Introducing Patterns (or any new idea) into an Organization

*** WORK-IN-PROGRESS DRAFT VERSION ***
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The foundation for the work in using and writing patterns began with Christopher Alexander who wrote such publications as <u>A Timeless Way of Building</u> and <u>A Pattern Language</u> in the 1970s. When software developers began studying his ideas, interest in patterns began to spread throughout the software development industry in the 1990s. However, efforts to introduce patterns into organizations have had mixed success. The patterns presented here are the beginning of a pattern language that addresses this issue. Its focus is the introduction of patterns into an organization, with the long-term goal the evolution of a patterns culture. The contributors are from organizations all over the world. We have found a close connection between our experiences, which is reflected in the patterns we have written.

The creation of a pattern language needs to be the work of a community. Many people have contributed, and continue to contribute, to the development of this language. These include the pattern authors, those who have attended the *Introducing Patterns into an Organization* workshops, and the countless other individuals who are providing feedback and ideas for improving the patterns. Special thanks go out to Ken Auer who shepherded the first version of some of these patterns for PLoP '97, to David DeLano who shepherded the second version of some of these patterns for PLoP'99, and to James Coplien who shepherded the third version for EuroPLoP'2000.

Just as Christopher Alexander requested, we hope that "many of the people who read, and use this language, will try to improve these patterns – will put their energy to work, in this task of finding more true, more profound invariants – and we hope that gradually these more true patterns, which are slowly discovered, as times goes on, will enter a common language, which all of us can share." [Alexander77, xv]

The Patterns

*Although there are relationships between these patterns,
thus forming the beginning of a language,
an illustration of these relationships is not shown here
since this is still a work-in-progress effort.*

A Pattern of Their Own
Big Jolt
Bread upon the Waters
Brown Bag
Corporate Angel
Corporate Resources
Dedicated Champion
Do Food
e-Forum
Fear Less
Gold Mine
Gold Nugget
Innovators
Evangelist
Ghost Writer
Grass Roots
Hero Story
Hometown Story
In Your Space
Individual Hook
Involve Everyone
Just Do It
Local Leader
Low Rumble
Pattern Mentor
Pattern Writing Guided Tour
Personal Touch
Pilot Project
Play-by-Play Workshop
Respected Techie
Royal Audience
Slowly But Surely
Stay Close
Treasure
Trinket
Workshop as Teacher

Evangelist

To introduce patterns into your organization, you should have strong feelings about the significance of the topic. Let your passion for the new approach drive you.

<<Picture>>

You're part of a software development organization that wants to stay abreast of new technologies. You're excited about patterns. Maybe you went to a conference, read an article or book and, as a result, started learning more. You feel patterns will have value for your organization and you want to spread the word.

You want to get patterns going in your organization but you don't know how to start. How can you begin to introduce patterns to your organization?

It's hard to translate enthusiasm into action that has lasting impact. New ideas are always out there—more than we can handle. You only have so much time to get your ideas across.

To grow your idea into real change for your organization, you must be willing to invest yourself in your cause. When you look for possibilities in every situation, you can take advantage of even small windows of opportunity to get your idea across. Don't worry if you don't have an all-encompassing vision. As Senge suggests for any creative project, "develop a simple plan of action and experiment with it. Let each stage of the work build on the previous stage." [Senge94, 198]

The following is from Bill Brandt, at the time, Chairman and President of Boise Cascade. "I believe it is impossible at the outlet to determine just the right path for achieving desired cultural change. Although having a good initial direction is very important, it is just as important to be willing to modify the course as frequently as necessary. People throughout the organization may well view (some with relief) any significant setbacks as the failure of that new direction. Emotionally, it is critical that the leader not share this view, but rather sees setbacks as the necessary corrections needed to stay on course, just as a sailing skipper adjusts the sheets and the heading in response to changing winds and currents. …Finally, I have learned that cultural change requires both patience and perseverance. There are no quick fixes, and the greater the movement in the right direction, the greater the resistance to be faced." [Senge94, 468]

Therefore:

Become an Evangelist for patterns. Tell others. Share your vision. Let them feel your enthusiasm. Learn as you go and be prepared for setbacks. Give Brown Bags and set up an e-Forum. If you have a well-known contact who will come in to your organization at no cost, bring in a Big Jolt. Do Food at events when you can. Begin to identify Innovators. Try Personal Touch.

<<Diagram>>

If you are successful in conveying your enthusiasm, a small group of those who also believe in the new idea will support you. These Innovators will help spread the word and ultimately create Grass Roots support for patterns. Real impact will require a Local Leader and a Corporate Angel. Be on the look out for possible managerial support.

Known Uses:

The patterns movement at AG Communications Systems began with the work of an Evangelist. She talked to everyone she knew about patterns and gave Brown Bags. A small group of Innovators supported this

early effort and helped her find others who might be interested. She set up an <u>e-Forum</u> and ultimately gained the support of a <u>Local Leader</u> and he helped her find a <u>Corporate Angel</u>.

In Daniel Quinn's book, *My Ishmael*,[Quinn1997, 198-200] A human, Julie, is communicating telepathically with a gorilla named Ishamel. Ishmael has just asked Julie to name the greatest period of human inventivess and Julie replied, "I'd have to say this . . . is it," meaning the Industrial Revolution. "That's right," Ishamel responds and then asks, "How did it work? . . . Did an Industrial Revolution Army move into the capital and seize the reins of power? Did it round up the royal family and guillotine them?

" . . . You've asked me what do to, Julie, and I've given one blanket directive: Be inventive. Now . . . I'm trying to show you how the greatest period of human inventiveness worked: The Industrial Revolution was the product of millions of small beginnings, a million great little ideas . . . It didn't proceed according to any theoretical design, (it) was not a utopian undertaking . . . it didn't depend on people being better than they are . . ."

Gradually, after much give and take, Ishmael suggests that the revolution needed today:

> "won't take place all at once . . .
> "will be achieved incrementally, by people working off each other's ideas . . .
> "will be led by no one . . .
> "will not be the initiative of any political, governmental, or religious body . . .
> "has no targeted end point . . .
> "will proceed according to no plan . . . (and)
> "will reward those who further the revolution with the coin of the revolution . . ."

> And the coin of this revolution is a better way of living.

Author: Linda Rising

e-Forum

As an <u>Evangelist</u> or <u>Dedicated Champion</u>, set up a bulletin board, distribution list or listserver for those who want to hear more.

<<Picture>>

You're an <u>Evangelist</u> or <u>Dedicated Champion</u> trying to introduce patterns into your organization.

How can you initiate and maintain contact with people who might be interested in your idea?

It's hard to get information to everyone at the beginning. We're overwhelmed by too many ideas and everyone is too busy but most people will spend a little time each day reading e-mail.

People might not have time to attend every <u>Brown Bag</u> or other patterns event but they like to know what's going on. So they might read a few e-mail announcements before deciding to become more active in the community.

Amy Jo Kim, author of *Community Building on the Web* tells us, "Because members have to have a way to get to know each other, a community can't really exist without gathering places—mailing lists, message boards, chat rooms—wherever a group can come together and talk amongst themselves. [Kim00, 29] A mailing list is often the best way to get your online community started. If it takes off, you can always add more features and gathering places. You can create a prelaunch mailing list for your founding members, early adopters, enthusiasts, or devotees. You'll get to know some of your most potentially valuable members and let them meet each other, before your member database is set up." [Kim00, 30]

Therefore:

Create a publicly accessible electronic, interactive forum. Advertise its existence. Keep it active and growing. Apply it using <u>Personal Touch</u>.

<<Diagram>>

This virtual community will help you establish a real one. It will provide a way to identify expectations and goals for your organization and create a consistent definition of your new activity.

If you monitor the medium, you can use this information to convince management that the interest is there for the next step—management support and the identification of a <u>Local Leader</u> or <u>Corporate Angel</u>.

Known Uses:

The patterns <u>Evangelist</u> at AG Communication Systems used a growing e-mail distribution to draw attention to patterns activities. The initial list came from <u>Brown Bag</u> attendees. Later, when training courses were offered, attendees were also added to the list. The distribution list was used to advertise pattern news, especially <u>Big Jolt</u> visits. The list made the recipients feel that they heard about an event before the general population.

The <u>Dedicated Champion</u> at U S WEST used a growing e-mail distribution list to send the latest news on patterns events and useful examples of patterns.

Authors: The EuroPLoP 2000 Focus Group on Introducing Patterns into Organizations: Gerhard Ackermann, Frances Evans, Peter Gassmann, Jan de Groot, Pavel Hruby, Klaus Marquardt, Amir Raveh, Linda Rising, Maks Romih, Didi Schuetz, Alberto Silva, Amy Strucko, and Oliver Vogel, with special thanks to Amir Raveh for the idea and capturing the initial version of the pattern.

Just Do It

To prepare yourself for spreading the word about patterns, gather first-hand information on their benefits and limitations by integrating them into some of your current work.

<<Picture>>

You are an individual contributor to a project (perhaps an <u>Evangelist</u> want-to-be) that is motivated to adopt patterns. You are interested in spreading the word to the bigger organization, but you don't have enough experience to effectively evangelize. You will be unable to find a <u>Corporate Angel</u> because you can't fully explain the benefits of patterns from first-hand experience. There is no support for a <u>Pilot Project</u>. However, your local group has some minimal tolerance for experimentation.

How can you position yourself to spread the word about patterns?

New ideas usually incur resistance. You don't want to make a big deal out of something in the organization too soon or people might reject it because it has no internal track record.

It is critical to have concrete knowledge of patterns before trying to spread the word to an organization. Since backers of the status quo will create plenty of reasons why a new idea shouldn't be adopted, the <u>Evangelist</u> must be able to provide some rationale for patterns. A lack of hands-on experience is easy to attack for opponents. On the other hand, positive hands-on experience is difficult to refute. In addition, understanding the limitations of patterns helps the <u>Evangelist</u> avoid overselling and provide some insight into approaches that will work.

Therefore:

Adopt patterns for some current work in progress. For example, you might incorporate the *use* of design patterns into design sessions, presentations, system documentation, and code. You may also want to <u>Gold Mine</u> for patterns in these places. Take time to frequently record the benefits and pitfalls of patterns (ideally find a way to quantify the benefit, although this is typically very difficult). You will have to spend extra time figuring out the best way to integrate patterns. For example, you might be able to add relevant pattern references to an existing design document template. This is a long-term strategy that will typically require a few months of effort before you have enough background to start evangelizing on a broader scale.

<<Diagram>>

You will gain experience from the attempt to utilize patterns. After using them first hand you will have some lessons learned, some concrete ideas and a <u>Hometown Story</u> to use in a larger process of spreading the word.

You might even have created the start of a framework or process that other teams can use as a prototypical example in a <u>Pilot Project</u>. Once in a while an idea will catch hold and grow quickly in the organization without additional effort.

If your initial efforts are not successful, you will need to reconsider the use of patterns or try again with a deeper insight into their limitations.

This pattern also provides background experience for a <u>Local Leader</u>, <u>Dedicated Champion</u>, or <u>Corporate Angel</u> to use in spreading the technology throughout the organization.

Known Uses:

I have used this approach several times to help alter prevailing practice within software organizations. The most successful example was the introduction of an Object Oriented software interface specification practice to a project at Motorola. The System Engineering Organization was using an old interface development practice (a derivative of a hardware development technique) that did not fit well with Object Oriented development approach we were using for software development. I was involved in the development of several major system interfaces at the time and was frustrated by the process. To resolve the problem I created a document called a Programmer Interface Guide (PIG for short – a catchy title really helps) and documented several interfaces using the PIG template. Developers outside my group immediately saw the benefit of this approach. A process was written to augment the document, support tools were developed, and the concept was adopted by the entire organization. Without a concrete example, built internally, this infusion of Object Oriented programming practice would not have been adopted.

Author: Jeff Garland

Workshopped at the OOPSLA'00 "Introducing Patterns into Organizations" workshop (October 2000).

Gold Mine

Get the patterns effort off the ground by combining pattern authoring with another activity that is part of your workload. Scour existing documentation for potential patterns. Maintain a patterns mindset and document other things that are part of your regular work in a pattern format as you go.

<<Picture>>

You are an <u>Evangelist</u> hoping to become a <u>Dedicated Champion</u>, working in a specialized domain without an established patterns literature.

How can you show the organization that patterns exist in what the organization already has?

You have not been officially authorized to do patterns work, so you have little time to spend on writing them. Most of the patterns that people in your organization have heard or read about are from a different discipline or are too high level to be useful to them.

You have access to various kinds of documentation in your organization. You have noticed that information often recurs more than once throughout this documentation. You believe that this is an opportunity to show the organization that patterns are not something that is beyond their grasp.

Therefore:

"Patternize" existing documentation. You may have been using patterns already and just haven't realized it. Many companies encourage employees to document best practices or lessons learned in a freeform manner. Scour this documentation for potential patterns and, with minimal time, extract meaningful patterns from it. If you are not familiar with the content, interview the author of the documentation to gain sufficient context to write the pattern. If possible, name the patterns with existing buzzwords your colleagues will recognize.

If you are to give a presentation summarizing important findings from a recent project, think of patterns as you are preparing your notes and consider presenting some of your results as patterns.

<<Diagram>>

You can easily document your findings in a patterns format in parallel to your work. Rewriting existing documentation as patterns and thinking patterns as you create new presentations or documents, will help you refine concepts, improve descriptions, and add extra structure to the information. You will most likely find that patterns allow you to simplify difficult concepts that others have struggled to communicate. This will help to sell the patterns approach to your organization. It will ease the transition to patterns since your coworkers will already be familiar with some of the names and ideas even if they are new to the pattern format and terminology. Using the patterns in everyday technical discussions, colleagues will naturally absorb the pattern form at the same time that they are absorbing the technical substance of the pattern you are discussing. This will enable a gentle learning curve that may overcome the roadblocks associated with introducing a brand new concept.

This also allows you to avoid making a big deal out of patterns. You will be able to talk about them naturally and in circumstances where the focus is on the content not the form and soon they will be accepted as useful. Concepts that have always been valued will now be seen as related to patterns. Since you are already using patterns, you will be in a better position to justify continued focus on growing the effort within

your organization and the associated sponsorship that is required. As a result, you are able to create patterns without compromising your current position.

You will undoubtedly have to deal with those who continue to be skeptical and to obstruct your progress. Some individuals will still see patterns as just a fashionable name for common sense. Others will continue to perceive them as a level of obscurity that does not add value. You will not be able to get your whole organization on board right away, but by leveraging the gold mine of patterns relevant to your industry, you should be well on your way to achieving critical mass.

You can also gold mine patterns from people by using Ghost Writer.

You can continue this effort even after a Corporate Angel has agreed to fund the patterns effort.

Known Uses:

The author has used this pattern within Structural Dynamics Research Corporation to generate an initial set of patterns. She realized that there were a number of valuable concepts with buzzword names that could be documented and catalogued as patterns. When she presented the concepts in a pattern format, her colleagues were already familiar with the names and ideas and could see the value in using a patterns approach to structure the material.

Author: Frances Evans

Workshopped at the OOPSLA'00 "Introducing Patterns into Organizations" workshop (October 2000).

Ghost Writer

Capture the knowledge of domain experts who don't write patterns by writing the pattern for them.

<<Picture>>

Your organization is building a patterns repository. You are the <u>Dedicated Champion</u> or someone helping the <u>Dedicated Champion</u> to build this repository.

How can you help when a domain expert is willing to contribute to the repository but is not interested in writing, or does not have the time to write patterns?

Patterns capture knowledge from domain experts. It takes a large amount of work to write a good pattern, but all domain experts don't have the time to contribute this amount of work. Sometimes they don't know exactly what you are trying to achieve. They don't understand patterns but they may be interested in conveying the information.

Coplien suggests that perhaps some people aren't cut out to be pattern writers. However, people who have great ideas but no inclination, time, or talent in writing, can be tapped in a pattern mining exercise and their patterns "ghost written" by someone else. [Coplien00a]

Therefore,

Ghost write the pattern for the expert. Capture the domain knowledge[1] and format that knowledge as a pattern. Ask the expert to review the draft. Iterate through the pattern until it is mature enough to be workshopped. Keep the expert involved in the process of maturing the pattern.

Acknowledge the expert as the "author"; acknowledge the pattern writer in an "as told to" line.

Take the pattern(s) back into the organization. Most people don't understand patterns until they see a pattern they can viscerally relate to. [Harrison01]

<<Diagram>>

The domain expert must be willing to spend time talking with the ghost writer. If not, the process of writing and iterating through the pattern can take a long time or die before the pattern is really finished. Usually you can count on the expert's time for a couple of iterations. Use this time wisely. The expert doesn't have the time and will lose interest quickly if you keep asking for more time.

It is important for the ghost writer to have a basic familiarity of the subject area. The writer will then be able to ask intelligent questions and keep the experts from getting annoyed at what may be perceived as stupid questions. [Hamner01]

If you ask good questions as you iterate, you may discover more patterns. In fact, there will almost certainly be others that are related to the one you are currently writing.

Sometimes the mining interviews can be greatly enhanced by having two experts present. They can then play off each other and probably know the problem/solution space even better than either individual does. [Hamner01]

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[1] <references to pattern mining techniques will be inserted here>

Although this pattern allows knowledge of a domain expert who is *not* willing to write patterns to be captured by someone who *is*, it is not as good as having the expert write the pattern. You should at least capture a story in the expert's own words. This will lend an air of authenticity to the solution and make the pattern more credible. Allow the pattern to tell the expert's story.

This pattern is related to the <u>Mercenary Analyst</u> pattern. [Coplien95, 213]

Known Uses:

Many of the patterns in the repository at U S WEST A.T. were ghost written by Mary Lynn Manns who talked with developers willing to share their stories, advice and best practices.

Jim Coplien says that this is how the Lucent patterns got started and "it was a big factor in the success of the patterns."

Bob Hanmer of Lucent mined many of the 4ESS™ Switch patterns from experts through a ghost writing process.

Author: Mary Lynn Manns

Innovators

When you become an <u>Evangelist</u> or <u>Dedicated Champion</u> for patterns in your organization, you will need to identify, and enlist the support of, a small group of colleagues who are interested in or are likely to become interested in patterns.

<<Picture>>

You're a new <u>Evangelist</u> or <u>Dedicated Champion</u> trying to introduce patterns into your organization.

You know the job of introducing a new idea is too much for one person to do alone. How can you begin to grow a community of people interested in patterns?

You can't get something significant going all by yourself. Even though everyone is busy, there are always a few people who like to know about new ideas. They will attend <u>Brown Bags</u> and other meetings where new ideas are being introduced.

Peter Senge recommends that you, "seek to establish a community of people, even if it is only a few, who share your interest and want to work together. A small group of genuinely interested and committed colleagues will make a world of difference amid the confusion and inconsistencies that invariably arise in organization wide movements." [Senge90, xxiii]

During the last few years, a new understanding of the process of organizational change has emerged. It is not top-down **or** bottom, but participative at all levels—aligned through common understanding of a system. [Senge94, 89]

The often cited work of E.M. Rogers tells us that on a normal curve of adopter categories, approximately 2.5% of a social system can be classified as "innovators," where, "The salient value of the innovator is venturesomeness, due to a desire for the rash, the daring, and the risky … the innovator plays an important role in the diffusion process: That of launching the new idea in the system by importing the innovation from outside of the [organization] boundaries. Thus, the innovator plays a gatekeeping role in the flow of new ideas into the system." [Rogers95, 264]

G.A. Moore, in *Crossing the Chasm* points out, "There are not very many innovators in any given market segment, but winning them over at the outset of a marketing campaign is key nonetheless, because their endorsement reassures the other players in the marketplace that the product does in fact work." [Moore99, 12]

Therefore:

Identify a small group of co-workers who seem especially interested in new ideas. Enlist their support. Encourage their participation. Listen to their suggestions for appealing to a larger community–the <u>Grass Roots</u>. Find ways to reward them for their help.

<<Diagram>>

You won't feel so alone in what can be an uphill battle to spread the word. Some of the <u>Innovators</u> will help you grow a <u>Grass Roots</u> movement but be careful not to lean on them too much and wear them out. Encourage and reward as much as ask for help.

Innovators may tolerate something half-baked, but because they are busy they must see that it is worth their time. While they want to be first to "get the new stuff," they want the truth without any tricks [Moore99,32]. Make sure you've done your homework before enlisting their support.

The impact of the Innovators as opinion leaders may be limited. He notes a fundamental principle of human communication -- exchange of ideas occurs most frequently between individuals who are alike, while Innovators' often obsessive interest in new ideas and venturesomeness may make other, more practical, individuals suspicious of their claims [Rogers95,286,263]. Therefore, their impact may be more indirect. They can help launch patterns into the organization by using them and providing feedback and some evidence that they are indeed useful to others [Moore99,32].

The other key to working with Innovators is to find ones who are near or have access to managers who have access to corporate resources [Moore99,33].

Use Brown Bag or Do Food and Personal Touch to entice Innovators.

Known Uses:

The patterns community at AG Communications Systems began with Brown Bags that were attended by a small group of Innovators. These people were invaluable to the Evangelist, since many of them had been with the company for a number of years and could offer suggestions about reaching others in the organization.

A small group of Innovators helped to spread the word about patterns at U S WEST.

Author: Linda Rising

Workshopped at the OOPSLA'96 "Introducing Patterns into the Workplace" workshop (October 1996).
Shepherded and workshopped at PLoP'97 (September 1997).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Corporate Resources

Seek out company resources that can help you in your quest to introduce a new idea.

<<Picture>>

You're an <u>Evangelist</u> or <u>Dedicated Champion</u> working to introduce a new idea into your organization.

One person alone can't do much. You need help from colleagues and management, and you need resources.

It takes time to find out what resources are available but the return can be worth it. Unless you take the time to find out, you won't even know what kinds of resources are available, let alone how to take advantage of them.

Therefore:

Ask everyone you know about available corporate resources. Sometimes it takes digging—you might have to talk to someone who knows someone, and so on. Every organization provides support: we b development, special printing needs, free advertising, corporate publications, secretaries, and assistants. Help is there for the asking. Take advantage of the resources that are available.

<u>Innovators</u>, <u>Respected Technies</u>, and <u>Local Leader</u> are good places to start your search.

<<Diagram>>

Known Uses:

The <u>Dedicated Champion</u> at AG Communication Systems used this extensively. Support for the patterns activity was provided by the training department, the external web developers, graphic artists, administrative assistants, and other managers in addition to the <u>Local Leader</u> and <u>Corporate Angel</u>.

Mary Lynn Manns used this to jumpstart her patterns effort at UNC-Asheville. She found the person who led the center that could give her resources to advertise and hold patterns workshops and to <u>Do Food</u> at these events.

Author: Linda Rising

Pilot Project

Identify a small group of the Innovators and let them use patterns in a real software project as a pilot project.

<<Picture>>

You're a Dedicated Champion. You have a group of Innovators who support the new idea.

What's an effective way to show how patterns can play a role in your organization?

You need to show the effectiveness of your new idea early on. Most people are too busy to keep up with all the latest trends but they are always interested in ways of getting their own work done better, faster, cheaper. People are more likely to accept new ideas that they can understand and apply successfully. A Pilot Project provides good practical experience that will benefit the rest of the organization.

Brandon Goldfedder writes in *The Joy of Patterns*, "...many organizations [evaluated] the use of objects through small projects to 'prove' the technology. This approach (which I've also seen applied in the last few years to patterns) works fairly well, if the team doing the prototype project is knowledgeable in the correct application of the technology." [Goldfedder(in press), 38]

Therefore:

Identify a small group of Innovators and let them develop real software in the narrow scope of a pilot project. Document any patterns identified as a result of this experience to share with other Innovators. You might create some "design model templates" or "source code templates." These patterns may not be applicable for the rest of the world, but they may be very effective for your organization.

<<Diagram>>

The Innovators will understand the patterns and be able to apply them to their work; others can see this application and become enthusiastic about patterns. The patterns will become effective tools to increase software development productivity in your organization.

It will also provide an opportunity for writing patterns in your organization and create a legacy for other projects following the pilot.

After applying this pattern, Innovators can help grow the Grass Roots. Advertise the Pilot Project with a Hometown Story.

Known Uses:

This pattern has been successfully applied in the ERP development project at Fujitsu Ltd. Innovators are novices at object oriented technologies, but the pilot project produced good practical patterns. These patterns have increased the software development productivity at the end of the project.

This pattern has been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil. Innovators were involved in a pilot project to refine the new technology.

Author: Rieko Yamamoto, Tadahiro Uehara

Respected Techie

Enlist the support of senior-level developers who are esteemed by both developers and management. If you win the hearts of these respected techies, it will enable you to make inroads in getting your ideas to the technical staff and management.

<<Picture>>

You're an Evangelist or Dedicated Champion. You may have a small group of Innovators who support your ideas.

How can you make inroads into the technical community? You will need both technical and managerial buy-in to be successful.

People are bombarded with new ideas and we're too busy to keep up with the latest and greatest. Fortunately, most of us have people we trust to help us through tough decision-making. Usually these trusted advisors are senior-level people who are respected by both management and developers. When these people get behind an idea, it's the best approval you can have.

"Reputation is a fundamental aspect of social identity; it helps people know how to interpret each other's words and actions and make decisions about who to trust." [Kim00, 109]

Therefore:

Enlist the support of the experienced developers who are the senior-level gurus that developers and management respect. If you're new to the organization, the Innovators can help you find the gurus.

<<Diagram>>

These veteran developers can make or break you. If they are convinced that your idea is a good one, other developers will at least hear you out. Management, especially upper management, often depends on these well-respected individuals to provide an assessment of potential solutions. Once the Respected Techies are on your side, your battles are half over.

A Respected Techie can help you win over a Local Leader or Corporate Angel and start you on your way to building Grass Roots.

Known Uses:

After an initial presentation had been made to the Corporate Angel and his staff at AG Communications Systems, each manager at the meeting was asked to name a Respected Techie to be part of an evaluation team to hear what patterns were all about and make recommendations back to the appropriate manager. The favorable outcome of this evaluation resulted in full management support, including that of the Corporate Angel, and an increased number of engineers who became part of the Grass Roots.

A Respected Techie at U S WEST got other technical people talking about patterns.

Author: Linda Rising

<u>Grass Roots</u>

When you're an <u>Evangelist</u> or <u>Dedicated Champion</u>, you can quickly wear out the <u>Innovators</u>. You need broad support from rest of the organization.

<<Picture>>

You're an <u>Evangelist</u> or <u>Dedicated Champion</u> trying to introduce patterns into your organization. You have a small group of <u>Innovators</u> who support the new idea.

To have real impact in an organization the interest in patterns must extend beyond a few <u>Innovators</u>?

The <u>Innovators</u> are helpful at the beginning but to make real impact, you need more support. You'll need more than just a few outliers to get something significant going. It's hard to get people to take time to listen to new ideas, since everyone is busy. On the other hand, most people like to feel they are keeping up with the latest buzzword.

People don't like to be told what to do. One of the worst ways to introduce a new idea is for it to be dictated by management. By stirring up interest bottom-up, the receivers of patterns will push to get them implemented much more quickly.

"As the work spreads beyond an initial core of early champions, it does so primarily through proving its practical merits. …continuous practical experimentation…keeps us honest. It prevents us from being champions simply because we "believe in this work." Secondly, it provides the means whereby ever-growing circles of people become engaged and learn….Most people will become involved…because of the practical benefits for their work." [Senge90, xviii] As it develops, this group is "able to move around the organization. They understand the informal networks, what researchers call the informal 'communities of practice,' whereby information and stories flow and innovative practices naturally diffuse within organizations." [Senge96]

Therefore:

Grow the <u>Innovators</u> into a larger group of people who have experience in patterns or are very interested in it and give them as much information and training as possible.

Use <u>Do Food</u>, <u>Brown Bag</u>, <u>Personal Touch</u>, <u>Big Jolt</u>, and <u>Hometown Story</u>.

<<Diagram>>

In this way, patterns are introduced from the bottom up.

You "can start your own revolution one change at a time. Once the benefits become apparent, your colleagues will join you and together you can conquer your programming world." [Roberts00]

Ultimately, you will need resources. Look for management backing—a <u>Local Leader</u> and <u>Corporate Angel</u>. The <u>Grass Roots</u> can call attention to patterns and perhaps lead to high-level management interest.

Known Uses:

The push for patterns at AG Communication Systems used this approach to get software developers to take an interest in patterns.

This pattern has been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil.

Author: David E. DeLano

Local Leader

The prerequisite for an Evangelist to become a Dedicated Champion is to enlist the support of management. When your boss lets patterns activity become part of your job, you can truly be effective.

<<Picture>>

You're an Evangelist, trying to introduce patterns into your organization.

How can you get attention and resources for your new idea?

You can entice people to meetings with intriguing e-mail messages and Do Food for just so long before you get burned out. It's hard to get people involved unless they think there's a real pay-off. Management support legitimizes things in the workplace.

"We have seen no examples where significant progress has been made without [Local Leaders] and many examples where sincerely committed [Corporate Angels] alone have failed to generate any significant momentum." [Senge96]

Korson and Vijay have made a similar observation, "Site leadership is critical...experience suggests that where the technology will really make an impact across a broader spectrum, versus just a small project, is in those cases where [local] management...takes responsibility for committing the site to the technology...." [Korson96]

Therefore:

Find a Local Leader to support patterns, ideally, your immediate supervisor or boss.

Senge describes this role: "[Local Leaders] are individuals with significant business responsibility and 'bottom-line' focus. They head organizational units that are large enough to be meaningful microcosms of the larger organization, and yet they have enough autonomy to be able to undertake meaningful change independent of the larger organization." [Senge96]

<<Diagram>>

The Local Leader keeps the focus on business results and can commit limited resources to efforts that can show results.

Recent research [Green+00] shows that the degree to which adopting an innovation is voluntary increases both the developers' sense of control of their environment and suggests that the Local Leader should encourage but not mandate the use of an innovation.

To help keep the Local Leader interested, offer the chance for a Royal Audience.

The Local Leader can also help you find support at a high-level and is your best hope for identifying a Corporate Angel.

The Local Leader may play the role of Coplien's Fire Walls (keep pests away) or Patron (project champion and high-level decision-maker). [Coplien95]

Known Uses:

This pattern has been successfully applied at AG Communication Systems. Two <u>Local Leaders</u> have supported the patterns activities and the work of a <u>Dedicated Champion</u>. The <u>Local Leader</u> was instrumental in opening the door to the <u>Corporate Angel</u>.

This pattern has also been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil. In a small organization, the <u>Corporate Angel</u> could also be the <u>Local Leader</u> and the <u>Dedicated Champion</u> and may also be involved with project implementation.

Nothing would have been started at U S WEST AT without the budget from the <u>Local Leader</u> to support the <u>Dedicated Champion</u>.

Author: Linda Rising

Dedicated Champion

When the patterns activity becomes part of your job description, your effectiveness increases considerably.

<<Picture>>

You're an Evangelist with a few Innovators who has successfully enlisted a Local Leader.

How can you build on your volunteer effort as an Evangelist and the help of a few Innovators?

It takes a lot of energy to keep things going on the side. There's a limited amount of "free" time in any day.

Without the pro-active effort of someone whose job description includes the new technology, the new idea can wither and die on the vine. A single, dedicated individual can bring a focus to the activities necessary to maintain a sufficient level of interest in patterns to keep the idea alive.

Therefore:

Enlist the help of your Local Leader to define your new role as Dedicated Champion. For this pattern, dedication means: (1) devotion to the cause and (2) time dedicated to the task of "championing" patterns —in other words, this must be part of your job description.

This role is similar to Senge's leader, "those people who 'walk ahead,' people who are genuinely committed to deep change in themselves and in their organizations. They lead through developing new skills, capabilities, and understandings." [Senge96]

The change accelerates when they accept and like you—the Grass Roots are quick to get their information from people they like. [Rogers95, 346]

<<Diagram>>

To be truly effective, you will need a Corporate Angel.

The Dedicated Champion could play the role of Coplien's Gatekeeper (someone who funnels information in and sends information out). [Coplien95]

Known Uses:

This pattern has been successfully applied at AG Communication Systems. The Evangelist was able to convince her Local Leader that the patterns initiative was worth supporting. While patterns activity was never her full-time job, there was enough flexibility in her job description to accomplish a lot more than she had been able to do on her own time.

There was a great deal of effort in getting patterns going at U S WEST AT. This would not have been possible without the Local Leader appropriating time for Dedicated Champion.

This pattern has also been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil. In a small organization, the Corporate Angel could also be the Dedicated Champion and may be involved with project implementation.

What allowed us to depart from our normal manner business? For us, the most important element …was a successful champion who engenders interest in process change. A champion should be a respected developer who is part of the team, known for getting work done and respected for desiring practical improvements. …I can't stress this enough: when management determines that process must be followed, the pressure comes from outside the group. It is foreign, and team members will likely reject it. If the enthusiasm, however, comes from respected members of the group, developers feel compelled to listen. After all, these people actually know what it's like in the trenches. Once the other team members see real benefits, they'll jump on the bandwagon as well, and the revolution will be well underway. [Roberts00]

Author: Linda Rising

Workshopped at the OOPSLA'96 "Introducing Patterns into the Workplace" workshop (October 1996).
Shepherded and workshopped at PLoP'97 (September 1997).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Corporate Angel

Very high-level managerial support is necessary for any activity to thrive and have access to resources.

<<Picture>>

You're an Evangelist or a Dedicated Champion.

Big-ticket items—training, books, conferences and visiting gurus —need the backing of higher levels than your own boss. How can you get this kind of support?

Brown Bags and enthusiasm can only go so far. Real training, books, conferences, and visiting gurus will be needed if patterns are to grow. However, resources are limited, since each level of management has authority to spend only in a certain area, whereas very high-level support can make many inroads easier.

For patterns to be successful, very high-level managerial support must be involved, someone who believes in the importance of patterns and will lend appropriate coaching and direction. This high-level supporter must be respected across his organization, otherwise the support could possibly hurt your cause.

Even if all the developers subscribe to patterns (unlikely in all but the smallest organizations), the support of high-level management is essential for tools, training, and other support activities.

If the Corporate Angel is especially enthusiastic and knowledgeable, the whole process of introducing patterns is eased, since lower-level managers will be more open to directives from the top, especially if a Respected Techie is on your side.

Therefore:

Enlist the support of a Corporate Angel, a high-level manager who has a special interest in patterns and will provide resources and direction to implement company strategies by supporting your idea.

To ensure that patterns have an impact across the organization, the efforts of the Dedicated Champion, the Corporate Angel and the Local Leader must be aligned. When the interests at all levels are in harmony, the paradigm shift to patterns can be made with minimal upheaval and disruption.

The role of Corporate Angel is similar to Senge's Executive Leader, who is a protector, mentor, and thinking partner. [Senge96]

<<Diagram>>

The Corporate Angel can make it possible to use Big Jolt, have training, and buy books.

To help keep the Corporate Angel interested, Stay in Touch and offer the chance for a Royal Audience when an appropriate Big Jolt visitor is planned.

Coplien's Patron [Coplien95] describes the role of a high-level manager who is a development project champion and decision-maker.

The role of Corporate Angel is not an authoritarian one. The upper-level management position should not be used to dictate behavior. Cultural change takes place slowly and should be built on Grass Roots effort.

"Hierarchical authority, as it has been used traditionally in Western management, tends to evoke compliance, not foster commitment. The more strongly hierarchical power is wielded, the more compliance results. Yet there is no substitute for commitment in bringing about deep change. No one can force another person to learn if the learning involves deep changes in beliefs and attitudes and fundamental new ways of thinking and acting." [Senge96]

Unlike many theorists of leadership, we do not regard executives as the sine qua non of organization change. We do not believe "all change starts at the top" and that "little can happen if the CEO is not on board." We have seen too many counterexamples of significant change started and sustained for some time with little or no executive leadership, and conversely too many examples of aggressive executive leadership that results in little lasting change. But sooner or later executive leadership becomes crucial, especially in sustaining change that can have organization wide, impact. The real role of executive leadership is not in "driving people to change," but in creating organizational environments that inspire, support, and leverage the imagination and initiative that exists at all levels. [Senge99]

The pharaoh Akhnaton is a good example of a high-level authority figure who attempted a paradigm shift in Egyptian culture. In paintings from his era the royal family is shown with a new and strikingly different artistic freedom, more natural, lifelike settings—radically different from the stiff, two-dimensional representations of earlier years. At the end of his brief reign, the old paradigm returned. Even a pharaoh, considered to be god incarnate, could not overcome thousands of years of a culture existing inside a single paradigm. [Aldred91]

Known Uses:

This pattern was applied successfully in the introduction of patterns at AG Communication Systems. The Corporate Angel was the vice-president of product development. He has been a consistent supporter of all patterns activities. His influence has made it easier to bring in trainers and consultants, buy books, and attend conferences.

This pattern has also been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil. The Corporate Angel has a special interest in patterns and has worked to develop one of the standards as well as setting organization-wide goals.

Author: Linda Rising

Workshopped at the OOPSLA'96 "Introducing Patterns into the Workplace" workshop (October 1996).
Shepherded and workshopped at PLoP'97 (September 1997).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Do Food

Having food draws people in. Even cookies can increase attendance.

<<Picture>>

You're an Evangelist or Dedicated Champion who has called a meeting to introduce patterns. Members of the user community are free to attend or not. If a Local Leader is not in place to provide resources, someone else will have to pick up the tab.

How do you entice people to attend meetings introducing patterns?

There is always other, more important, work to be done but most people have a natural curiosity about new ideas but they're too busy and are leary of becoming involved in a new idea that might take time and might not lead anywhere. However, everyone likes free food!

Having food draws people in. According to Alexander's pattern, Communal Eating (147), food turns a meeting into an event, "the mere act of eating together…is by its very nature a sign of friendship…." [Alexander77, 697]

Therefore:

Have food at the meeting—doughnuts and bagels with coffee, tea, and juice in the morning, cookies and soda in the afternoon. Lunch is good at noon.

People will attend almost any meeting if free food is available. Having the food to concentrate on when the meeting gets slow helps hold their attention (caffeine and sugar won't hurt!).

You may not be able to Do Food if the corporate culture doesn't accept food in meetings.

Be sure you have done your homework to understand the role of food in the culture. When doughnuts were provided at U S WEST AT in the health conscious city of Boulder, Colorado, no one ate them!

<<Diagram>> The graphic of chocolate chip cookies accompanied by an ice cold Pepsi has been left to the reader's imagination!

Apply this solution sparingly or expectations will become too high and when there is no food, people will be disappointed. The food should always been seen as a special treat.

While the prospect of free food is nice, Brown Bag can be used when funding is not available.

Known Uses:

This technique has been used to draw attendance to information sessions set up to introduce patterns at AG Communication Systems.

It was also used at U S WEST A T. (After the experience with leftover donuts, bagels became the food of choice at patterns events.)

Jim Coplien says that a Bell Labs research tradition is "Food Place". Our department at Indian Hill has its own kitchen. Murray Hill has the famous espresso room. You might suggest that having a food place is a strong addition to this pattern (it works in the instances I've seen it used). [Coplien00]

Author: David E. DeLano

Brown Bag

Use the time when people normally eat lunch to provide a relaxed atmosphere for learning about patterns.

<<Picture>>

You're an Evangelist or Dedicated Champion who has called a meeting to introduce patterns. Members of the user community are free to attend or not. If a Local Leader is not in place to provide resources, someone else will have to pick up the tab.

How do you get people to attend meetings where new technologies are introduced, when they may not have a vested interest in patterns and you may not have resources to buy cookies?

There is always other, more important, work to be done. Most people have a natural curiosity about new ideas but just don't have the time. Since everyone has to eat lunch sometime, if you are having difficulty finding a time when people will attend, having the meeting over lunch will often find more people with available time.

Even without Local Leader or Corporate Angel you can give something away—books, cookies; copies of one or two useful patterns—not just more URLs. If you buy cookies yourself, both your colleagues and management will be impressed that you believe in the idea enough to put your money where your mouth is—they will see even small Trinkets as a sign that you are serious about patterns. A copy of a pattern doesn't require a lot of time or money but it shows the attendees that you cared enough to spend a little of your time to help make their job easier.

Therefore:

Hold the meeting in the middle of the day and invite the participants to bring their own lunch.

You may not be able to have a Brown Bag if the corporate culture doesn't accept food in meetings or having meetings over lunch.

<<Diagram>>

People are often willing to attend a meeting over lunch. This is not viewed as wasting time that could be spent doing "real" work, since the time would be spent eating anyway.

When you have the support of a Local Leader or if you want to buy cookies, you can Do Food.

Known Uses:

This technique has been used to increase attendance to information sessions set up to introduce patterns and other new technologies to AG Communication Systems.

David Kane of SRA International has applied this pattern to hold a Brown Bag conference:
- ?? Create a program committee to organize the event.
- ?? Give presentations in the middle of the day and invite attendees to bring their own lunch.
- ?? Have a presentation every day at lunchtime for one to two weeks.
- ?? Draw presenters primarily from inside the organization.
- ?? Invite corporate executives to host the session introduce the speaker.

?? Advertise the conference so that it is perceived as an event.
?? Track who signs up and attends each session.
?? Send reminders to participants who registered.
?? Have door prizes and snacks at each session.
?? Measure attendee satisfaction after each session.

Charles Schwab uses brown bag training sessions to provide on-the-job training for Java developers.
http://www.zdnet.com/eweek/stories/general/0,11011,2601709,00.html

Author: David E. DeLano

Workshopped at the OOPSLA'96 "Introducing Patterns into the Workplace" workshop (October 1996).
Shepherded and workshopped at PLoP'97 (September 1997).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Stay Close

Once you've identified managerial support, make sure they don't forget about you.

<<Picture>>

You're an <u>Evangelist</u> or <u>Dedicated Champion</u> working to introduce patterns into an organization. You've captured the interest of a <u>Local Leader</u> or <u>Corporate Angel</u>.

How can you make sure that management doesn't forget the patterns activity?

We're all bombarded with information. New ideas are always out there—more than we can handle. It's like the old saying, "Out of sight, out of mind."

Support for patterns depends on the continuing awareness of your management but their support can lapse. Since there's always something important going on and critical decisions to be made, if you don't step up and call attention to your contributions, your message will be lost.

Therefore:

Stay in touch with <u>Local Leader</u> and <u>Corporate Angel</u>. Keep them informed of patterns events, for example, publications by members of the community, or upcoming visits from a <u>Big Jolt</u>.

Keep your messages to management timely and interesting, so they will be aware of patterns activity and feel that it is important. Don't overwhelm them with too much that is distracting or they will ignore you.

<<Diagram>>

If a <u>Big Jolt</u> visitor is of special interest to your management supporters, you might set up a <u>Royal Audience</u>.

Known Uses:

At AG Communication Systems, a company-wide, electronic bulletin was sent out several times a week with important notices for everyone in the company. Everyone read this bulletin. Important patterns activities were always advertised and patterns publications mentioned. This kept patterns news in front of everyone, but especially management.

Author: Linda Rising

Big Jolt

Invite a well-known person who has earned credibility in the patterns community to do a presentation in order to attract a crowd.

<<Picture>>

You're a <u>Dedicated Champion</u> with support from a <u>Local Leader</u> or <u>Corporate Angel</u>.

What's a good way to attract a lot of attention for a patterns presentation?

Most people are too busy to attend <u>Brown Bags</u> but would find time to attend a one-time event with a "big name" speaker. When the speakers have credibility, most people will believe them and become intrigued by what they have to say. Even individuals who have adopted patterns need to have their interest reinforced so it does not fade.

"Many community builders use celebrity events to create a "buzz" that raises the overall level of awareness about the community. On the other hand, dealing with celebrities often involves a lot of extra overhead and expense and the results may be short-lived. Celebrity events can divert resources and distract you from higher-priority tasks without necessarily contributing to your long-term community development." [Kim00, 257]

Big names can be convincing! Rogers has found that communication from outside the individual's social system has a significant impact when the individual is being introduced to an innovation and in the process of gaining some understanding of it. [Rogers95, 196] Those who are already making use of patterns need a "big jolt" too. It will serve to re-energize their interest and help to confirm their decision. As Rogers cautions, a decision to adopt an innovation is not the end. People still desire information to provide confirmation and may reverse their decision if not provided with that information. [Rogers95,180]

Therefore:

Invite a well-known person who has credibility in the patterns community to do a presentation. Be certain that this person is willing to speak at a level the organization can absorb. "Big name" people usually have a large amount of experience and may wish to talk about something that the organization is not prepared to understand.

If funding is not available to pay speakers, entice them by pointing out that this is an opportunity to get publicity for their latest book or project.

Increase the probability of a significant audience with lots of publicity before the event and, if possible, use <u>Do Food</u>. Since this can be a good opportunity to make an impression on the <u>Corporate Angel</u> and <u>Local Leader</u>, <u>Stay Close</u> and extend a personal invitation to them.

If the speaker permits it, videotape the presentation and hold one or more video sessions for those who could not attend the real thing.

Most importantly, treat these events as just periodic bursts to stimulate interest of new people and re-energize others. It must be held in the context of a bigger plan, for without a follow-up, the enthusiasm is likely to fizzle.

<<Diagram>>

A big name speaker will raise awareness and credibility of patterns even among busy people. It will also serve to re-energize those who already subscribe to patterns. Even those who do not attend the presentation will be impressed because of the publicity before the event and the talk about it afterwards. However, this can initially create more excitement than can be handled. Enthusiastic individuals that aren't given some guidance can imagine that patterns are the latest silver bullet; these individuals will eventually be disappointed. But as Rising notes, "The patterns community prides itself on the avoidance of hype." [Rising98,3] Therefore, the organization needs to follow this "jolt" by using other patterns in this language.

Use Royal Audience to reward Innovators, to Stay Close to management supporters, and to bring new people in to the community.

Known Uses:

The interest in and inquiries about patterns increased significantly at U S WEST Advanced Technologies after Jim Coplien did a presentation there.

David DeLano of AG Communication Systems says they "use this as much as we can. For some reason, people don't listen to the in-house experts as well as a visiting 'dignitary.'"

Schlumberger Oslo Technology Center used this when they invited Jim Coplien. The Dedicated Champion sees a difference in those who heard Cope talk and those who did not–most of those who did are willing to hear more while most of those who did not are still skeptical about patterns. [personal conversation with Lise Hvatum, 18 Oct 2000]

Author: Mary Lynn Manns

Shepherded and workshopped at PLoP'99 (August 1999).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Royal Audience

Having time with a special <u>Big Jolt</u> visitor is a nice reward for active members of the community and also lets management spend time with a major contributor to the industry.

<<Picture>>

You're an <u>Evangelist</u> or <u>Dedicated Champion</u> using <u>Big Jolt</u>. The visitor will usually have a few spare hours during the day or during the evening before and/or after the day of the visit.

How can you maximize the time of a <u>Big Jolt</u> visitor?

You want to get the most out of a <u>Big Jolt</u> visit and it's better if a <u>Big Jolt</u> visit is more than just one big presentation to a large group.

Famous people are usually charismatic and can give your cause a boost. If management can take advantage of the time for a one-on-one meeting, that can lead to more support.

Therefore:

Use spare hours or lunchtime during the day or evenings before and/or after the featured presentation to make the <u>Big Jolt</u> visitor available for teams or individuals that can benefit or managers who would like one-on-one time. Having dinner with a famous patterns person can also be a nice reward for <u>Innovators</u>.

<<Diagram>>

People who are invited to a <u>Royal Audience</u> will enjoy the time spent getting to know a famous person. Be careful that this doesn't backfire. If anyone is upset at not being invited, that can hurt your cause.

Known Uses:

At AG Communication Systems, invitations to join <u>Big Jolt</u> visitors were sent out to everyone. Free "consulting time" was also announced on the <u>e-Forum</u>. Even when people were unable to attend, they always felt that the opportunity was open to them.

Author: Linda Rising

Pattern Mentor

One way to help a project that wants to get started with patterns is to have someone around who understands patterns. This mentor could be the Dedicated Champion.

<<Picture>>

You're a Dedicated Champion, trying to introduce patterns into your organization.

A project is interested in patterns but has team members who are unfamiliar with patterns and is therefore unsure about their use.

How can you help people learn how to make use of patterns on a project?

If the project members are willing to introduce patterns into their project, they can study patterns to some extent. However, they might need guidance in applying patterns since they are not necessarily experts.

On the other hand, the number of experts in patterns may be relatively small compared with the number of projects. The experts do not always know about the domain on which the software is being developed, nor have much time to understand the domain.

This pattern suggests that the project should hire the expert as a mentor to help with the design. This pattern does not require the mentor to be an expert in the domain and a single Pattern Mentor can support several projects at the same time.

Goldfedder writes, "Several organizations I worked with initially staffed [Pilot Projects] with people who had no real understanding of object technology and thus the evaluation showed that objects would not work in environment X. I have seen similar things happen in recent years with patterns. I still recommend the proof of concept starter projects as a training experience but always recommend having an external expert involved in helping to jump start the efforts." [Goldfedder(in press), 38]

Therefore:

Hire an outside or internal consultant or trainer or take on the role of a Pattern Mentor to provide mentoring and feedback for the project members.

The Pattern Mentor should use a hands-on approach, work side by side with the team, and let them know that he has struggled with the same problems. This will help open their minds to the new technology. [John Letourneau, workshop contribution, ChiliPLoP'2000]

<<Diagram>>

Project members will receive help with patterns during the design phase. They will develop confidence in their use of patterns and then be able to help others.

The best way to solve this problem, of course, is to send the entire team to training together to prepared for the project, as described in Don Olson's pattern, TrainHardFightEasy [Olson98b].

Known Uses:

This pattern has been applied to the introduction of design patterns into a software development project at Toshiba Corporation. In this development, the Pattern Mentor was also a member of the development project.

Toshiba Corporation is also planning to develop a CASE tool that behaves as a Pattern Mentor for design patterns.

At AG Communication Systems, patterns training was available to anyone in the company. In some training classes, the instructor worked as a consultant with teams who were taking the class together. This combination of classroom instruction and hands-on Pattern Mentor was very effective.

AT&T reports the role of a Pattern Mentor as one of their "lessons learned". Coplien reports that "the use of pattern mentors in an organization can speed the acceptance of patterns. [They] can help provide a balance between encouraging good design practices based on patterns and discouraging overly high expectations of designs based on patterns. Initially Pattern Mentors can help develpers recognize the patterns that they already use in their application domain and show how they could be reused in subsequent projects. Pattern Mentors should also watch that the wrong patterns are not applied to a problem (i.e. people tend to reuse things that they know and the same temptation will apply to patterns, regardless of whether the pattern actually fits the problem)." [Anderson94]

Author: Junichi Yamamoto

Workshopped at the OOPSLA'96 "Introducing Patterns into the Workplace" workshop (October 1996).
Shepherded and workshopped at PLoP'97 (September 1997).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Bread upon the Waters

To call attention to your work inside an organization, have it published in an external source that is recognized by your colleagues.

<<Picture>>

You're an Evangelist or Dedicated Champion trying to introduce patterns into your organization. You're allowed to publish externally, after proprietary information has been removed.

What if your organization is overly suspicious of new ideas?

"A prophet has no honor in his own country." Reputation is difficult to establish and easy to lose.

External publications have more credibility than internal technical reports. Internal technical reports are often WODs (write-only documents), sometimes distributed widely at a management level without giving developers exposure to the ideas.

"Cast thy bread upon the waters, and after many days it will return to thee a hundredfold." [Ecclesiastes 11:1]

Therefore:

To draw attention to ideas send them outside. Market your ideas externally so that developers and responsible managers become aware of them:

- ?? **Publish in journals read by your internal customers.**
- ?? **Present your work at conferences attended by your internal customers.**
- ?? **A last but expensive option is to write a book and get it published by an external publisher.**

A variant to external publication is the use of a Big Jolt visit to bring your ideas into your organization.

<<Diagram>>

Your internal customers will learn about your work through trusted channels. Development departments might invite you for in-house presentations, workshops, consulting, etc. If development departments transfer money to your group for these activities, you will have funding for its work.

Risks involved in external marketing include the following:

- ?? You had better be right in the things you publish.
- ?? Competition within your group might bring up contradicting ideas and thus confuse developers.
- ?? Management and developers might label your group as 'writing only and not working.'

You can address top-level management by carefully choosing the publication channel. This approach might be useful for finding a Local Leader or Corporate Angel.

Known Uses:

Siemens Corporate Research and Development (ZFE). Technology transferred this way includes distributed object computing (CORBA etc.), patterns, object-orientation, and Java.

Buschmann, F. R. Meunier, H. Rohnert, P. Sommerlad, and M. Stal, Pattern-Oriented Software Architecture: A System of Patterns, John Wiley & Sons, 1996.

Junichi Yamamoto told a story about his boss at Toshiba's Technology Center, who wrote a book on OO design that was read by Toshiba's developers.

This pattern has also been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil. A paper was submitted to a local conference and was ranked first place among those submitted. The <u>Corporate Angel</u> learned about this honor and spread the word throughout the company. This really helped credibility in other parts of the company.

Several papers and a book were published about patterns at AG Communication Systems. These not only were exciting for authors to see their work in print but each publication increased the credibility of the patterns movement in the organization.

Author: Peter Sommerlad

Workshopped at the OOPSLA'96 "Introducing Patterns into the Workplace" workshop (October 1996).
Shepherded and workshopped at PLoP'97 (September 1997).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Involve Everyone

For any new idea to be successful in an organization, you must make sure the idea reaches everyone, not just the developers.

<<Picture>>

You're a <u>Dedicated Champion</u>, trying to grow the <u>Grass Roots</u>.

There's always a danger that when some success is evident that it's easier to just rest on your laurels and stay within your comfort zone. This will never give you organization-wide impact.

Sometimes a group that's interested in patterns can become a clique and when you're focusing on a new technology it's easy to become isolated from the real needs of the organization.

When you are learning new things, it's easy for others who aren't part of the effort to become defensive and withdrawn, and perhaps afraid of not being able to keep up with changing technology.

Most people are too busy to keep up with all the latest trends but are usually interested if they are given learning opportunities appropriate for their needs. When people are given a chance to feel a part of something new, they are more excited about it and open to trying applications.

Therefore:

Even though spreading the new technology is part of your job description, you must continue to play the role of an <u>Evangelist</u>. Make everyone feel welcome in the new community. Build enthusiasm, pointing out specific benefits, particularly those of interest to each individual. [Webster95, 57] **Use <u>Personal Touch</u>.**

Involve people from as many different groups as possible: management, developers, testers, support people, marketing, training.

Let everyone know of the many opportunities that can be enjoyed. Use <u>In Your Space</u> to promote these opportunities.

Create a community of learning. The best people thrive in this kind of environment. [Webster95, 35]

<<Diagram>>

As a result, the entire organization will feel part of something new and exciting and will be open and supportive.

Known Uses:

This pattern has been successfully applied at AG Communication Systems. Everyone in the organization, not just development, was involved in the patterns community: system test, marketing, management, product development.

This pattern has also been used by the Fundacao Centro Tecnologico para Informatica CTI in Brazil. Presentations have been given to the entire company. The feedback from these presentations has allowed everyone to increase their involvement in patterns.

Author: Linda Rising

Personal Touch

Make personal contact with individuals to discuss how patterns can be *personally* useful and valuable to them.

<<Picture>>

You're an Evangelist or Dedicated Champion who is introducing patterns into an organization.

What can you do to encourage an individual to take an interest in patterns?

Changing a paradigm in an organization really means convincing the individuals in the organization. As Coplien has noted, "Change happens one individual at a time."

A personalized approach may be the only way to capture the interest of some individuals.

Information sessions and training will go a long way to make individuals curious and interested in patterns, but you must do more to ensure that the interest is strong enough to be sustained. Individuals are more likely to remain interested in an innovation when they can see personal advantage in it. [Rogers95, 216] This will encourage them to move past curiosity and interest toward enthusiasm, creating the momentum needed to stimulate the patterns culture. People take change personally, so you should help them understand the "legitimate personal wins resulting for them from the changes you envision." [PriceWaterhouse95, 51]

Securing the adoption of innovations is positively related to the amount of effort in communicating with individuals. [Rogers95, 339] This communication is most effective when the "two individuals share common meanings, beliefs, and mutual understandings" because people enjoy the comfort of interacting with others who are like them. [Rogers95, 287]

Therefore:

Talk with individuals about ways in which using and writing patterns can be _personally_ useful and valuable to them. If possible, choose a comfortable, informal environment for discussions.

Encourage others who are already making use of patterns to help with this effort, especially those who are known to and respected by the individuals you are trying to convince.   To be most effective, people with similar interests should be introduced. Rogers points out that "A fundamental principle of human communication is that the exchange of ideas occurs most frequently between individuals who are alike … Individuals enjoy the comfort of interacting with others who are similar." [Rogers95, 286-7]

<<Diagram>>

People who find something useful are likely to become excited about it and talk about their "good fortune" with their friends and colleagues. It takes extra time to use this approach, but it can build a group of enthusiastic individuals who will help spread the word.

Use Individual Hook and A Pattern of Their Own.

Known Uses:

This technique was used at U S WEST Advanced Technologies. When individuals showed interest in patterns, the <u>Dedicated Champion</u> stopped by their office or invited them for lunch or coffee to discuss ways patterns might be helpful.

At AG Communication Systems, <u>Innovators</u> used this approach. Those who were excited early on about patterns seemed to naturally work one-on-one with others on their teams to show them how patterns would be personally useful.

Mary Lynn Manns said, "Jim Coplien used this pattern with me. He welcomed me into the patterns community when he met me at ChiliPLoP, and then, via email, provided encouragement to continue writing patterns."

This is what shepherds do in the pattern community. They take a personal interest in the work of the person they are shepherding.[Harrison99]

Author: Mary Lynn Manns

Shepherded and workshopped at PLoP'99 (August 1999).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Individual Hook

Find one or more patterns that help an individual with a work-related problem in an effort to help him or her get "hooked" on doing more with patterns.

<<Picture>>

You're an Evangelist who wants to Involve Everyone.

How can you help an individual to realize that patterns can be personally useful?

Individuals are likely to find more value in things that are personally useful to them, but it may not be apparent to all individuals how they can make use of patterns. Old habits die hard, and often not without special effort.

When individuals see that a new idea can be personally useful, their interest in and support of that idea is likely to be stronger. Success in securing the adoption of an innovation is positively correlated to the degree in which that innovation is compatible with individuals' needs. Change projects that were unsuccessful were found to ignore users' needs. A change agent must seek to determine and meet the needs of individuals. [Rogers95, 340]

"It is the task of the change leader and the change project team to identify and link the needs (and wins) of each stakeholder to the benefits of the project." [PriceWaterhouse95,52]

Therefore:

Find one or more patterns that might help the individual with a work-related problem. Continue to find other problems and patterns until enthusiasm is sparked in this individual. You must be able and willing to listen to others, even consider "eavesdropping" on problem discussions when appropriate.

<<Diagram>>

The individual is more likely to remain interested and spread the word about new ideas that are personally useful. However, people can rely too much on you to find "solutions" to "their problems." This is will wear you out and take too much time away from your primary responsibilities.

Known Uses:

"This pattern is essential to keep any new technology (or process improvement) going." At AG Communication Systems, she used this during postmortem sessions. When she heard about troubles in a project, she was quick to point out patterns (design, organizational, customer interaction, etc.) that could help. [Linda Rising, email 05 June 1999]

AG Communications began to spread the word about the usefulness of patterns by showing individuals how they could use the GoF patterns. They claimed, "Immediate results, it hooked them in." [Linda Rising, comment at ChiliPLoP'2000 conference, March, 2000]

Joe Yoder of the University of Illinois at Urbana-Champaign and The Refactory Inc. used this pattern when introducing patterns to the Illinois Department of Public Health. He "first figured out what their frustrations were" and then identified patterns that would help ease those frustrations. [Personal conversation at PLoP, 17 Aug 1999]

Jim Coplien notes that this pattern can also work on a collective level. When he went into ParcPlace Systems with organizational patterns, it was clear the patterns addressed problems whose perception was widely shared by the team, e.g. Firewalls protecting engineers from requests from marketing for a change in direction. This pattern, therefore, may be more powerful when you appeal to the pain of a shared cultural malaise. [Shepherding comment, 27 Apr 2000]

Author: Mary Lynn Manns

Shepherded and workshopped at PLoP'99 (August 1999).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

A Pattern of Their Own

Help individuals realize a personal role in the patterns effort in your organization by mentoring them through the process of writing a pattern of their own.

<<Picture>>

You're an Evangelist who wants to use a Personal Touch to get people interested in patterns. Some of these people have valuable experience to share.

How can you help individuals play a personal role in building the patterns effort in your organization?

Individuals are more enthusiastic about things they can do successfully.

Taking the time to appreciate the value in someone's effort is important in encouraging change to take place. Individuals who see their work as worthwhile and useful are likely to be more enthusiastic about continuing to do it and encourage others to do the same.

"Writing patterns is difficult work, and those who have struggled to capture the essence of their experience in a pattern are in a good position to help others who have chosen the same path." [Rising98, 80]

Therefore:

Help experienced individuals to write a pattern of their own. Suggest that individuals write about something they know and love and have observed many times. Be enthusiastic and encouraging while the pattern is being drafted. Give immediate feedback. Help writers understand that their experiences are just as important as GoF or any other patterns. At the same time, be realistic about the fact that it takes time and plenty of feedback to develop a good pattern. Be sure to introduce the writer to the shepherding and writers' workshop processes.

Teaching techniques that can be used are:
> **Show a few "good" patterns to use as models**
> **Brainstorm to get an outline**
> **Give time to read and then discuss "A Pattern Language for Pattern Writing"**
> [Meszaros&Doble98] [2]

<<Diagram>>

Individuals who are encouraged to write a first pattern can become excited about writing more patterns. They will also spread the word. However, just like any other Personal Touch, this pattern takes time to do well. Some dislike writing, have poor writing skills, or have trouble thinking at the abstract level of patterns will need to have time-consuming attention paid to them. But when such a person is willing to work at it and is teamed with a mentor who enjoys teaching, the experience can be memorable and rewarding.

Known Uses:

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[2] Coplien suggests that they also read analogous sections in **Timeless Way of Building** [Alexander79] and **Oregon Experiment** [Alexander75] to allow them to acquire an understanding of pattern languages.

AG Communication Systems has a pattern writing class in which individuals write patterns and workshop them. Often, after having successfully written a pattern in the class, students will go on to write more patterns, especially if a reward system is in place to encourage this. At AG Communication Systems, authors were given a copy of a patterns book.

Lucent Technologies expanded a one-day introduction to patterns to two days to allow time for pattern writing and workshopping.

ChiliPLoP uses this technique in their "newbies" track.

The introductory-level patterns tutorial led by Dick Gabriel, Jim Coplien, Christa Schwanninger, Frank Buschmann, and Carol Stimmel at the OOPSLA'99 conference was held over two days to allow time for attendees to write and review their own patterns.

Author: Mary Lynn Manns

Shepherded and workshopped at OOPSLA'99 (August 1999).
Shepherded and workshopped at EuroPLoP'00 (July 2000).

Hometown Story

Find individuals who will talk about their patterns experiences and encourage them to do so.

<<Picture>>

You're a Dedicated Champion trying to Involve Everyone.

How can you make the experiences of those who have accepted patterns known to those who have not?

People want to know what successful people are doing. For those who attend, hearing the experiences of respected peers is the next best thing to personally having the experience. "Most individuals will not adopt an innovation without trying it first…to determine its usefulness." [Rogers95, 171]   Rogers has shown that, "the trial of a new idea by a peer like themselves can substitute, at least in part, for [an individual's] own trial". [Rogers95, 171]

Some individuals are willing to talk about their experiences, but don't want to take the time to prepare and deliver a formal presentation. Informal, interactive presentations require little preparation and can be just as, or even more effective. Individuals are more likely to talk about experiences when they can do it in an informal way with little or no preparation. Offering informal opportunities can also help those who are hesitant about speaking in front of a group.

Therefore:

Find individuals who will to talk about their patterns experiences. It is best if these individuals are known to and respected by others in the organization. Encourage them to present their experiences by: assuring them that their presentation does not need to be prepared and delivered in a formal way; doing the "leg work" necessary to prepare an informal session; promoting the event as in informal and highly interactive session

You do not need a large audience. Small group settings are usually better than large groups for creating an informal, interactive atmosphere. Attendance can be encouraged with Do Food and Brown Bag.

<<Diagram>>

Individuals who are willing to share their patterns experiences with others in the organization will have the opportunity to do so with very little effort on their part. Those who attend the session(s) will see that patterns can be useful to others in the organization and therefore have the potential to be of use to them too.

Known Uses:

This pattern was used at U S WEST Advanced Technologies. Meetings were well attended and filled with discussion.

This pattern was used at AG Communication Systems. Patterns success stories were often reported at team meetings. One presenter even went on to give his presentation at OOPSLA.

Author: Mary Lynn Manns

In Your Space

Make the patterns effort visible by placing reminders throughout your organization.

<<Picture>>

You're a Dedicated Champion. There are busy people all around you who have more to think about than patterns.

How can you keep patterns in the minds of individuals?

People don't usually take time to periodically look at the pattern repository but they'll notice, and are likely to discuss, things that are put in places they frequently encounter in a typical workday, like white boards or bulletin boards in high traffic areas in an organization.

Because members have to have a way to get to know each other, a community can't really exist without gathering places—mailing lists, message boards, chat rooms—wherever a group can come together and talk amongst themselves. [Kim00, 29]

Technical people like to be in the know and are willing to get to get to the bottom of anything new.

Therefore:

Post patterns written in your organization, and other pattern information, on a white board or bulletin board, preferably in a high traffic area. Create a special area with a title, for example "Pattern of the Week," that will draw attention from people passing by. The area must be highly visible, yet pleasing to the eyes of those who display their work and those who will read it.

The patterns placed in this space can be "ready for prime time" (the ones that also appear in the your repository) or proto-patterns that are not in the repository because they are still in need of review. If a proto-pattern is displayed, it should be marked as such. Change the pattern on the same day each week (or other time period) so that people know when to look for a new one.

The board can also include an intriguing quote to capture attention. Associate the identity of the Dedicated Champion with the board. The Dedicated Champion must be prepared to leverage any queries with a Personal Touch towards building or maintaining a Grass Roots effort.

The area near the pattern can be also be used to advertise upcoming patterns events.

<<Diagram>>

Patterns will stay "in the space," and in the mind of the organization. Those who see the patterns will be inspired and might decide to write a pattern too. Those whose pattern(s) are displayed will see that they are valued by the organization and this may encourage them to write more. The board will also provide the opportunity to discuss and review the pattern.

Known Uses:

This technique was used at U S WEST. A white board containing "Pattern of the Week" was placed in a high traffic area.

Carol Stimmel writes, "In my organization, the disciplines are highly disparate and a new technology simply doesn't garner widespread interest. It is expected that the use of patterns could be useful across disciplines, but it is not really known outside of Architecture and Software Engineering. In Your Space is a way to capture eyes, imagination, and interest towards patterns in much the way Don Olson's <u>HandsInView</u> (advising a skier to always keep her hands so they can be seen [Olson98b]) pattern does, by showing a useful pattern that is not necessarily technical."

Author: Mary Lynn Manns and Carol Stimmel

Trinket

When you give a presentation on your topic, give everyone who attends a token that can be identified with the topic being introduced.

<<Picture>>

You are an Evangelist or Dedicated Champion holding introductory sessions for people interested in the new topic. You may be hosting an outside guest, who is doing the actual presentation.

After the presentation, participants often forget about the topic. How can you sustain the impact on the attendees?

People may be enthusiastic about a topic when presented, but the enthusiasm quickly wanes. Our brains can only hold so much; today's information will be quickly replaced by tomorrow's information. Evoking the event can help retain information or connecting the topic with a group of people, e.g., the "patterns community." Something special will help call attention to a particular topic but we all know what it's like to have another toy that just clutters up our space.

It is important that any "group" maintain an identity in order to survive. The trinket helps maintain this identity. It identifies the owner as part of the group to the outside world, and reminds the owner that they are part of the group.

This is much the same as a "uniform" identifies a person as part of a group. However, just as the uniform doesn't make the person, owning the trinket does not guarantee that one will have the attributes of the group. Having the trinket does not guarantee that the owner supports the topic.

Therefore:

Give everyone who attends the presentation a token that can be identified with the topic being introduced. The monetary value of this trinket need not be high – it doesn't need to be a Treasure. Keep the trinkets consistent over time and don't devalue the identity of the trinket by giving them out to people who didn't attend the presentation. If the topic is related to a particular product or company, promotional materials might be appropriate, especially if there is an outside speaker from the company.

Examples of trinkets are coasters, cups, pens and pencils. They may also be t-shirts, hats, and even books. They may also be something as simple as a set of bound notes or a "quick reference" printed on special paper.

<<Diagram>>

People who identify with the topic will keep their trinket, often prominently displayed, as a symbol of their support of the topic. Initially, this identifies the group of people to each other, helping to create a critical mass. Over time, the trinkets serve as a constant reminder to re-visit the topic
Don't be disappointed if some people dispose of the trinket – not everyone appreciates trinkets, and those who don't "get" the topic will be less inclined to keep the trinket around. Trinkets will get cleaned out over time, and this is okay.

The distribution of too many trinkets reduces their effect. Therefore, don't get carried away with trinkets. Also, some creative insight is needed to come up with trinkets that are useful for forming a linking identity, and to jog the memory of the event.

Do Food and Brown Bag draw people to a meeting, while Trinket is used to create a lasting memory of the meeting.

Treasure is closely related to Trinket, but there is more value in a Treasure.

Known Uses

Several trinkets have been used over the life of patterns introduction at AG Communication Systems. GOF books have been made available to anyone interested in the topic, though it should be noted that these books are more likely to be Treasures. Writers Workshop reference cards were given to an even more select group of people who attended Writers Workshop classes.

I collect the name badges from conferences I attend and hang them on the wall of my cubicle. They remind me of the conferences I have been able to attend, the many friends I have met at the conferences, and the things I have learned. They are not Treasures because they aren't worth anything. I'm not afraid that someone will take them in the middle of the night, and I wouldn't lose anything if they were thrown out.

Any good salesman knows the value of giving away Trinkets. Even after a sale is made, the trinkets are invaluable for maintaining a good customer relationship and often result in more sales.

Attendees at a PLoP conference usually take a tangle of yarn home with them.

Bob Hanmer has a foldable card that he gives out at his training session. He says that there is not only benefit for the receiver of the trinket, but also to the giver. Bob feels that he gives a bit of himself away with the card.

Author: David E. DeLano

Workshopped at the OOPSLA'00 "Introducing Patterns into Organizations" workshop (October 2000).

Treasure

Give those who support patterns something of value.

<< Picture>>

You're a <u>Dedicated Champion</u>.

How can you strengthen the impact that the new topic has on an individual and reward those who are your supporters?

People who buy in to a topic still need to have something to hold onto. "Things" are important! You attach significance to objects of value that are given to you sometimes because of who gives it to you and the circumstances under which you received it.

Treasures go beyond just identification with a group. Treasures signify achievement or a level of commitment, like the badges that scouts receive for exhibiting learned skills or attaining predetermined goals.

Therefore:

Give something of value to those who support the topic. Examples include books, shirts, opportunities to publish, special recognition for their contribution. Expensive items are not necessarily treasures. The recipient has to attach value to the item and associate it with the topic.

<<Diagram>>

If the item is a <u>Treasure</u>, the receiver will maintain it in an appropriate manner. This does not always mean it will be displayed, since it might too important to keep out where everyone has access to it. However it is maintained, the receiver will have a strong association between the item and the topic it represents. This connection is what causes the object to magnify the association with the topic.

There is a fine line here between maintaining a certain amount of exclusiveness in owning a <u>Treasure</u>, and being too exclusive. I there are too many treasures, they may become <u>Trinkets</u>. Too few and they create an atmosphere of exclusion. Anyone should be able to obtain a treasure if they meet the qualifications.

Known Uses

Pattern books were <u>Treasure</u>s at AG Communication Systems. Some people saw more value in the books than others. Some even return books to me. They saw the value in the book but didn't identify strongly with the topic and wanted someone else to have the book.

Author: David E. DeLano

Fear Less

Identify any resistance to your new idea and turn it to your advantage.

<<Picture>>

You're an Evangelist or Dedicated Champion. Progress seems to be slowed or blocked by negative influences caused by people in fear of their position.

Some people are not picking up the new idea. Some are deliberately avoiding the topic, others introduce noise and gossip.

New buzzwords and hot topics are always accompanied by a lot of hype. People almost expect promises of silver bullets.

The frame of reference for the laggards is the past—we've always done it this way. [Rogers95, 265]

Whenever there is "resistance to change," you can count on there being one or more "hidden" balancing processes. Resistance to change is neither capricious nor mysterious. It almost always arises from threats to traditional norms and ways of doing things. Often these norms are woven into the fabric of established power relationships. The norm is entrenched because the distribution of authority and control is entrenched. Rather than pushing harder to overcome resistance to change, uncover the source of the resistance, focus directly on the implicit norms and power relationships within which the norms are embedded. [Senge90, 88]

It's difficult to inquire into others' views when you do not agree with them. Our habitual response to such disagreements is to advocate our views harder. Usually, this is done without malice but in the genuine belief that we have thought things through and have a valid position. Unfortunately, it often has the consequence of polarizing or terminating discussions, and leaves us without the sense of partnership we truly want. Try to respond to differences of viewpoint by asking the other person to say more about how he came to his view, or to expand further on his view. Creative outcomes are much more likely. [Senge90, 200]

G.A. Moore recommends that skeptics not be ignored because they "can teach us a lot about what we are doing wrong." [Moore99, 54]

Therefore:

Identify any resistance and turn it to your advantage. Detractors are good sources of information for target areas. Focus on these problems. Understanding the reasons for the resistance allows you to exert a positive influence.

Find resistant individuals. Give them extra attention. Use Personal Touch. Show that learning the new approach does not mean throwing away their experience. Point out how the new technology can improve things for them. People like being recognized and receiving special attention.

In presentations, bring up the negative things you have heard or anticipate what your detractors might say. If you don't bring these issues up you are more vulnerable when someone else raises them. Emphasize that "patterns will not solve all your problems." Point to references that point out the difficulties in using patterns, for example, "Patterns: The Top Ten Misconceptions," http://www.research.ibm.com/designpatterns/pubs/top10misc.html

Use So What's New?

<<Diagram>>

Progress in introducing the new idea is not as likely to be dragged down by resistant individuals. Instead, giving these individuals some special attention and validating their concerns may actually bring them around to your side. In addition, listening to their concerns brings to light the limitations of patterns so that these limitations can be addressed frankly and honestly throughout the organization.

Known Uses:

Rob Westgeest tells the story of an organization where they tried to introduce object-oriented approaches. There were vague signals of resistance (gossip) at the introduction. The source was never clearly identified, but based on their assumptions, they tried to advocate OO at first (which had no effect). Later they saw resistance drop when the sources were actively involved the process.

This approach was also used at AG Communication Systems. Any negative comments were followed up one-on-one to hear the detractor's side and to address issues. These issues were always brought up in any subsequent presentations—to deal with problems before they were raised. In some cases, detractors became enthusiastic supporters. In other cases, detractors remained unconvinced but they were no longer as noisy about it.

Author: Rob Westgeest

So What's New?

Welcome comments such as, "This is the way I do things already," as validations of a pattern, but seek counterexamples to show the value of the pattern to novices.

<<Picture>>

Patterns are said to be "discovered not invented," so some experienced developers will be using patterns "without knowing it". For them best practice is standard practice, and any given pattern might look like common sense at best or trivial at worst. On the other hand, there will be people for whom the pattern is genuinely new as a solution to a recurring problem.

How do you deal with the reaction that a pattern adds no value because it is so obvious?

Patterns are "discovered not invented," but there are always people for whom "old" stuff is new. Patterns are abstract and tend towards simplicity in their presentation but often the relationship between patterns in, say, a pattern language, maintains the essential complexity of the solution rather than the individual patterns.

Genuine masters of their trade, by definition, already use the best patterns BUT best practice needs to be articulated if a culture of design is to be created.

The comments from experienced developers will serve as validation of the patterns as best practice. The comments will help you identify experts as future sources of pattern mining. In some cases, you may establish a learning relationship between 'master' and 'apprentice.'

Therefore:

Welcome comments such as, "This is the way I do things already," as validations of a pattern, but seek counterexamples to show the value of the pattern to novices.

Celebrate the wisdom of the master craftsperson and focus on her as a source of further patterns.

<<Diagram>>

Use Individual Hook to illustrate the usefulness of patterns, to even the experts!

Known Uses

Alan O'Callaghan tells the following story. When we delivered the first draft of the first patterns that later became ADAPTOR it was to a specially convened design review. The patterns had been developed in joint work with some of the company's developers in the previous twelve months. Cannily, DS, the Design Authority, decided to invite some developers who we had not worked with in case those we had were "too close" to be objective. At the end of the presentation DS asked these people what they thought. They were not very forthcoming either way, so DS turned to one of the most experienced men and asked him directly about one particular pattern we had discovered. He asked whether it was recognizable as something the division did. "Yes. I recognize it. I use it a lot. But, that's what worries me. What does it really add?" At this point a new hire, a junior, spoke up and said, "What do you mean you use it all the time? I had this exact problem last month and it took me nearly two weeks to work out a solution. Do you mean you had the answer all the time?"

Author: Alan O'Callaghan

Slowly But Surely

To explain the difficult concepts in the patterns area, use an approach recommended for explaining the complicated issue of sex to young people—wait for them to ask and then give only the amount of information they are prepared to absorb.

<<Picture>>

You're an Evangelist or Dedicated Champion working to spread the word about a new idea in your organization.

How do you explain difficult and complex concepts, like patterns and pattern languages, to novices without overwhelming them?

The concept of a pattern and a pattern language is difficult. As Dick Gabriel has said "Alexander could have written a one-sentence definition of a pattern is, or an essay, but instead he wrote a 550-page book. Because the concept is hard." Difficult concepts cannot be clearly understood in a short period of time. However, the concept of patterns and pattern languages needs to be understood by individuals in the organization if quality patterns and pattern languages are to be written.

Parents have successfully used a very straightforward approach for years when explaining the complicated issue of sex to a young person. They simply answer the questions as they are asked. The answer is tailored to the young person's ability to absorb the information. In this way, gradually, a clearer understanding of a complicated topic is built up over time. [Spock76, 414-5])

This is the approach Alexander recommends for creating a complex building structure, "… build a building in such a way that it starts out loose and flimsy while final adaptations in plan are made, and then gets stiffened gradually during the process of construction, so that each additional act of construction makes the structure sounder." [Alexander77, 963]

The patterns community appears to be taking this approach in their examining and attempting to understand what a pattern is and what patterns and pattern languages can do for the software industry. John Vlissides seems to agree. He raised the following question during an OOPSLA'2000 panel, "Is it possible to set the bar too high too soon for what a pattern should be?"

We build the foundation for a software system around what we know, what we understand from the analysis, and then add incrementally as we understand more about what the system can and should do.

Therefore:

Use an approach recommended for explaining the complicated issue of sex to young people —wait for them to ask and then give only the amount of information they are prepared to absorb.

<<Diagram>>

Begin with simple examples of patterns, a description of the content of a pattern, and some uses of patterns. Gradually explain more difficult concepts such as pattern languages, QWAN, and generativity as individuals become prepared to understand these concepts. Wait until the individual asks you a question that indicates she is curious about an advanced topic. Then, answer the question with enough information that will allow

her to move to the next level of understanding. Individuals can be prompted to ask questions by giving them informal opportunities to chat about patterns. Also, <u>In Your Space</u> can be used to spark their curiosity.

Those who you are trying to educate about patterns will not be overwhelmed with too much detail at once. Instead, they will request information when they are ready to receive it.

However, those who are enthusiastic about spreading the word about patterns may find that this approach is too slow.

This pattern should be used along with other patterns such as <u>Personal Touch</u>, <u>Individual Hook</u>, <u>Hometown Story</u>.

Known Uses

In the "Introduction to Patterns" course at AG Communication Systems, bulleted items on overheads that presented difficult topics were usually covered using this approach. A high-level discussion was initiated that could become deeper depending on questions raised by the students.

Brad Appleton used this approach at Enteract.

Frances Evans and Amy Strucko at SDRC used pattern names as "buzzwords" and then later introduced these "buzzwords" as patterns.

Author: Mary Lynn Manns

Gold Nugget

At the beginning of a patterns course, it is important to get started right. You have a class full of people from (presumably) different backgrounds. The first few minutes of a course is the critical time for catching their attention for the entire course.

<<Picture>>

To the casual observer, patterns tend to look at patterns as just "nice little ideas".

Patterns *are* solutions to problems, and they are *proven* solutions, so they are not new. Some may be well known. On the surface, this isn't terribly exciting.

Patterns tend to be fairly simple ideas. In fact, complex patterns are often broken into smaller patterns. So a single pattern may look even mundane. Furthermore, the instructor must use simple patterns when teaching; there isn't time to delve into complex ones, and the students don't know much about patterns, anyway.

Experience has shown that when they are first introduced to patterns, most people tend to be apathetic to patterns, until they see a pattern that directly relates to their own experience. Then they get excited about patterns.

In any class, the first few minutes are the most critical. In that time, the instructor can capture the attention of the class, or lose it forever. At the start, students are naturally attentive; they expect to learn something new. They are the instructor's to lose. It is much easier to hold the attention of the class than to recapture it if you have lost it.

Therefore:

One of the first things to do is to show students many different patterns, carefully selected to be most likely to address problems the students have struggled with. In this way, you attempt to find a "gold nugget" for each student, and capture the imagination of as many students as possible.

<<Diagram>>

Certain patterns address problems that nearly everyone experienced in that domain has had; make sure to include them. For example, most OO programmers have had the need for a Null Object (Woolf, Bobby: "The Null Object", PLoPD3, 1997.) C++ programmers will relate to patterns of managing dynamic objects (Cargill, Tom: "Localized Ownership: Managing Dynamic Objects in C++", PLoPD2 1995.) Designers of highly available systems will recognize Leaky Bucket Counters (Adams, Michael et al: "Fault-Tolerant Telecommunication System Patterns" PLoPD2 1995.) If possible, evaluate the background of the students before the course begins, and select patterns accordingly. Otherwise, pick patterns that are generic, and those that don't require deep domain knowledge.

It is important to introduce these patterns very early in the course, because they are designed to catch the imagination of the students. Once the light comes on for them, they will be eager to learn all about patterns. Tom Cargill starts his classes with the Null Object; that's his introduction.

As you introduce the patterns, it is helpful to highlight the problem first, and try to relate it to the students. Then explain the solution.

When a student sees a pattern that solves a problem he or she has struggled with, it is like a light goes on. They suddenly see the value of patterns, and become excited about them. If they solved the problem, it is likely the pattern shows their solution, and they get excited to see their ideas written down. If they didn't solve the problem, then the pattern shows them how to solve it.

It is probably not possible to reach every student in every class. Some will just not get excited about patterns. One does what one can.

Author: Neil B. Harrison

Pattern Writing Guided Tour

You have introduced the students to the basics of patterns. Now it is time to move deeper; into the structure of patterns.

<<Picture>>

The best way to learn about patterns is to write them. But it is very hard to begin writing a pattern if you are really new to patterns.

In just about every field, nothing beats experience as a teacher. But there is always a bootstrapping problem: the students must learn something about the topic before they can begin to learn about it through experience. This creates a fine line that the instructor must walk.

Patterns have an additional wrinkle that makes teaching them difficult. There is a logical flow of information through a pattern, no matter the form. It begins with a name, then goes from context, problem, forces, to solution and resulting context. This is the logical way to read patterns, and the natural way to teach them, but it is not the typical order of writing patterns. One usually begins with a solution in mind, then derives the problem and other sections. Starting to write at the top; with the pattern name, is often an invitation to writer's block.

The meaning of the context and forces sections in a pattern are a bit difficult to grasp. Indeed, it isn't always clear whether certain information goes in one or the other section. In practice, there is iteration among these (and other sections). But it's hard to teach.

Examples are helpful in almost every teaching situation.

Therefore:

Teach them about the structure of a pattern by directing them in writing a pattern as a group.

<<Diagram>>

The instructor is a "tour guide", leading the students through a typical flow of ideas and writing that produces a pattern. The key is that the students learn the pattern form by seeing it in action, and they see the pattern writing process. You are teaching them more than the sections of the pattern, you are showing them how patterns emerge.

Here is the way I often do this (I use a pattern I call "Body Follows Eyes"):

First, I describe and demonstrate various solutions in sports: Hitting with power in T-ball, running a slalom course in water skiing, golfing, skiing the steep mogul slopes (Hands in View -- a specialized pattern of Body Follows Eyes). Usually the students will suggest one or two more. Students have suggested target shooting and driving a car. Then we talk about what all these have in common.

Then I ask them to give me a few sentences that describe the general solution for all these. I write their suggestions down on a piece of poster paper which has the heading "Solution". We tape the paper with the solution (and later, the other section) to the walls of the classroom.

I talk about characteristics of a good solution. I then ask what problem this solves. I write their comments, and tell them about problem statements.

"What makes this a hard problem?" This question usually generates a lot of insightful comments. We discuss forces here. I also ask when the solution works, and when it doesn't, thus setting bounds, or context. We discuss characteristics of forces, as well as context. There is often iteration between the context and the forces sections; the students learn the nature of such iteration by experiencing it.

About this time, we discuss the name of the pattern. We talk about qualities of good pattern names, and the give suggestions for the name of the pattern.

We then talk about resulting context, and often finish with a sketch and attributions. At the end, we have a very rough first cut at a pattern, with at least something in every section.

This exercise should be followed with the assignment to write a pattern. It is the intent that they follow the above order as they write this pattern. If they continue to write patterns, they will develop their own style of writing.

Note that this approach has been used with the Coplien pattern form. It would not work terribly well for teaching the Alexandrian form (like this), where the sections are not nearly as explicit as in other forms. It would probably work well for the GoF form, although the author has not tried it.

Although this pattern has been shown to be helpful, it cannot help with the biggest problem that many students face: what to write about in the first place. See Hero Story.

Author: Neil B. Harrison

Workshopped at the OOPSLA'00 "Introducing Patterns into Organizations" workshop (October 2000).

Hero Story

Students are now writing their first pattern, under the direction of the instructor. Some have more difficulty than others.

<<Picture>>

It is common for pattern students to struggle with a topic for their first pattern.

Pity the poor students. They learn about patterns for the first time, and before long they are told to write a pattern. They should have participated in a group writing session to at least see the writing process in action, but that is still pretty slim experience.

Even students with considerable experience in patterns often have trouble writing their first one (or several) patterns. The biggest problem is often coming up with a suitable topic for a pattern. This is particularly difficult in a classroom situation, where the student must "perform on command."

One of the challenges of writing patterns on one's own experience is that when we become expert in an area, we are "through the gate": we no longer use our patterns consciously, they have become part of us. So it is difficult to bring them to mind.

Another difficulty is that it is human nature to see others' accomplishments while being blind to our own expertise.

Therefore:

Before writing patterns, as a separate activity, get people to focus on their areas of expertise and have them write these areas down. This activity is usually somewhat indirect. These areas become a fertile ground for pattern topics.

<<Diagram>>

The direct approach of asking people for topics they might write patterns about, or even what their areas of expertise are, can freeze some people. So approach it obliquely, by asking people to write down what the topics that other people come to them for advice over. Ask them what their favorite areas of work are. Ask them about their hobbies.

It is often helpful to have the students write this information down right at the start of class, and post it for all to see. Then remind them as you teach them about patterns that the things they wrote down are a source of patterns for them.

One of the interesting consequences of this pattern is that you can ask students to hang their papers on the wall, so others can see them. This helps the students get to know each other, and begin to build trust. This is important as they move into workshopping each others' patterns (see Workshop as Teacher).

Author: Neil B. Harrison

Workshop as Teacher

The students have written their first patterns. Obviously, they still have a lot to learn about patterns.

<<Picture>>

After writing their first patterns, students need individual feedback about what they have written. Otherwise, the writing experience will have been largely useless.

The first pattern that anybody writes is usually not very good. Pattern writing is hard, and takes not only practice, but regular correction and feedback. It is important to get the students off on the right foot.

But in a class setting, it is impossible for the instructor to individually critique each student's work. It would take too much time, and all the other students would be sitting around with nothing to do. If the teacher were able to take the patterns home and grade them overnight, that would be an improvement, but the feedback really needs to be in person when the pattern writer is this new at it. Alternatively, general feedback to the entire group can be no more than superficial.

A student needs to do more than write a single pattern. They need to look other patterns. Furthermore, they need guidance on what to look for; what are good characteristics of patterns, and what aren't.

Students can learn from each other.

Therefore:

Have the students do writer's workshops on each others' patterns.

<<Diagram>>

Of course, the instructor guides these writer's workshops actively. The instructor should teach the form of the workshop, and keep them going. The instructor also participates in the workshop, and shows by example what kind of comments to make. This teaches the students not only about how to participate in writer's workshops, but also what to look for in patterns.

Typically, the students will have as many as ten writer's workshop experiences. At first, the instructor will pretty much have to lead the group by the hand, but very soon, the students may even take turns at moderating sessions. (see "Master and Apprentices", pattern #83, Alexander et al, "A Pattern Language", Oxford University Press, 1977.)

It is important to keep the group in any workshop to about ten people. Otherwise, students will not have sufficient opportunity to participate. This is true of non-student writer's workshops as well. If the class is too large, it should be split into two or more workshop groups. It is important that there be at least one instructor for each workshop group.

The obvious result of teaching writer's workshops is that the students learn how to conduct them. But the non-obvious benefits are even greater. By examining each others' patterns, the students learn more about patterns themselves. They see things that work and don't work. And they are not left to themselves; they do it all under the watchful eye of the instructor.

Another important by-product of the workshops in a patterns course is that they introduce students to many of the important aspects of the patterns culture. Furthermore, the students are not just hearing about the culture, they are in fact, living it for a short time.

Author: Neil B. Harrison

Play-by-Play Workshop

Once students have written their own patterns, and are ready to workshop them, the need to learn how to do it.

<<Picture>>

The form (ceremony) of a writer's workshop is a strong contributor to its effectiveness. But for a neophyte, the attention required to execute the ceremony detracts from the attention on the work itself.

The writer's workshop form has evolved over time to become a highly effective means of providing authors with feedback on their patterns. It balances the need to protect the dignity of the author with the need to improve the work. This balance is achieved partly through the form of the workshop, and partly through the culture of the workshop.

The form of the workshop is set up to achieve this balance. Obviously, the order of positive comments and suggestions for improvement contribute to the balance. Other things, such as the author not being allowed to speak during the workshop, contribute to improvement of the work as well as protecting the author's dignity. This has led to a form that is rigidly enforced but not exactly simple. New people have trouble remembering all the steps in a workshop.

The culture of the workshop is as important as the form. It includes such norms as "gush" to save time, and the moderator's requests to "rephrase that comment as a suggestion for the author." Importantly, the culture dictates politeness to the author, as the commentator may well be the next author! But culture is really hard to convey in a written description; Coplien's patterns for writers' workshops capture many of the cultural nuances of writer's workshops, but you still don't get everything by reading them.

Therefore:

Execute a writer's workshop with the students participating, where an instructor gives running commentary of what is happening, and why it is important.

<<Diagram>>

This works best with two instructors, one moderating the workshop, and the other giving commentary. It can be done with a single instructor, but the instructor must make it clear which is commentary and which is part of the workshop.

It is possible to use one of the students' patterns, but it is better to use a pattern prepared just for this purpose. You have to be careful, though, to not make the pattern *too* good. It must be easy for the students to find both positive aspects and suggestions for improvement. Naturally, it needs to be short.

If the group is larger than ten, it is still possible to have a single sample writer's workshop for all students. It isn't critical that they all actively participate in this workshop. In fact, a variation of this pattern used at most PLoPs is to select a few experienced people as participants, and let the rest of the people observe.

It is necessary to give an overview of the writer's workshop process before doing the workshop. Jim Coplien's "A Pattern Language for Writers' Workshops" (Pattern Languages of Program Design 4, Addison-Wesley 2000) gives a description of writer's workshops as they are practiced by the software patterns community.

At the conclusion of the sample workshop, be sure to ask the students what questions they have about the process.

There are many nuances of the writer's workshops which generally are not mentioned in formal descriptions. They usually come up in the sample writer's workshop.

The sample workshop demonstrates the workshop in a way that can never be described on paper. As students participate, questions will occur to them which can be explained before they start workshopping each others' patterns.

Author: Neil B. Harrison

Low Rumble

To maintain interest in a patterns when support has disappeared, believe in the importance of patterns and encourage others to wait for a revival.

<<Picture>>

You're an <u>Evangelist</u> or one of the <u>Innovators</u> and things are not going well. Support from a <u>Local Leader</u> and a <u>Corporate Angel</u> have disappeared. Because of this, the <u>Dedicated Champion</u> is gone.

How can you maintain interest in patterns without support?

It takes time and money to sustain interest in a topic. Tomorrow's buzzword will push out today's hot topic. The players in the game are constantly changing. Interest in a topic dies for various reasons.
There are many reasons why support is withdrawn that have little or no relation to the value of a topic.
Lacks of funds, reorganizations, and the occasional non-supportive manager all appear to kill a topic.

Therefore:

Take on or continue the role of <u>Evangelist</u>. Remember, you're not starting from scratch; there are probably other <u>Innovators</u> who are still with you. Seize opportunities to use and promote the topic, but don't be pushy about it. Be ready for an opportunity for reemergence. The topic could be like a volcano ready to flow once more, or it may become dormant for a long time, maybe forever. Your job is to maintain signs of interest in the topic.

If you see value in the topic and keep using it as best you can, chances are that others see value. If you can maintain the interest that is there, chances are good that support can be raised in the future. Tread lightly; sometimes pursuing a dead topic that people in control want to stay dead can be disastrous to your career. Your only option may be to bail out.

<<Diagram>>

Use <u>In Your Space</u> to keep patterns visible. Look for <u>Trinkets</u> and <u>Treasures</u> that are still around – they can be an assurance that all is not lost.

Known Uses

The patterns effort at AG Communication Systems has run into this problem. However, support for the technology has been maintained and is ready to be revived when support is available. Support for CASE tool usage appeared to die for a while, but recent availability of funds has pushed this technology back to the forefront.

Author: David E. DeLano

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