# Evidence-based social design: Introduction

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What does social science tell us about how to make thriving online communities? Quite a lot, it turns out. But only if we listen very closely and, at times, employ a translator. Economics and various branches of psychology offer theories of individual motivation and of human behavior in social situations. The theories generalize from observations of naturally occurring behavior, from controlled experiments, and from abstract mathematical models. Properly interpreted, they can inform choices about how to get a community started, integrate newcomers, encourage commitment, regulate behavior when there are conflicts, motivate contributions, and coordinate those contributions to maximize benefits for the community. This book makes it easier for us to hear what social science has to tell us. It amplifies relevant theories and experimental evidence and translates them into specific claims about the likely impact of particular design choices for online communities.

## 1. The promise of online communities.

By online communities we mean any virtual space where people come together with others to converse, exchange information or other resources, learn, play, or just be with each other. The term applies to many social configurations, from small close-knit groups to sites with millions of participants. Online communities may be supported by a wide variety of technology platforms, from email lists to forums, blogs, wikis, and networking sites. The common feature is ongoing interactions among people over time, with some of the interactions being technology mediated.

Online communities are among the most popular destinations on the internet. The venerable Usenet had over 160,000 active newsgroups in 2006 and Yahoo alone claims to host over a million online groups. Ravelry.com, a hobby community for people who knit and crochet, claimed more than 400,000 members as of July, 2009. The product support community for Linksys, a division of Cisco that provides consumer and small office networking technologies, handles more than 100,000 user sessions per day. As of May 2009, nearly half a million people had made at least ten edits each on Wikipedia. Facebook, the online social networking site, recently celebrated 100 million subscribers.

Online communities serve the same range of purposes that offline groups, networks, and communities serve. They provide their members with opportunities for

information sharing and learning, for companionship and social support, and for entertainment. Online communities can also produce benefits for non-members—either public goods that benefit society as a whole, such as open source software, product reviews, and encyclopedia pages, or private goods such as suggestions for product improvements or new product designs that benefit the organization that convened the community.

The promise of online communities is that they break the barriers of time, space, and scale that limit offline interactions. People with unusual medical conditions can get social support from others who share their condition but live far away, and they can do so whenever they need it rather than only at a weekly or monthly scheduled meeting. On ravelry.com, knitters can share patterns with thousands more people than they could stitch with in person.

## 2. Critical design challenges.

Although as a class these online communities are very successful, the success of particular communities varies widely. Some communities struggle to become successful, and others fail. For every Facebook, with its millions of subscribers, there is a friendster.com that was once successful but can no longer compete, and scores of smaller social networking sites that never got enough members to be viable. Of 2872 Usenet groups with "support" in their name, some, like alt.support.diet.low-carb, alt.support.depression and alt.support.diabetes are successful, with more than 5000 people posting per year, but half had fewer than 30 posters during 2004 and a quarter had fewer than 6 (Kraut, unpublished data). Smokefree.gov, an online tobacco cessation program, attempted to add an online community for some of its users but was unable to garner enough activity in the community during the trial period to assess whether such a community, if it were active, would help members to quit smoking [27]. While the English version of Wikipedia had over 2.5 million articles in October 2008, the Korean version had fewer than 45,000 articles. Across the more than 9000 public information-sharing wikis using the same Mediawiki software that Wikipedia uses, the median number of editors who have ever contributed is only seven (Kittur & Kraut, unpublished data).

To become or remain successful, online communities must meet a number of challenges that are common to many groups and organizations, offline as well as online. The book is organized around these challenges, described below.

*Starting a new community.* Many online communities are successful because they have a rich inventory of content with which to attract new members. In a conversational community, like a cancer support group, the content might be the messages exchanged by cancer survivors and their caregivers. In an open-source development community, it might be a working base of computer code, which provides raw material for developers to improve. In the popular entertainment site YouTube.com, the content consists of the video clips that participants post. In

creating an online community from scratch, designers and managers are faced with a critical mass problem, in which the fledgling site doesn't yet have enough content to attract users, and too fewer users to create the content that might attract others.

*Attracting and socializing new members.* Even established online communities must attract a stream of new members to replace others who leave. For some online communities, a major component of this challenge is to identify and encourage potential members who have the characteristics, skills and motivation to contribute. Thus, open-source development projects are looking for potential members who can build software. In contrast, Facebook or many Usenet groups are more open, and are willing to accept almost anyone. While some communities are seeking members, others are concerned about rejecting inappropriate members. Thus, for example, health-support groups often restrict membership to people who have a particular illness or care for someone who does. Regardless of their selectivity, online groups have special problems because newcomers are potentially choosing among often similar communities to join, frequently have insufficient information to make their choices and almost always have less commitment to a community than more established members have. These factors mean that their initial observations and interactions are likely to strongly influence whether they stick around long enough to learn whether it provides a good match to their needs. In addition, because they have not yet learned the appropriate ways to behave in the community, their actions may disrupt the activity of existing members.

*Encouraging commitment.* Commitment represents members' feelings of attachment or connection to the group, organization or community. Commitment underlies members' willingness to stay in the community and contribute to it. Both offline and online, people who are more committed to an organization tend to be more satisfied, are less likely to look for alternatives, are less likely to leave, and tend to perform better and contribute more [Mathieu & Zajac, 1990]. All organizations must manage the challenge of creating commitment, but because the forces keeping someone in an online group are weaker than those operating in a conventional organization, challenges of commitment are more difficult. For example, in most conventional software companies, employees have an employment contract. If they decide to leave, they lose salary, seniority and job status. In contrast, most developers in open-source software projects participate voluntarily, with no employment contract encouraging them to stay and contribute. The physical location of a conventional organization also places constraints on members' willingness to go elsewhere. If someone wants to leave a job, church or club, for example, only a relatively small number of alternatives are close by and convenient to join. In contrast, if someone wants to leave a particular online community, he or she could join any other comparable community online, with no constraints imposed by geographic proximity.

*Encouraging contribution.* To be successful, online communities need the people who participate in them to contribute the resources on which the group's existence is built. The types of resource contributions needed differ widely across different types

of groups, from the conversations in many online health and technical support groups, to the code in open-source development projects, to the music and video in media-sharing sites. Typically, online communities exhibit a power-law distribution of contribution, with a small minority contributing most of the content. For example, in the Freenet development project, only 30 people of the 369 who participated in the discussion lists ever wrote any code. While inequality of contribution is not necessarily a problem, under-contribution is. For example, 50% of Usenet support groups had five or fewer messages during 2004 (Kraut, unpublished data). Even highly successful online communities suffer from problems of under-contribution. Roughly two-thirds of the articles in the English version of Wikipedia have been classified during a quality-assessment drive as 'stubs', articles with only a few sentences of content that are too short to provide encyclopedic coverage of a topic.

*Regulating behavior*. The people who participate in online groups often have different and sometimes competing interests. Most large online discussion groups, and especially those that deal with controversial topics, attract trolls, people who post controversial, inflammatory, irrelevant or off-topic messages to provoke other users into an emotional response (Schwartz, 2008). Commercial spammers would like to drive traffic to their external websites. In more mundane conflicts of interest, some participants in a hobby site may prefer that the discussion stay focused on the hobby, while other may want to engage in more personal conversation with other members they have become friends with. When there are conflicting interests in a group there must be mechanisms to help participants regulate behavior. The challenges here are to deter inappropriate behavior group members, prevent such behavior from trolls and other outside attackers, and limit the damage that is caused when inappropriate behavior occurs.

Although these challenges confront almost all groups and organizations, online communities may have more difficulty overcoming them than conventional groups and organizations, because of three characteristics that are typical of online communities but unusual in conventional groups and organizations. The first is anonymity. Old-timers may be less able to vet anonymous newcomers and newcomers may feel less inhibited by social accountability. The second is ease of entry and exit. That can lead to high turnover, which may inhibit building interpersonal ties or commitment to the group, and affect how sanctions and other deterrence strategies work in regulating behavior. The third is textual communication, which may be prone to misinterpretation because it lacks some of the fluidity and non-verbal cues of face-to-face interaction.

Online communities also have resources for meeting these challenges that are not available to offline groups. First, the communication and indeed almost all the behavior exhibited by participants in an online community are in digital form and can be archived. Second, online communities can benefit from computation. For example, computers can summarize traces of past behavior as reputations, as eBay does with its feedback profiles. Computers can execute search and matching algorithms to introduce people and content to each other, and can notify people

when events of interest occur. And computers can enforce access controls, so that different people are permitted to see or do different things.

3. Levers of change: socio-technical systems design.

Students in our classes sometimes challenge the notion that online communities can be designed. A product designer can specify functional and aesthetic features in order to create a desired user experience, but an online community is not so easily controlled. Even if a designer wants an online community to be larger, or more active, or more friendly in tone, he or she may not be able to make that happen. People are the key actors in online communities, and they cannot be shaped or programmed the way physical materials or software can.

The first central argument of this book is that, despite the limited direct control of individual people's actions, online communities can be designed and managed to achieve the goals that their owners, managers or members desire. Designers are far from powerless. Throughout this book we identify a wide variety of levers of change, features of online communities that can be deliberately and strategically chosen. Some of these levers are technical, such as choosing what kinds of interactions will be enabled and how information will be displayed. Other levers are social, such as choosing how much externally provided content to include, and whether to ignore, cajole, or ban people who disrupt the community.

We classify the levers of change into eight broad categories, described below. We will often refer to these levers of change as *design alternatives* or *design options*, to highlight the idea that their configuration can result from deliberate choices that managers, designers or members make.

| **Type** | **Chapter 2: Startup** | **Chapter 3: Newcomers** | **Chapter 4: Commitment** | **Chapter 5: Contribution** | **Chapter 6: Regulation** |
|---|---|---|---|---|---|
| Community structure | x | | x | x | x |
| Content, tasks, and activities | x | x | x | x | |
| Selection, sorting, highlighting | x | | x | x | x |
| External communication | x | x | | | |
| Feedback and Rewards | x | | | x | x |
| Roles, rules, | | x | | | x |

| | | | | | |
|---|---|---|---|---|---|
| policies, and procedures | | | | | |
| Access Controls | | x | x | | x |
| Presentation and Framing | x | x | x | x | x |

*Table TKTK: Types of design alternatives and the chapters in which their implications are analyzed.*

The first category of design alternatives involves the community structure. The size of the community can make a difference, as can the degree of homogeneity of member interests, whether there is a subgroup structure, and whether membership is recruited through existing social ties.

The second category of design alternatives involves the content, tasks, and activities in the community. There can be opportunities for self-disclosure (e.g., in user profiles). Content can be imported from outside or professionally generated, in addition to that which is generated by members. Welcoming activities and safe spaces for exploration can be offered to newcomers. Tasks can be independent or interdependent and they can be embedded in immersive or social experiences.

Communities often have more content and opportunities than any one person will want to take advantage of. The fourth category of design alternatives deal with ways to select, sort, and highlight things so that people can find the things that are best for them. These alternatives include dividing the community into separate spaces, highlighting good content, removing inappropriate content, and friend feeds or even full-blown recommender systems that show slices of the content to different people.

The fourth category of design levers involves external communication. Content can be imported from or exported to other communities. Identities and profiles can be shared or not. Facilities can be provided to allow people to invite friends or forward content to them.

The fifth category involves feedback, rewards, and sanctions. Feedback tells people how others have reacted to their participation in the community. Such feedback can be informal, or it can be structured, in the form of ratings or a button to click to indicate liking of something. Rewards and sanctions give or take away something that people value, in response to the actions they take. They can be intangible, in the form of approval or disapproval, or status in the community. But they may also take the more tangible form of additional privileges in the community or even money or prizes.

Sixth, communities can articulate different roles, such as welcomers for newcomers or dispute handlers. They can also have rules and guidelines about how people

should behave, which can have a big impact on the nature of interactions in the community. Finally, they can establish procedures for decision-making and conflict resolution.

Seventh, there are access controls, which place limits on who can join the community and what actions they can take. For example, credentials may be checked to allow only qualified people to join, or CAPTCHAs may be required to prevent computer programs from creating accounts. Moderation privileges may be extended to only members in designated roles. Alternatively, people may need to pay, using some internal currency, to perform certain actions.

Finally, in every chapter we find that simple communication choices, ways of framing what the community is and what happens there[1], can have a big impact on how the community functions. For example, a community can highlight bad behavior and how it was punished, or can try to hide that it ever happens. A community can present itself as similar to others, or highlight an outgroup it is competing with. It can prime norms of reciprocity. It can choose a tagline that emphasizes different aspects of the community. These and many other communication and framing choices can affect all five of the challenges, from getting a new community started through regulating behavior in an established community.

Note that, with a few exceptions, we consider only design alternatives that vary how people perceive a community and what they give or get from it. There are a variety of other alternatives in the realm of interaction design that are beyond the scope of this book. For example, while we discuss the impact of including photos of people and associating the photos with the content they contribute, this book is silent about the size, placement, or other aesthetics of the photos. And while we discuss the time cost for people of browsing through a collection of mostly irrelevant items, we do not analyze the various techniques that could be used to reduce those browsing costs, such as showing collapsed summaries with the full contents pre-fetched so that they can be displayed without delay if a user hovers or clicks on an item summary. Interaction design choices can have a profound effect on the user experience of an online community and can can nudge people toward certain behaviors just as well as the design levers we focus on. The subtleties of interaction design, however, are beyond the scope of our expertise and beyond the scope of this book.

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1 In the field of behavioral economics, a "decision frame" refers to the decision maker's conception of the acts, outcomes, and contingencies associated with a particular choice. [Tversky, Amos, and Daniel Kahneman, 1981. "The Framing of Decisions and the Psychology of Choice." Science 211: 453-458.] We use the term more broadly, beyond the context of specific choices or decisions.

## 4. The morality of design

Even if convinced of the feasibility of designing online communities, some of our students question its morality. The terms "social engineering" and paternalism have acquired negative connotations in American political discourse. Generally, people dislike the idea of being manipulated, even if it's for their own good. Viewed in that light, designing the interaction environment of an online community in order to elicit individual behavior that benefits the community as a whole seems morally repugnant.

Weighed against this value of freedom from manipulation, however, we think there is also a moral imperative to create online communities that work well. People gain immense value from the information, learning, social support, and entertainment that online communities provide to their members, and from the information products that they produce for society. If different design alternatives can make the communities more attractive for their members or more productive, then forgoing those benefits may be a significant cost.

Moreover, decisions will be made anyway, through inaction if not through action, about all the design alternatives considered in this book. Any such choices, no matter how they are made, will inevitably influence members and prospective members to behave in certain ways. There is no "default", morally neutral online community design that has no manipulative effect on members.[2]

Thus, we argue that the primary moral arguments are not about whether to make explicit design choices in order to achieve community goals, but about which community goals are the right ones. Making an online community function better may not always be a worthy goal. In some cases, an online community that functions well may produce negative effects for its members (for example, a community that encourages and supports its members to continue their bulimia) or for society as a whole (for example, a terrorist cell). In other cases, it is not so clear what it means for an online community to function better. Most goals, if achieved, involve improving the community in the eyes of some people and making it worse in the eyes of some others. For example, trolls gain enjoyment from disrupting some communities. A design that effectively deters trolls benefits most of the community members but makes things worse for the trolls.

In the remainder of this book, we leave moral judgments, about which goals are

[2] We are indebted to Thaler and Sunstein, who nicely articulated a similar argument in the context of choice environments, such as the selection of healthy or unhealthy foods from a cafeteria, or whether to set aside money from each paycheck to invest for retirement. They argued that any choice environment will predictably nudge people toward making one choice or another and there is no way to pick a default, morally neutral choice environment. Either the apples or the chocolate bars can be at eye level in the cafeteria checkout line, and whichever one is there will be consumed more than it otherwise would.

worth designing for, to our readers. Our focus is on identifying the likely effects of particular design alternatives in meeting the fundamental design challenges of online communities. We sometimes adopt shorthands like “good behavior” and “bad behavior”, but these should be taken as good or bad relative to the goals of the designer, whoever that may be.

## 4. The promise of mining social science

How can an online community designer build up intuitions about the likely impacts of alternative design choices? Previous practitioner authors have offered many helpful insights, based on design decisions that were made when building online communities they advised or observed (e.g., Kim, Powazek, O'Keefe). Preece summarized terminology and findings of research related to interpersonal communication and networks and groups that may provide useful background knowledge for a designer.

The second central argument of this book is that social science findings can and should inform more directly the choices that online community designers make. There is a rich research literature in psychology, economics and the other social sciences about individual motivations and conditions under which individual, groups and organizations are successful. While most of this research has developed in the context of off-line interactions, some has now been replicated in online social settings.

Social science research can inform design in several interrelated ways. First, it can be used to identify problems or challenges that will be faced by most online communities. For example, the theory of network externalities in economics, which we discuss in Chapter 2, and the empirical research from which it grew, explore the impact of the fact that the attraction of many groups for potential members grows with the number of people who already participate. This relationship between the attractiveness of a community and its size raises problems for new communities, because during their start-up phases, they do not have enough members to provide the resources that will attract others and allow themselves to grow. As another example, the theories of public goods from economics and of social loafing from psychology predict that when individual contributions are required to produce outcomes that benefit everyone equally, there will be lower than optimal contribution levels. The information contributions that people make to online communities often have this public goods character, and thus, encouraging contributions is an important challenge for many online communities.

Second, social science theories can be sources of ideas for solutions to the problems. Thus, if, as theories of network externalities predict, new online communities struggle because they initially have too few members and too little content to attract and retain members, one can overcome this problem by coupling the new community to existing ones. As indicated previously, this is the solution adopted by

the makers of Scrabbulus, who introduced their game in Facebook, which already had a large number of members available as players. As another example, theories of collective effort identify several potential solutions to communities facing problems of under-contribution. Since feeling that one's contribution will be redundant is one reason that people under-contribute, a solution is to make potential contributors believe that their contributions are important. Designers have a number of ways to make potential contributors feel that a contribution will matter, such as partitioning the group so that each contributor is a member of a smaller subgroup, or reminding potential contributors about the uniqueness of their contributions.

Finally, and perhaps most importantly, the social science research base provides predictions about likely consequences of various design decisions. For example, theories about interpersonal bond formation yield a prediction that a target member will become more committed to a community to the extent that they have repeated interactions with the same other members and to the extent that those other members are similar to the target member. As another example, theories about goal setting and monitoring yield a prediction that contribution goals will be more effective at eliciting member contributions the more challenging they are. We refer to predictions of this sort as design claims and describe the structure and limits of such claims in more detail in the next section.

One strand of theory we draw on starts from a premise of individuals making choices that increase their own utility, the difference between their benefits and costs. Thus, many design choices are geared around reducing costs, increasing benefits, or changing individuals' ability to assess the costs and benefits. Game theoretic models enable analysis of interdependent choices and predictions about equilibrium outcomes. For example, in a situation where many people would want to join an online community but only if others also joined, there are two equilibrium outcomes, one where everyone joins and one where none do. In such situations, one task of the designer is to shape people's expectations about what others are likely to do. Models of incomplete information permit reasoning about situations where there is uncertainty. For example, such models can help to understand whether a seller's previous feedback on eBay can be expected to serve as a reliable signal about his or her trustworthiness.

We also draw on a variety of other theories from the fields of social psychology and organizational behavior that predict individual behavior in group and organizational settings. We use the plural "theories" advisedly: there is no unified theory in modern social psychology with pretensions of explaining all of social behavior. Rather, the intellectual style has been to build and test a large number of mid-level theories, each attempting to account for an interesting social phenomenon in a limited domain. For example, we draw on theories of goal setting, social comparison, persuasion, conformity, and interpersonal bond and group identity formation. Despite the lack of a single overarching theoretical framework analogous to that of evolution in biology or utility maximization in microeconomics, these mid-level theories provide a rich and empirically verified understanding of some of the central

phenomena of behavior in social settings.

While social science theory is helpful in identifying problems that online communities face, suggesting potential solutions to them, and articulating claims about the likely impacts of design choices, it has its limits. First, the theories are incomplete; they offer no guidance on some important design choices. Second, they may be incorrect; like all scientific theories they are subject to revision as new experiments are conducted and new data are collected. Third, creativity and care are required to map general theories to the particular context of online communities; here we hope that this book makes a contribution, by translating social science findings into useful design claims.

## 5. Design claims

We follow a positivist scientific paradigm, seeking to state general claims that under certain observable conditions, certain outcomes can be expected. In our case, the conditions that are of particular interest are design alternatives, and the outcomes are desirable features of an online community, which we will refer to as design goals. Thus, for example, we state in the chapter on incentives and rewards a design claim that "*Small tangible rewards are likely to reduce effort on intrinsically interesting tasks*." Here, the design alternative is promising small tangible rewards and the design goal is maximizing the efforts that members contribute to tasks that benefit the community. We restrict the scope of applicability of design claims by specifying a restricted set of context conditions for their applicability. Thus, the claim above applies only to intrinsically interesting tasks, and not to boring tasks. The context conditions will specify properties of the community (e.g., size, purpose), properties of members (e.g., whether newcomer or long-time member, gender or other demographic characteristics), or properties of tasks (e.g., challenging, interesting).

Many of our design claims are comparative. For example, the chapter on rewards includes a design claim: *Non-transparent eligibility criteria and unpredictable schedules will lead to less "gaming of the system" than predictable rewards*. Here there are two design alternatives, predictable rewards vs. rewards with non-transparent eligibility criteria and unpredictable schedules. The claim is that one is better than the other at achieving the goal of people not doing useless or destructive actions just to get the rewards (gaming the system).

Another comparative design claim is: *When asked to do an altruistic task, people will be more willing to do it when the group is small rather than large.* Here, the claim is that the design alternative (asking people do a task that benefits society at large, not just the community) will be more effective in some communities than others. In some cases, a comparison between contexts can be turned into a comparison between alternatives, if the context variable is under the control of decision makers. For example, the design claim could be reformulated as, "Capping the group size will help achieve the goal of getting people to perform altruistic

tasks." In other cases, however, it will be more natural to express design claims that offer comparisons between the effects of a single design alternative in two contexts.

Thus, we have three logical structures for design claims:

| Type | Logical structure |
|---|---|
| Singular | alternative X helps/hinders achievement of goal Y under conditions Z |
| Comparative between alternatives | alternative X1 is more effective than X2 at achieving goal Y under conditions Z |
| Comparative between contexts | alternative X helps/hinders achievement of goal Y more under conditions Z1 than Z2 |

Whenever we state design claims, we offer evidence in support of them. In some cases, the evidence comes from social science theories or findings that have been articulated for more general settings beyond online communities. Usually, these theories have been tested in abstract laboratory settings. In other cases, the evidence comes from experiments specific to the online community setting. Evidence may also come from observational studies of particular online communities. Observational data may be quantitative (e.g., counts of how many posts were made) or qualitative (e.g., analysis of their content, or subjective reports from interviewing participants). In some cases, observational studies will be used merely to offer an example consistent with the design claim (i.e., here is a site that used alternative X and it achieved goal Y). This, of course, is relatively weak evidence, since the only information it provides about whether X had anything to do with the achievement of Y comes from the subjective reports of the designers or participants.

Our project of collecting and organizing "design claims" is akin to efforts to codify "pattern languages" (Alexander et al 1977, Rising 2001) There are a couple of differences in our approach, however. First, while we are sometimes inspired by a bottom-up approach of noticing commonly occurring features of online communities, more often we start from a design goal and some relevant theories and try to systematically explore the space of possible design choices that could help achieve the goal. In some cases, we identify choices that *should* help achieve the goal, but have not yet, to our knowledge, been tried in existing communities. Second, although approaches to pattern languages vary, usually the design alternative itself is the central element, presented with ancillary information about when it might be best to use it, what it can be expected to accomplish, and hints and cautions about implementing it. By contrast, as we discuss below, we have organized our exposition around goals and challenges, presenting together all the design alternatives that have an impact on that goal. Third, we have chosen the term "claim"

rather than "pattern" to emphasize that we are laying out causal claims, in which design X leads to outcome Y, rather than merely observing that X occurs frequently in practice. The preface to "A Pattern Language: Towns, Buildings, and Construction" indicates that Alexander intended patterns to convey causal claims, indeed that they should convey necessary as well as sufficient conditions (if you want to achieve an outcome Y, then X is necessary). Not all of the actual design patterns, however, in Alexander's work or among others adopting the pattern language approach, seem to make such causal claims.

It is worth noting that both design alternatives and design goals can be expressed at varying levels of abstraction. For example, a design alternative at a high level of abstraction might be to provide tangible rewards for activity. At a much more specific level of abstraction, two design alternatives might be to provide a $5 gift certificate or to make a $5 donation to a charity that the user chooses. Throughout the book, our design claims are made at whatever level of abstraction is most appropriate. It is also worth noting that what is expressed as a design alternative at a high level of abstraction may be expressed as a goal at a more specific layer of abstraction. For example, at a high level, we might say that the design alternative of "making people feel unique" helps achieve the goal of "motivating effort." A more specific design claim might state that "reminding people of unusual actions they've taken" helps achieve the goal of "making people feel unique."

It is also worth noting that a design alternative X may be compound, combining simpler alternatives. For example, a design claim might state that having a forum and a separate email list will make it harder for either of them to get to a critical mass of usage. Or, a design claim might state that, for technical support communities, an email list and wiki used together in a reinforcing way are more effective than either one on its own (Hansen 2007).

The design claims are not prescriptive rules that a designer can or should follow blindly, for two reasons. First, the predictive claims state only that a design alternative X helps or hinders achievement of a goal Y, not that it will always achieve or prevent the achievement of the goal. A claim that, *“Small tangible rewards are likely to reduce effort on intrinsically interesting tasks”* is a claim about the effect “on average”. In a particular situation, a designer will need to judge how intrinsically interesting a task is and whether a reward is likely to perceived as small or large.

Second, multiple design claims may suggest implications of a single design choice for more than one design goal, and the designer may have to trade off achieving one goal against interfering with another. For example, in an open source project, the design alternative of giving lots of people commit privileges (so they can easily add their contributions to the group's code base) would be likely to increase the number of contributors but decrease the amount of effort by each person, and may also increase the number of bugs in the code. A designer will need to judge whether that tradeoff is worthwhile in the particular situation.

Third, the theories from which our design claims derive, and thus our design claims as well, usually state the effects of manipulations holding everything else constant. On the other hand, whether designing from scratch or changing an existing system, designers typically make a number of choices at the same time. For example, at the same time that a community introduces a point system to track and acknowledge member contributions, it may also change its tagline and FAQ to suggest a more collaborative, less competitive atmosphere. Design claims offer guidance on the likely impact of either of these changes separately, not their joint impact. A designer will need to rely on intuitions to judge whether a set of design choices are complementary or whether they interfere with each other.

## 7. Organization of the Book

We have organized the book around the high-level design challenges described in Section 3. Thus, design claims related to a particular goal are presented together, even though they may involve quite different design elements. This organizational scheme serves several purposes. First, for a student or practitioner new to online community design, it highlights the challenges that typically arise in online communities, so that some thought can be given to them before they arise. Second, it offers a systematic way to consider and compare alternative approaches to handling those challenges. For example, a designer who begins with a particular design element, perhaps because a boss has encountered the feature in another community and asks her to investigate its use, will naturally be led also to consider alternative ways to achieve the goals that design element normally promotes, because they are presented near each other in the book.

We try to salvage some of the benefits that could be gained from alternative organizational schemes through cross-indexing. Design claims related to achieving the same design goal appear linearly near each other in the same chapter. When a particular design element or theory used in one design claim also appears in other sections or other chapters, we include cross-references. Each chapter concludes with a summary of all the design levers considered in the chapter, grouped by the eight categories above, to provide an alternative index into the contents of the chapter.

Chapters 2-6 are structured around the high-level design challenges:

- Chapter 2: starting an online community
- Chapter 3: attracting and socializing newcomers
- Chapter 4: encouraging commitment
- Chapter 5: encouraging contribution
- Chapter 6: regulating behavior

No book is ever complete. There are always more topics at the periphery that could be included. Our book says much about beginnings -- new communities, and the entry of new members to existing communities. By contrast, it says little about

endings. A future iteration could usefully examine when and how to gracefully handle individual departures and how to gracefully close a community that no longer serves a clear purpose. The book also says little about the challenge of keeping an online community fresh over time. As with other organizational forms, if they last a long time there is a danger that the world will pass them by. Designers and managers can make choices that enhance the community's ability to monitor changes in the larger environment and to innovate in its practices in response to those changes. Again, a future iteration of this handbook could usefully include a chapter on organizing on-line communities in a way that encourages innovation.

Despite these limitations, we think that this book will provide useful guidance to practitioners as well as an introduction to online communities suitable for advanced undergraduates and professional master's degree students. Through specific design claims, backed up with supporting examples, the book provides a wealth of useful design guidance. By organizing the exposition around fundamental design challenges, however, we encourage practitioners to consider alternative solutions to challenges they face, rather than simply adapting a feature they have seen in other sites. Moreover, by grounding the design claims in theory as well as empirical examples, readers will be better able to reason about whether a particular technique is likely to work in particular online communities.

We hope to evolve the set of design claims and their justifications over time. Please send us your examples, both those that support our design claims and those that do not. Or post a public comment on our web site: join the online community of online community students, practitioners, and researchers! [Note: site not up yet. Coming soon.]

----------some (but not nearly all) of the cited references follow; some of these need to be removed as they are not used.


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