

From Pattern Languages to “A Project Language”

A shift proposal from existing pattern community

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Patterns and pattern languages are accepted worldwide and used in various areas of IT such as DESIGN PATTERNS, ANALYSIS PATTERNS, DOMAIN DRIVEN DEVELOPMENTS, and AGILE SOFTWARE DEVELOPMENT. Although patterns are successful in such areas, they are less accepted in the areas of large development and planning projects. We suggest that large projects and communities should be responsible for identifying and documenting their own patterns instead of adopting those found in pattern libraries. This is consistent with Alexander’s hope to use patterns and pattern languages as part of his emphasis on planning and community involvement. Our paper focuses on the beginnings of a pattern language that we believe will facilitate the writing of appropriate patterns for different situations by those involved in solving and building in those same situations. Additionally we propose “a Project Language” as a different form of Pattern Language, consisting of episodes and stories. In this paper, we have thus focus upon the essence of C. Alexander’s Community Planning and a centering process via pattern language. In this paper we argue for a turn from the existing dominant ideas a out how to use patterns by professionals to a positive, community-centric way participants to think about and act on their own pattern languages. This new approach is, we believe, both urgent and indispensable at this time.

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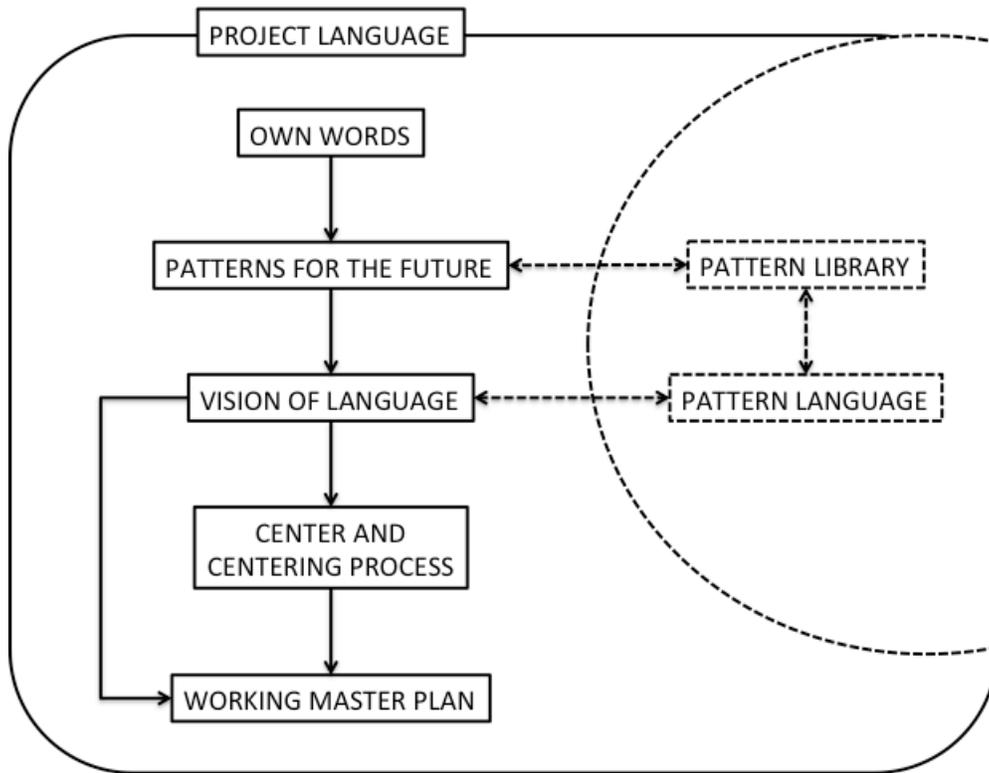
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1. LIST OF PATTERNS

- PROJECT LANGUAGE
Use a project language, which is a pattern language with the special purpose of realizing a concrete project.
This pattern is a root of following patterns.
- OWN WORDS
As many people as possible will participate, and tell your context, problem, and dream in your own words.
- PATTERNS FOR THE FUTURE
Build patterns from the context, problems, expected consequences towards the future using your words.
- A LANGUAGE OF VISIONS
Picture visions and imaginations as pattern stories.
- CENTER AND CENTERING PROCESS
Use “center” and “centering process” for adjusting two systems of the language and the environment.
Centering is effective way to match two other systems.
- WORKING MASTER PLAN
Make a working master plan to realize the visions to the environment as projects.

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2. PATTERN MAP



NOTE: In this paper, patterns in dotted boxes are not supported.

3. PROJECT LANGUAGE

3.1 Context

A pattern language is a model of the system for the communication that combines representational patterns.

In many cases, the pattern is based on the writer's success experience. An expert wants to share the ideas behind that success, especially when the same ideas have contributed to several instances of success, with others by saying: "These ideas lead to success in this domain when encountering this type of problem." A track record also has the expert's success experience, and it is precious also to other persons.

A pattern is used for communication. A typical experience is for others who are interested about the domain if it can be extracted as a pattern. The pattern is named, and it plays as word of a common language in the domain.

A solution space is constituted by combining two or more knowledge, custom, norm, and so on. Therefore, two or more patterns of various scales are associated dynamically. Two or more patterns associated dynamically gradually make a system and the system serves as a language. By showing the model of the system, readers can perform their problem solving according to their environment.

It is useful and helpful when many practices and areas of knowledge in the form of patterns and pattern languages, are accumulated and shared in repositories and magazines. The structure of a pattern language provides a typical and common format in a certain domain and can be used to access the collection of materials and a dictionary of patterns in many cases.

3.2 Problem

Although the pattern language based on typical and common patterns can be used as an approximate solution, a gap occurs between special environment and subject (lack of wholeness).

The environment in its surroundings seems to be individual and to be special. For example, my favorite place, where I can enjoy being with people and engaging in conversation, is a seat in the inner part of a cafe. A comfortable place can be found nearby.

The comfortable environment in our surroundings is very private, and differs across individuals and cultures. The local understanding of community and how it is enhanced will be different in one's own culture than others where different customs and norms prevail. Moreover, environment also changes rapidly as time passes. That is, there is a community in which he is only in "now and here."

In the flow that inherited culture and was continued, it has inherited in its language. According to environment, the respectively different language is used in many cases. For example, another language is used, when talking to its child, and while speaking about the special thing by the international conference and talking about work in the company. Moreover, concrete concerns change also with communities.

Those differences are important especially like a favorite place, a community, etc. However, described success experience pattern or a pattern language which the expert experienced tends to destroy its local environment that it is general-purpose and powerfully as a result.

3.3 Forces

- Although there is a pattern, such as War Story [8], that tells who should write a concrete pattern; it is difficult to write a concrete and persuasive pattern as a matter of fact.
- Although it turns out that a typical and representative patterns are helpful, it takes time to understand and master the patterns even if it is going to apply to its environment.
- In culture with a certain custom and norm, when choosing action of one set, the pattern language is useful, but in other culture, a gap is too large to utilize.
- A certain success experience is not necessarily already useful in another context.

- When the typical pattern was carried out just like that, if the context has shifted, a new problem is sometimes even pulled out.

3.4 Solution

Use a project language, which is a pattern language with the special purpose for realizing a concrete project.

Complete a specific original pattern language (i.e., a project language) focused on the immediate project and based on your visions and imaginations. A project language specializes and focuses on a single situation of a concrete project (for example, Room 203 at G building of XX university is renewed). It does not aim at being useful in other contexts and environment.

First, base your search for certain knowledge or patterns on the collected opinion of the people concerned. Other persons do not understand what the people who are involved feel, worry about, and desire. What the people feel, and their asserted opinions must be respected. Although the acquired knowledge and your imagination may be alike or similar, it is important that concerned people discover a pattern independently.

In order to make a project language, use the form of patterns and pattern languages that contains the sets of a name, context, problem, and the solution. By using pattern structure, the ideas of participants can be captured and conveyed clearly and usefully. On one hand, the main purpose of a pattern and a pattern language is sharing an expert's success experience as a common language of a domain. On the other hand, the purpose of a project language is not to share an expert's success experience, but is producing one's own language and designing one's own subject. Compared with refined patterns and pattern languages, project language may seem odd looking or strange. And the process of making these patterns may differ from the dominant practice. However, project languages can capture and nest – along with borrowed expert patterns – to express the concerns of participants and their understanding of their environment.

Therefore, the following patterns are introduced in this paper.

1. Others cannot be persuaded and involved with the solution based on a few viewpoints. Therefore, as many people as possible will participate, and tell your context, problem, and dream in your **OWN WORDS**.
2. The complicated context and problem that you are tackling exactly arises only once and only here. Therefore, build **PATTERNS FOR THE FUTURE** from the context or problems towards the future using your words.
3. In a pattern, linking and referring to other patterns are difficult to be checked with adaptation to the context and the environment at the project. Therefore, picture visions and imaginations as pattern stories, and its system will be **A LANGUAGE OF VISIONS**.
4. Conflict is often occurred to realize a vision. When realizing the vision without caring circumstance, it often destroys the environment. Therefore, use **CENTER AND CENTERING PROCESS** for adjusting two systems of the language and the environment. Centering is effective way to match two other systems.
5. Even though the visions and the centers become clear, scope and resources for realizing the visions are imprecise in the environment. Make **A WORKING MASTER PLAN** to realize the visions to the environment as projects.

The relation between a project language and a pattern language is complementary.

- When an individual project language has quality, it can be sublimated as a pattern language.
- A certain project can be designed using general and typical patterns and pattern languages.
- When a certain project runs short of patterns a pattern is added if needed.
- That is, an individual project is also used, and a pattern language has a complementary relation that can become a pattern language, if a general and typical thing is taken out from a project language.

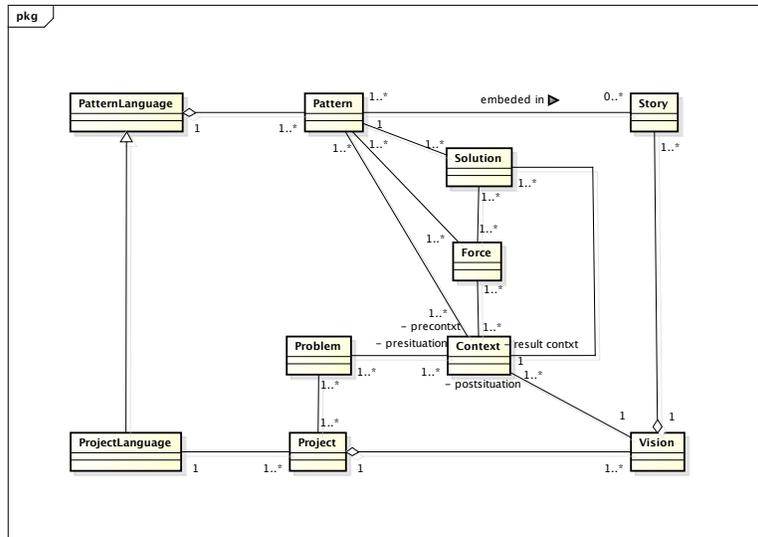


Figure 3-1 Meta-model of pattern, pattern language, and project language

Meta-model (Figure 3-1) shows relations among elements of patterns, pattern language, and project language. This model indicates that project language is a special pattern language for concrete projects that has some visions.

3.5 Consequences

3.5.1 Benefits

- Since a project language has a small scope that be able to paid its attention to the special project, a gap of the context, the environments, and the language should decrease.
- It suits and can use pattern technology also to a special situation.

3.5.2 Liabilities

- Since it is a language peculiar to a project, in other projects, it is not helpful.
- If you would like to make the same environment wherever mass production, a chain store, etc, it may not be suitable in a project language. However, it can become a very high quality pattern language by making an individual project language and refining it.

3.6 Examples

Table 1 An example of patterns in a workshop

Words and descriptions	Quality Value	Problems	Candidate of solutions	Related Patterns	Pattern Name
- The catchphrase for advertising the rows of houses along old Tokaido street. - History icon has pointed out the Edo period. - The scene that it was also in where of Showa era.	- Sense of security - Comfortable oldness - It is not formal. - It is sociable. - Nostalgia	- It is deficient in charm. - People do not come. - Halfway - Ace absence	- Assume a defiant attitude as Class B. - Make halfway OO town sale. - Gather the maniacs of Class B history. - The specialty store of semi-gourmet.	#8: Mosaic of subculture #13: Subculture boundary	The town that feels Class B history

Table 1 shows one example of patterns based on [OUR WORDS](#). In our workshop, we found 26 patterns to design a town. This pattern is very special context to realize the project, and not typical in the world. This pattern is not based on success experience. It is started at the context that it has, [PATTERNS FOR THE FUTURE](#).

4. OWN WORDS

4.1 Context

“You are expert in the area [2]”

“You are an experienced practitioner in your field. You have noticed that you keep using a certain solution to a commonly occurring problem. You would like to share your experience with others. [6]”

In general, present patterns and pattern languages are used based on the teacher-student model. The role of a student uses the pattern that the role of a teacher, which a leader or a consultant, made. For example, when a college student begins study, the collection of patterns for learning is referred to. The learning can be used in common at other universities. For another example, when software developer starts Agile development, they patterns and pattern languages are also referred. So, references like students are the main usage at their workplace. And they change the patterns to adopt their workplace.

4.2 Problem

Others cannot be persuaded and involved with the solution based on a few viewpoints because they lack motive and sufficient persuasion).

Although solutions based on others' viewpoint are useful and powerful, persons concerned will pay their attention to the solution too much. As a result, their eyes will be turned away from the environment which self has.

The people with knowledge ignored the context which the environment has, and often applied the knowledge in loud voice. Also when it is successful, many tragedies of a certain thing have been produced. For example, the team of the sprint and iteration in agile development that is receiving the inquiry from a customer or a prospective customer every day is often unsuitable. It is because a plan is not made until there is an inquiry. However, also in such the state, an external consultant and coach tried to encourage the predominance of the practice, and introduce continuously.

As a result, the bad result was exerted on communication and quality of the workshop.

With the given solution, it will be empty somewhere and will be a scarce thing of persuasion nature.

4.3 Forces

- Even if a third party's role of a teacher (a consultant and a leader) tends to clarify the context and problems, the deep context that a certain project has cannot be assumed completely. An irrelevant command and comment spoil the understanding of the persons concerned because it is outside of context.
- It is good information as patterns that a writer with success experience may investigate a situation carefully. However it's context and problem does not fit your specific environment, for example, values like “you feel the sunshine through leaves are beautiful.”
- There are the concept, short story, and joke that lead only in the project. It is valueless outside that project even if presented as a typical pattern.
- When a certain solution, which is a pattern, is already offered, solutions coming from the participants may not be considered resulting in a lack of group consensus and awareness.
- When there is an intense confrontation of an interest or feeling, it may not be convinced even if only solution is offered without agreement a background or why it is.
- Some teachers, some consultants, tend to act “To someone with a hammer, everything looks like a nail. [7]”

4.4 Solution

As many people as possible will participate, expressing, in their own words, both context and problem.

- Find a leader. The leader pulls a project to success. And leader also appeals for participants and candidates of participants.
- Obtain support of a facilitator and a specialist.

- The duty that adjusts various dilemma and interests becomes important.
- Since there is lack of not having ripened or technical knowledge, I will get each specialist to support. A new viewpoint and frame are offered.
- Quick feedback is very important when materializing its vision.
- Hold an interview and a workshop.
 - Hold workshops that share ideas and perform consensus building.
 - Since some persons of big voice may influence a workshop, it will interview individually.
 - At an interview, the person will concentrate on leaning an ear for liking in what kind of state to have what kind of problem and to do what.
 - In order to pull out real intention, construction of a confidential relation is required above all.

4.5 Consequences

4.5.1 Benefits

- Everyone is satisfied that their concerns and problems have been heard and that those executing the project have the best possible understanding of the context.
- It leads to making visions carried out based on the problem, the situation, and the dream that participants have.
- A broad and diverse opinion can be collected.
- Motivation can go up and it can participate actively.

4.5.2 Liabilities

- It may remain in the opinions that have not ripened.
- Those who push out their interest strongly may influence whole opinion. Depending on the case, it may get confused.
- Since there are various positions, an argument may carry out emission.
- It takes the time and cost for a participant's adjustment or opinion collection.

4.6 Related work

- Principle of the participation [4]
- Local supply and local consumption of patterns
- Co-creation

4.6.1 Example

See, “Words and descriptions” columns (Table 1).

5. PATTERNS FOR THE FUTURE

5.1 Context

The expert's success experience is kept as a pattern in the pattern library. There is an assumption that the idea captured in patterns and pattern languages can be generalized and applied to broad domains; not only software development but also education, organizational theory, etc. This pattern library is very useful and enjoyable, and it can be read as literature. Patterns or pattern language sometimes have reality and presence and therefore convey the feeling that they are like [WAR STORIES](#).

Pattern writing can be performed in its individual environment. By performing a pattern writing in one's workshop, the solution and device in the special environment are described as a pattern. There, since it is spelled in the people's words, there is little gap of the context.

5.2 Problem

Pattern libraries or pattern writing workshops in other environment, are insufficient means to generate suitable set of patterns for planning and establishing community involvement.

Planning emerges from a vision and a dream. Although a certain pattern can already be consulted and inherited, there is no security that it will be consistent with that vision and dream of the future. Using patterns that reinforce conformance to the current situation are dangerous, because it can inhibit realization of the dream and vision.

Although patterns based on an expert's experience may be useful, it is almost certainly insufficient. Because, it is difficult to apply the pattern as a concrete solution that adequately addresses the restrictions, hope, dilemma, etc. of participants.

The typical pattern is accompanied by the flexibility of the circulating grade. The problem currently dealt with is the more nearly private and more nearly special body. For example, it does not become clear in advance what kind of school should be built at the site of the tea garden on a hill, but it changes greatly with national traits, culture, and situations at that time.

Even if it is solution good for you, it is unknown what kind of awareness of the issues and norm other persons have. It is difficult for various people who participate a good thing or to decide in advance.

5.3 Forces

- Although success experience of people who have participated in the community can be described as patterns, it is difficult to describe the future whose vision cannot be seen from success experience.
- The pattern and domain based on a certain success experience may already differ from each other. Or, there is no pattern about very specific contexts.
- An important thing may be overlooked when a phenomenon is seen with your assumption and bias.
- Even if it is solution good for you, it is unknown what kind of awareness of the issues and norm other persons have.
- It is difficult for various people who participate a good thing or to decide.

5.4 Solution

Build patterns from the context, problems, expected consequences towards the future using your words.

Ordinary pattern writing is started from solutions. It is reasonable, because the solutions are often easy to recognize for authors. Where the solutions are still vague or not clear at that time, you can start writing patterns from contexts, problems, or expected consequences.

1. Grasp situation and the contexts.

- A) A desirable state and language with comfortable high quality are discovered.
- B) To support finding words, comfortable scenery or imagination is photographed or sketched.
- 2. Grasp problems.
 - A) The state that is not desirable, and the subject currently faced are discovered.
 - B) The state of solving a problem for a desirable state is looked for.
- 3. Look for adversary relationship.
 - A) Why is there such any adversary relationship?
 - B) What is the intention to be opposed to each other?
 - C) What is the problem that produces all the confrontation?
- 4. Look for candidate solutions that cancel its confrontation. [9][10]
 - A) The solution checks whether the problem is solved.
 - B) The precondition that implements the solution is looked for.
 - C) To the last, it is premised on he being concerned with a subject target.
 - D) It checks what kind of other problem is produced.
 - E) A specialist supports in special knowledge, such as patterns, feasibility and law.
- 5. Make the road map for realizing and implementing.

5.5 Consequences

5.5.1 Benefits

- A highly persuasive pattern can be made.
- Solution with high implementability can be looked for.

5.5.2 Liabilities

- It takes time and cost to discuss. But the costs are outweighed by the benefits.

5.6 Examples

This process of this section can fill in Table 1.

6. A LANGUAGE OF VISIONS

6.1 Context

A language is a system for communication. Here, elements of the systems are patterns. Language-ization is an act that connects the pattern and pattern as an element and completes the dynamic system for communication.

- The language which checks in a typical situation and refers to other patterns from a certain pattern and which is therefore constituted is mainly used with a pattern language in order to transmit a typical pattern. It is taught how an assumption reader should just use.

6.2 Problem

In a pattern, linking and referring to other patterns are difficult to be checked with adaptation to the context and the environment at the project. (Lack of consistency)

6.3 Forces

- The link to other patterns is useful to introduce the relationship and position in the pattern language. However, these links are not easy to be tested by the environment. Because the links are in their patterns.
- The check of the compatibility seen from other patterns becomes difficult. Because there are a lot of links among patterns.
- There is no or less method of checking the importance and the strength of a pattern.
- It cannot respond to the intricately complicated environment or context.
- It explains how one certain pattern is used for a Known uses section, and there is no or less telling whether it is useful in the concrete project.

6.4 Solution

Picture visions and imaginations as pattern stories.

Picture your vision and imagination as a tale using patterns, often looking at the concrete context and environment of the project. Through the story, the used patterns become a language. Although it is also possible to make a vision based on a pattern language, it mainly uses for the project language.

1. Authors of patterns explain each pattern carefully, and understand meaning of these patterns.
2. Draw visions and imaginations as pattern stories using possible patterns as much as.
3. Add the patterns if you need by the pattern story, if there is patterns that run short.
4. Relationship with a project is seen for the pattern currently used by two or more pattern stories, and a priority is attached.
5. Environment is adjusted, checking the operability of the project and carrying out an adaptation modification process (configuration).
6. Environment is diagnosed by making a pattern into a criterion of judgment (diagnose).

6.5 Consequences

6.5.1 Benefits

- The vision in a certain project can be shown.
- By a pattern story, it becomes a language with the persuasive power currently united with environment.

6.5.2 Liabilities

- Since deviation occurs in case of one pattern story, it is necessary to pull out a story from two or more persons, and to make a project.

6.6 Examples



Figure 6-1 Illustrated diary titled "River beneath slope"

Figure 5-1 shows a vision as a pattern story with drawing picture. This pattern story uses 10 more patterns from the list at Table 1. The participants draw such visions, which become candidate of projects' concept. The plural projects are also related. Due to analyzing patterns that visions use for, strength and structure of patterns is revealed. Coincidentally, relations of plural projects become clear. And reconstructed projects and patterns will shift to more concrete level to implement or building via centering process.

6.7 Related work

In order to explain the typical usage of a pattern, "Known uses" section may be prepared. "Known uses" sections in the pattern explain how to use the pattern in teacher-student model. However, this process of visions is based on the participants via viewpoints of revealed patterns and around environment.

7. “CENTER” AND “CENTERING PROCESS”

7.1 Context

We think about two systems: one is project language and the other in environment.

A **PROJECT LANGUAGE** is made by **OWN WORDS**. When persons communicate the meanings with words, the meanings that persons understand has degree of difference. Although defining or describing the words helps the difference less, there is still possibility of existing the difference.

7.2 Problems

Conflict is often occurred to realize a vision. When realizing the vision without caring circumstance, it often destroys the environment.

Visions are based on persons' mind and feeling. Although vision is based on its context, visions sometimes are not related to its environment. When realizing or designing the vision without checking with their environment, it seems to destroy the environment.

On the other hand, the environment may violate persons. For example, tsunami, typhoon, strong winds and rain should work our circumstances. If we don't design, or control, the environment, persons cannot live pleasantly and comfortably.

Although both are important, it arises conflict. In addition to, there are conflict or dilemma in the visions and the environment. These conflicts often make people's mind unhappy.

7.3 Solution

Use “center” and “centering process” for adjusting two systems of the language and the environment. Centering is effective way to match two other systems.

“Center” is intention. When a person sees something beauty or ugly, it comes to her/his intention. If he/she sees another thing, center is changing. “Pattern” is also be able to be “center.” Pattern language and project language also get to be fields of centers that describe their visions of participants. So, everything and everywhere can be center, when a person takes some intentions. “Center” is in environment and specific characters like target site, product market, and so on. For example, when persons design community garden, there are many aspects that are leveling, location, size, neighborhood, other building, myths, existing community, etc. around there. These aspects are also pattern that is dictionary's definition.

Centers are connected and related each other, and they make field of centers. If you see a standing tree, you also see the earth, leaves, sky, and other trees together. You see related all things. If you strengthen one of center in a field, other centers often weaken. If boundary of center sharpens, the center should be stronger. So these fields of centers can check and adjust at the environment.

Centering process is a designing process that is gradually adjusting relationship among centers. Because centers built the worlds that you are interested, it is difficult to design. For checking and adjusting the centers, you put signs at the environment again and again. (Figure 7-1)



Figure 7-1 Put signs for checking centers

NOTE: The center and centering process is in patterns and languages, too. The centering process can be abducting the whole process.

7.4 Example

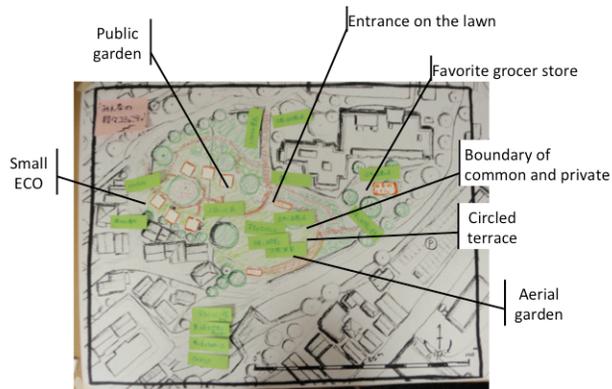


Figure 7-2 Design project language with centering process

In a workshop, we designed “a community garden” using patterns. At figure 7-2, one community garden of a team is designed with centers. They read carefully “centers” in the environment, which is anything recognized like trees, slopes... So, this design keeps original trees and slopes. This garden would be piecemeal growth.

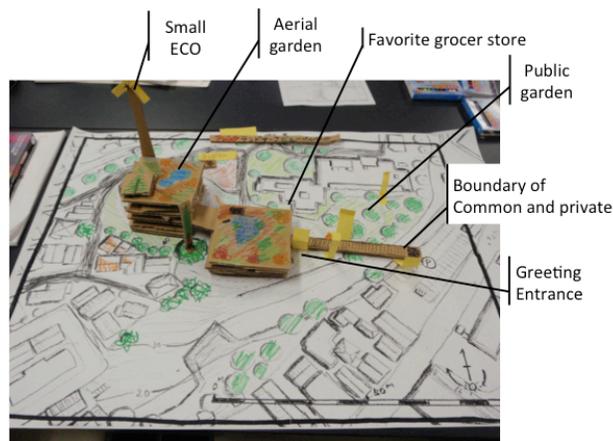


Figure 7-3 Design project language without centering process

At figure 7-3, another of community garden was designed without centering process. The group cut trees and mountains, and built two large buildings. The scene has been changed. Even though the design uses name of project language, it ignores original image of patterns and environment.

Although both designs at figure 2 and 3 use same patterns, one design keeps environments. And another designs like current common style breaks the environment.

7.5 Consequences

7.5.1 Benefit

- Getting harmony with visions and environment.

7.5.2 Liabilities

- This way is less accepted in the areas of large development and planning projects.

8. WORKING MASTER PLAN

8.1 Context

A set of PATTERNS FOR THE FUTURE by OWN WORDS has produced VISIONS OF LANGUAGE and CENTERS. These visions and centers are very important voices in the domain. The visions are stories of the future, and centers are intentions in the environment.

8.2 Problem

Even though the visions and the centers become clear, scope and resources for realizing the visions are imprecise in the environment.

The participants started with sharing their concerns and domains roughly, and then they have built their patterns and visions heuristically. The boundary of the domains of patterns and visions is not defined and clear, because participants found their patterns. When the realizing the visions, the boundary and priority of the visions are necessary.

The complex environment is difficult to be grasped, because there be whole bunch of things and activities in the domains. Although patterns by OWN WORDS are better than in other contexts, the words cannot be described completely. In addition to the views to environment are various, because intentions and concerns of the participants are different each. The project language is also complex, because the language has structure in several layers. So, there are many complexities of both environments and language.

The environment is changing as time passing. Constructions or executions in the projects surely change the environment, and nature and ordinary human activities changes it. Checking the language and environment in post time is still important.

8.3 Solution

Make a working master plan to realize the VISIONS OF LANGUAGE to the environment as projects.

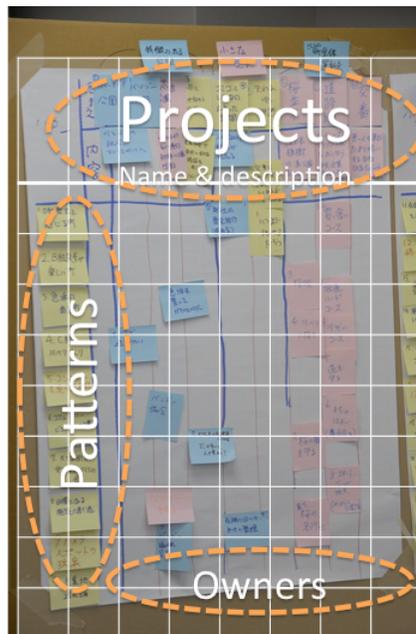


Figure 8-1 Working Master Plan

A working master plan in our workshops is a table with projects and patterns (Figure 8-1). Columns of the table show potential projects. Rows of the table are list of patterns that each project uses.

1. Each **VISION** and **CENTER** is good starting point of projects. Put names of projects at the top of working master plan.
2. Write names of patterns that projects and centers used, and mark the cells of the project and the patterns.
3. Adjust projects and patterns on the table.
 - A) Similar projects can be merged, or larger projects can be separated.
 - B) A Project that uses more patterns should be important. Consider that the projects to be more valuable and more possibility of becoming reality.
 - C) If necessary patterns are missing, make adequate patterns to them.
4. Add owners of projects. Owners have accountability of the project. Strong ownership should lead the projects that have scope and resources.
5. Consider iteratively whether these projects configure the environment.

After breaking up visions and centers to projects, the each project can be preceded to realize the vision.

8.4 Consequences

8.4.1 Benefit

- A set of visions and centers can be breaking down to projects through a working master plan.
- The working mater plan can grasp whole projects and patterns that are used.
- The working master plan can check the projects and the environment.
- This pattern helps facilitator should design the workshops and projects.

8.4.2 Liabilities

- Although this form of plan is still rough, you can use other standards and knowledge to finish the projects.

9. CONCLUSION

A new way of pattern writing techniques are introduced above. Here in this paper, through introducing our way of workshop and project language generation, we presented the way of making “a project language.” The differences in the way of pattern generation are not only specialists work mainly on writing patterns but also participants and real-users demonstrate their own patterns. Although this workshop is community-oriented, which is fruitful to the IT people as well. So, we hope the idea of patterns might be more accepted and self-built design way may prevail.

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