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Patterns for Successful Knowledge Sharing in Large Online Communities

Elizabeth Whitworth & Robert Biddle
Human Oriented Technology Lab
Carleton University; Ottawa, Canada
Email: ewhitwor@connect.carleton.ca
Phone: +1 613 520 2600 ext. 6317
Fax: +1 613 520 3667

Abstract

Many online community sites have been created in recent years to better harness the information sharing power of the Internet, calling on community members to provide both content and commentary. Unfortunately, relatively few have prospered in the nebulous web environment. Some communities lacked momentum and could not draw in enough members. Perhaps more tragically, however, many were unable to maintain their community environment once initial success brought flocks of new members from all corners of the web. This paper provides a small collection of patterns on how to implement community design that better supports optimal collaboration, cohesiveness, and enjoyment in large, collaborative online communities.

Introduction

*“I am doing it ‘cause
I wanted an online community
that does not suck”
- Rusty of Kuro5hin.org*

Online collaborative community sites propagate useful information to a community, and usually provide space for discussion of related issues. These communities depend on members to collect relevant information, and to present it to others in a readable form. A prime example of such a community is Slashdot.org, where users submit and comment on technology news items.

When these communities become large, however, the increasing number and variety of members and member contributions create problems. Without controlling measures, certain users can disrupt the smooth running of the community: by wasting time and space with irrelevant contributions; by misleading others with misinformation; and/or by degrading the community environment with overly emotional or contentious content. Another issue is the sheer amount of information available to users. To avoid information overload and promote readability, the community needs to decide what information should be displayed and how. In addition, large online communities are trying to foster a community based on sharing and trust in the transient web environment. The patterns in this paper propose software features that will facilitate successful online communities, and help manage scale and quality issues.

In order to develop and sustain themselves, collaborative online communities need to encourage members to become involved and contribute to the community in useful ways. They need to provide useful resources and ways for users to easily access the resources they are interested in. And as places where members want to connect intellectually and often socially with others, online communities need to provide a safe and enjoyable interaction environment. Since virtual environments strongly influence community development by controlling what actions can and cannot be taken, the needs of the community should be carefully considered when creating software to support social and collaborative environments.

Our patterns identify common problems and known solutions to issues dealt with in the development and organization of self sustaining online communities. Social and technical issues are inexplicably entwined in online communities (Shirky, 2003). Our patterns aim to help reduce the social-technical gap (Whitworth, 2004) – the difference between social needs or expectations and the capability of the software system present in online communities today.

The patterns were identified by studying the tactics of long standing and successful communities. The underlying context for all the patterns will be online collaborative communities with relatively open membership, and where the community depends on members or visitors for some or all of its content. Note that rather than focusing on individuals and interpersonal relationships as in previous pattern languages (e.g. Schümmer, 2004), the patterns in this paper focus on long term sustainability of the community as a whole.

Pattern Summary

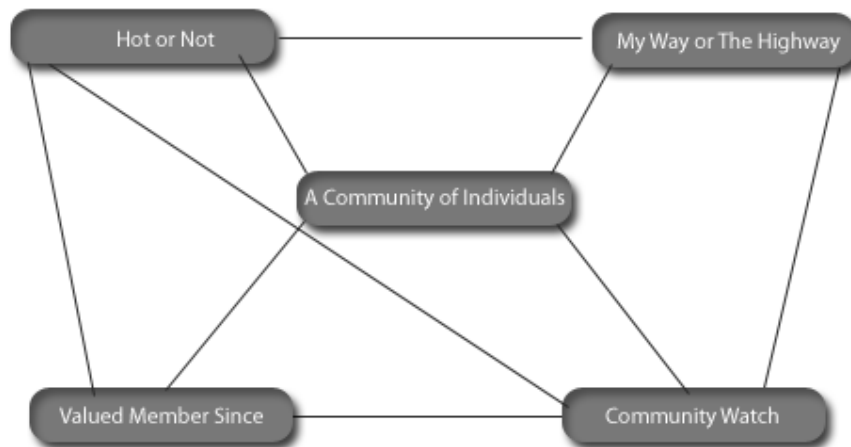
Community Watch regulates the community using member feedback.

Hot or Not displays whether information is considered good or useful by members of the community.

Valued Member Since... encourages members who add value to the community by visibly enhancing their status.

My Way or the Highway allows members to customize their view of community information.

A Community of Individuals encourages the creation and long term use of a community identity.



Forces

The key forces involved are as follows:

- **Time:** time, or lack thereof, is integral to the running of any collaborative online community. Community creators or leaders don't have the time to personally regulate all members or member contributions, and most members don't have time to sift through useless information to find what they need. Patterns that resolve this force will help reduce the amount of time individuals spend both regulating the community and utilizing community resources.
- **Quality:** the quality of both the members of the community, and their contributions to the community will dictate the success of the community. Patterns that resolve this issue will

attract and cultivate quality members who add value to the community, and will encourage high quality contributions.

- *Scale*: communities change in nature as they become larger or smaller in member size or amount of information. Patterns that resolve this force will: help better organize community resources; distribute the work of running the community among members; and provide ways for communities to deal with more variability in member capabilities and goals.
- *Motivation*: members need to be motivated to contribute to a better community environment. This motivation relies on things such as identification with the community, enjoyment in participating in the community, and/or the usefulness of the community to members. Patterns that resolve this force will increase member motivation to actively participate in and add value to the community.
- *Diversity*: the World Wide Web is traversed by a hugely diverse population of individuals, each with different interests, opinions, goals, needs, and talents. Patterns that resolve this force will provide ways to avoid conflict, maintain community goals, and provide useful resources to users in the face of this diversity. Optimal patterns will capitalize on member differences.
- *Transience*: while there will likely be a stable group of core community members, online communities deal with many new or casual users on a regular basis. Patterns that resolve this force will help online communities deal with shifting membership and help cultivate long term members.
- *Freedom*: the actions of community members within the software environment can be restricted to varying degrees. Allowing more freedom increases the chance of actions that will harm the community, while decreasing freedom can stifle member enjoyment, innovation, and creativity. Patterns that resolve this force will provide structure to the community without unnecessarily restricting members.
- *Sense of Community*: this refers to a social environment that members can feel a part of. Patterns that resolve this force will increase the sense of community felt by members so that they are willing to invest their time and effort into the community (related to motivation).
- *Community Goals and Culture*: the importance of each of the other forces will be ultimately influenced by the nature of each community, comprised of the communities own vision, goals, rules of operation, and member base.

Pattern: Community Watch

Intent:

Regulate the community using member feedback.

Context:

A large online community with changing and active membership, where there is a large amount of user provided content, and where maintaining good community environment is important to members and to the running of the community.

Problem:

It's difficult to maintain the quality of the community environment and of the resources in a large community with changing and active membership.

Forces:

Time, quality, scale, motivation, freedom, diversity, transience, sense of community.

- A significant portion of the membership of any open online community will be new or casual members.
- Newcomers to communities are often unaware of unwritten (or written) rules or cultural norms that help the community run smoothly.
- Users or members who are unconcerned with the goals and wellbeing of the community can have strong negative effects on the community.
- Members like to contribute to the community and to get feedback on their contributions.
- It takes a lot of manpower to regulate or moderate large collaborative communities.

Therefore:

Recruit members of the community to provide feedback and help regulate the contributions and actions of others.

The point of this pattern is to utilize the community member base to help organize community resources, as well as to restrict the negative effects of new or casual users who do not know how to create value to the community, or who do not have the community's best interests at heart. This pattern is not meant to impose a totalitarian regulation force on the community, but rather provide necessary regulation that teaches members what is and is not acceptable in the community, creates a better environment for members to interact in, and encourages high quality contributions. Members of a community provide a large and often willing source of manpower to regulate others.

Regulation can involve some kind of some kind of rating on a scale, or a +/- choice that will add to or take away from an average score. Regulation of member contributions can help other users decide whether they want to view the contribution or not, and can effect things like where contributions appear on the site, or whether they are displayed at all. Member ratings or scores can occur through their association with the ratings of their contributions, or through other members rating them directly. Regulation can be useful in determining things like the base rating of future contributions from that member, or whether the member is given appreciation or rights within the community.

Implementation:

The ability to rate others and therefore effect how others can interact or are perceived within the community is a power and a responsibility. Rating systems should be well thought out. The rating system itself can be based on a score that can be raised or lowered, a base score that can only increase, or some kind of qualitative rating such as "Interesting," "Funny," or "Irrelevant." The type of rating used may have surprisingly significant effects on community dynamics. For

example, if you use a rating scale that can only increase, then members will likely turn collecting rating points into a kind of a game, where the winner is the one with the most points. Another consideration is whether ratings are persistent or whether they should degrade with time. Persistent ratings may mean that older information gets more attention than it should, but ratings that are reduced with time may be discouraging to members as the “value” or appreciation of their contribution fades away.

Avoid allowing a small number of ratings to strongly effect regulation results. For example, if there are only 2 ratings, and both are negative, this doesn't necessarily mean that that contribution will not be useful to some members of the community. In addition, there need to be measures to make sure that a small number of individuals can't strongly influence regulation. You can do this by allowing each member only one rating per member, member interaction, or member contribution. Depending on the nature and dynamics of your community, you should also consider issues such as whether members can to change their ratings once they have submitted them.

Some users may take advantage of a regulation system to forward personal, rather than community goals, or may not be qualified provide a proper or useful rating. A possible solution to this is to restrict rating capabilities to certain members of the community in order to increase the quality and fairness of the regulation. For example, rating capabilities may be restricted to people who are longstanding members, or to people who have high ratings themselves.

Known Uses:

Slashdot.com: In Slashdot's comment moderation system, members of the community who meet certain requirements are given a number of points of influence which they can use to moderate any comments on the site. Moderation involves selecting an adjective (e.g. 'Flamebait' or 'Insightful') from a drop down list. Negative words reduce the comments score by one point, while positive words increase the comments score by one point. Moderation scores affect whether comments are displayed to the community or not.

Meta-moderation is then utilized by Slashdot, where selected users can moderate the moderations of other users. This meta-moderation effects user “karma”, which is a measure affecting the initial rating of comments posted by each user as well as whether they will be eligible to moderate again. Slashdot moderation is only available to long time members of the community who log on frequently to the site and who have good “karma” (based on contributions and moderations in the past).

It's interesting to note how the creators of Slashdot changed their measure of karma from a point system to a limited scale of descriptive adjectives: “Terrible, Bad, Neutral, Positive, Good, and Excellent.” The reason given was that users turned karma scores into a kind of a game in which the winner was the one with the most karma. In contrast, the creators wanted to emphasize that karma was simply a means to regulate their community.

Kuro5hin.org: a collaborative site featuring articles and commentary on technology and culture. Beyond Slashdot's member moderation of comments on the site, Kuro5hin utilizes members of the community in editing and moderating the actual articles provided on the site. When members first submit an article to be displayed on the site it goes into the “edit queue.” In this queue, the member's article is viewed by other members who can post comments and suggestions for improving the article.

After 24 hours, or at the author's request, the article is then moved in to the “voting queue.” In this queue members of the community can vote to have the article posted on the front page, on the topic section page, or not to have it posted at all. Once the votes for an article reach certain thresholds, the article is either dropped from the queue without being posted on the site, or posted on the page suggested by most members.

Resulting Context:

A community that regulates or runs itself from the bottom up. The resources provided on the site are of high quality, and new or casual members are minimally disruptive and can learn quickly from the feedback of other members. Content can be better organized and delivered to users based on member ratings.

Related Patterns:

- Reward participation in regulation activities by using *Valued Member Since...*
- Use regulation ratings and scales to inform customization in *My Way or the Highway*.
- Identify community members to regulate others using *A Community of Individuals*.
- *Hot or Not* can be used as a regulation technique.
- Similar to *Letter of Recommendation* (Schümmer. 2004. *Patterns for Building Communities*), where users rate interactions with artifacts, and combined user ratings are displayed alongside the artifacts.

Pattern: Hot or Not

Intent:

Display whether information is considered good or useful by members of the community.

Context:

A large online community where the amount of content users can access exceeds the amount they can easily browse through, or where users need a way to assess the quality of content. Community owners may not have the time or knowledge to evaluate the content.

Problem:

A community needs to provide metadata on content to allow users to easily view, filter, or search through information to find what they need.

Forces:

Time, quality, scale, motivation, diversity, sense of community.

- A large amount of content results in information overload for members of the community.
- User contributions vary greatly in their quality, usefulness, and relevance.
- In a large community it is often impractical for the community creator/s or core group to moderate all community content.
- Some users have limited time to browse community content.
- Some users have a lot of time to browse community content.
- Users like to contribute to the community and to get feedback on their contributions.

Therefore:

Provide ways for community members to quickly rate community content and display the rating results alongside the content.

The point of this pattern is to provide user feedback on community content to facilitate information finding and viewing. Displayed ratings should give users feedback on the accuracy, usefulness, and/or quality of a contribution according to others in the community, helping them avoid undesirable information or resources. The solution to this pattern is especially useful when dealing with member contributions, and also serves as a simple way to get users involved and invested in the community.

Implementation:

The value of this pattern is related to the fact that it provides a *quick* and *easy* way for community members to contribute their opinion. The information gathered is not very rich, but should provide a good representation of overall community opinion. Therefore consider the complexity of the rating process and scale when developing a rating system. The simpler and easier the rating, the more likely it is that people will take the time to contribute their opinion, increasing the usefulness and accuracy of the overall displayed numbers. The rating scale is should be relatively straightforward, and the rating process should involve a single click, or a selection from a drop down menu. The aim is to collect as many ratings as possible to display an aggregate result.

You can even collect community usage information so members can “vote with their feet,” without having to actively vote. This could include looking at more details of a contribution, or downloading a file. For example, “Downloaded 34,000 times this week” information found next to resources on online forums is a good indication to members that the file is worth downloading.

Care should be taken in how ratings and rated contributions are displayed to users. For example, collective rating may have side effects in that postings that are highly rated early on will subsequently be pushed higher than they deserve on the rating scale. It is useful to give a range of

information surrounding the ratings, such as how many ratings have contributed to the overall score so far. This allows users to better evaluate whether to pay attention to the rating themselves.

Known Uses:

Amazon.com: provides a rating system where at the end of each product review visitors can click “Yes” or “No” to the question “Was this review helpful to you?” The results of this rating are displayed at the top of each review as “19 of 36 people found the following review helpful.” This provides a level of information above the single number provided by bash.org, telling the reader how many people rated overall, and how many said “Yes.”

Resulting Context:

An online community where members or visitors can quickly and easily view member feedback on content, and provide their own. The rating results assist readers in identifying high quality content that is relevant to their goals. Readability of content is greatly increased, and information overload can be avoided by viewing only highly rated content. Quality member contributions are encouraged since contributors get positive feedback, and inappropriate or lower quality contributions will be discouraged through negative feedback or no feedback at all.

Related Patterns:

- Use as a type of regulation technique in *Community Watch*.
- Inform the customization in *My Way or the Highway*.
- Reward participation in rating activities by using *Valued Member Since*.
- Similar to *Letter of Recommendation* (Schümmer. 2004. *Patterns for Building Communities*), in which users rate their interactions, and combined user rating are displayed along with the artifact they interacted with to help other users decide whether to interact with the artifact or not.
- Also related to *Activity Counter* (Schümmer. 2004. *Patterns for Building Communities*), where a visualization is attached to artefacts that show numbers of activities such as visits, or downloads.

Pattern: Valued Member Since...

Intent:

Encourage members who add value to the community by visibly enhancing their status.

Context:

A large online community that seeks to provide quality content and maintain a good community environment for users to interact within.

Problem:

A community needs to increase involvement from members who add value to the community.

Forces:

Quality, motivation, sense of community, transience.

- Communities need members who will put time and effort into adding value to the community. It's hard to find such members.
- Members have limited time.
- A significant portion of the membership of any open online community will be new or casual members.
- Lurkers, or longstanding members who tend to view community information rather than actively contribute, also make up a significant portion of an online community.

Therefore:

Provide ways to visibly appreciate valued members and/or give them more privileges within the community.

The point of this pattern is rewarding valued members for their participation in the community. Gaining rights and good standing in the community are strong motivators for members to contribute in useful ways, and the positive feedback to valuable contributions will encourage contributions in the future. Making member standings visible also adds an important dimension to user interactions, assisting others in deciding whether/how to interact with that member, and in evaluating the content that they provide to the site.

A *valued member* can be anyone who adds value to the community. This could be someone who is a long time member, who has made a certain amount or quality of contributions, or who has good standing in the community according to any number of criteria. The *visible appreciation* of valued members could also take many forms, one of the more common being the "Member since [date]" tag that is appended to many online community profiles. The *privileges* given can involve any type of power or freedom that is not available to other members. For example, the freedom to contribute to the community without moderation, or the power to moderate the activities of other members.

Implementation:

The type of appreciation or rights given to users will depend on the nature of your community and member base, and should be something that is meaningful to members. Think about any side effects that could result from the types of rewards given. For example, only giving visible appreciation to members who have contributed more than fifteen articles to the site may discourage new members who may only have the time to contribute one or two articles.

Known Uses:

Slashdot.com: a karma rating used is displayed for each user. Users with good karma, besides being able to feel good about themselves, are more likely to have their posts viewed by other members of the community, and to be selected to moderate other user's contributions to the forum.

EBay.com: on EBay, positive ratings from customers result in a high feedback score. Feedback scores and corresponding "feedback stars" are shown next to every members user ID. A feedback score of at least 10 displays a simple yellow star, and larger feedback scores earn different coloured stars, all the way up to a red shooting star displayed for a feedback score above 100, 000. The EBay FAQ notes how "Your star is your symbol of trust and experience in the eBay community"

Resulting Context:

A community where valued members are cultivated by rewarding actions and contributions that add value to the community. Users of the site can more easily identify valuable resources on the site by viewing the contributions of valued members.

Related Patterns:

- Reward and encourage member investment and participation in the community such as those described in *Hot or Not*, *Community Watch*, and *A Community of Individuals*.
- An example of visible appreciation would be *Hall of Fame* (Schümmer. 2004. Patterns for Building Communities), which increases member motivation to contribute by providing a list of participants who have participated most in the community.
- An example of giving rights within the community would be *Pay Back* (Schümmer. 2004. Patterns for Building Communities), where motivation is provided to members in the form of virtual money with which they can purchase services within the community.
- A similar pattern is Letter of Recommendation (Schümmer. 2004. Patterns for Building Communities), where users rate interactions with artifacts, and combined user ratings are displayed alongside the artifacts.

Pattern: My Way or the Highway

Intent:

Allow members to customize their view of community information.

Context:

An online community with a lot of content, and many members with diverse needs and abilities.

Problem:

A single view of community content may not suffice for a broad base of users with a variety of different needs, interests, and time constraints.

Forces:

Time, quality, scale, motivation, freedom.

- Individual members of a community have a variety of different needs and interests. One person's trash may be another person's treasure.
- Large numbers of contributions will result in information overload for members of the community.
- Some members have limited time to browse the community contributions, while others have a lot of time to browse community contributions.

Therefore:

Provide ways for members to customize their views of community resources.

The point of this pattern is to increase viewability and accessibility of community resources, catering to a range of user needs and interests. This will increase access to community content and member enjoyment, as well as member willingness to participate in the community.

Customizable views allow members to more easily access information that is personally useful and interesting to them. Customization could involve simple personal choices regarding the colour or layout of the community user interface. Simple customization could be available based on category, date, author, or some other piece of meta-information inherent in most community contributions. More complex customization would involve customization based on advanced information collected on community content, such as the ratings and moderations collected in *Hot or Not*, and *Community Watch*.

Implementation:

In deciding what kind of customizations will be most useful, consider your specific member base and community, and which choices will be the most important to them. The type of information that you have or collect on each contribution will determine what kind of customized views can be created. A simple number rating provides information on the perceived quality of a community resource, but you could collect more in depth information on whether members found the resource was "Funny," "Insightful," "Useful," etc. and allow users to customize their views based on these categories.

Be careful when designing custom views based on ratings that good community resources are not inadvertently lost to the community because they are not being viewed. Customized views based on member ratings depend on the fact that at least some members will be viewing each contribution as it comes in, and that they will rate useful information highly to move it up the viewing chain. It is best to provide a specific area on the community site where the newest contributions always appear, and users with time on their hands can view and rate them as they come in.

Known Uses:

Slashdot.com: Slashdot allows users to customize their view of the community based on a “threshold,” or minimum score that a comment needs to have if it is to be displayed. Comments have a score of -1 to 5 based on member input, and each individual can set their threshold at any score within that range. If they set their threshold at 3, only comments with a score of 3 or above would appear in their view.

Freshnews.org: Freshnews.org delivers tech news headlines from across the web. The site allows users to customize content based on user interface (colour theme), content (which sites headlines will appear on the page), and type of interactivity (do links appear in the parent window or a new window).

Resulting Context:

A community where each member can access the information and resources that are optimally useful and relevant to their needs. This will save time for members, and increase enjoyment and participation in the community.

Related Patterns:

- This pattern requires members to log-in as suggested in *A Community of Individuals*
- Inform customization with information collected in *Hot or Not* and *Community Watch*.
- One way of implementing customization is through the *Attention Screen* (Schümmer, 2004, *The Public Privacy*), in which users distinguish important information and less relevant information according to certain criteria in order to filter the information that reaches them.

Pattern: A Community of Individuals

Intent:

Encourage the creation and long term use of a community identity.

Problem:

Socially inappropriate behaviours such as “flaming” and “trolling” often reduce enjoyment in online environments.

Forces:

- The online environment is rife with recreational troublemakers (those who cause general disruption in the community, such as flaming, or trolling: postings specifically designed to cause an argument).
- Troublemakers will only thrive in a community if it is easy to make trouble.
- People are social creatures, and generally comply with social norms and culture.
- Online discussions and debates often involve strong opinions and strong emotions.
- Lack of social cues and accountability in online communities reduce the amount of care people take in their actions and contributions.

Therefore:

Create an environment that encourages long term identity.

The point of this pattern is to encourage social identity and awareness in users, including investment in the community, and a sense of responsibility for actions within the community.

A common problem in online communities is “deindividuation”, or increased distance felt by users from their actions or the effects of their actions in online versus face to face environments (Hiltz et al, 1989). Anonymity, where users are interacting with faceless and nameless others, and where users can remain faceless and nameless themselves, is strongly linked to this effect. Long term identities in a community create a social environment where users are interacting with real people, and where they can be held accountable for their actions, reducing the likelihood that people will engage in flaming and trolling activities.

Encouraging long term identity implies that members are required or encouraged to have a login and some kind of profile in order to participate in the community. This provides a small, but surprisingly effective barrier to the entry of recreational troublemakers. Having a long term identity will persuade members to consider their reputation and standing in the community before engaging in any actions. This encourages useful contributions and discourages non-useful or disruptive contributions. Long term identities which members can invest in allow users to get to know each other on a deeper level, increasing cohesiveness and social awareness in the community.

Implementation:

You can decide to either encourage or enforce member identity and log in. Requiring that users are members before they can take action within, or even access the community site creates a barrier for entry, the value of which you would have to evaluate based on your community nature and needs. Encouraging users to become members would involve allowing user access to the community site, but giving privileges to members such as the ability to access useful resources, or the ability to make contributions. Communities may choose to allow anonymity with limited rights in order to attract readers and reduce barriers for entry into the community.

Users, of course, may create a number of accounts, keeping their member standing good on one account, and users others to do whatever actions they like without caring about the consequences. This can be discouraged by utilizing *Valued Member Since...*, giving certain privileges to older

user accounts, and/or those that log onto the site frequently. Requiring some amount of effort to upkeep the good standing of user accounts creates additional barriers for those users not interested in using the community for its intended purposes.

You will have to decide what kind of identifying information users should be able to provide about themselves, and what type of information should be required. Making information such as an email address or date of birth required may scare potential members away.

Known Uses:

Slashdot.com: Slashdot encourages users to log in by attaching the phrase “anonymous coward” to any posting by non-members, and logged in users can accumulate karma points that will increase the likelihood that their comments will be viewed by others.

Kuro5hin.org: Kuro5hin on the other hand, requires users to be logged in order to post anything at all on the site.

OhmyNews (<http://english.ohmynews.com/>): OhmyNews is a widely read and influential South Korean news site. Once registered, OhmyNews reporters can post anything they like on the site, the only requirement is that they reveal their real identities.

Resulting Context:

A safe community environment that users enjoy participating in, where they can gain social benefits by creating a long lasting community identity and sustaining satisfying relationships with others.

Related Patterns:

- Long term member identity can be used to better evaluate or weight the contributions provided by members in *Hot or Not* and *Community Watch*.
- Member identity is needed for *My Way or the Highway*, and *Valued Member Since...*

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