectives. Nonetheless, they show promise for the ability of professional social networking sites to enable various types of professional development and success of individuals engaging in independent creative production.

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