How to Write Patterns

A Practical Guide for Creating a Pattern Language on Human Actions

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Abstract

This paper presents the basics of writing patterns in a pattern language, including an exploration of pattern formats, and crucial tips for pattern writing. The topics and content dealt in this paper were extracted through the author (and the author's teams') experience of writing roughly two thousand patterns over two decades, with the Iba Lab at Keio University, as well as CreativeShift, Inc. The paper delves deep into the process of writing each basic component of a pattern: the Context, Problem, Forces, Solution, Actions, and Consequence. It also covers how to express the abstract concept of the pattern through the Pattern Name, Introduction, and Pattern Name. For each of these components, paper provides an explanation of the basic formats and its examples, as well as tips and a checklist of points to be mindful of. Lastly, and shows how such information is helpful to pattern writers, through exploring an example of an experiment in a university classroom.

1. Introduction

The author of this paper has a history of teaching pattern writing. Most often, the author has attempted to teach the knowledge of pattern writing through providing a step-by-step instruction of the writing process. Although this has been successful in teaching people the basic steps, there has always remained the issue of how to improve the "quality" of their pattern language. That is, the author has always wondered, "What tools can be provided to better assist pattern writers to improve the quality of their pattern languages?"

This paper is an attempt to provide pattern writers the knowledge they need, through explaining, in depth, about the structure and process of writing each component of a pattern. The information dealt with in this paper, is relevant to pattern languages on human actions. The paper will explore each pattern component in each section, in the following order: Context, Problem, Forces, Solution, Actions, and Consequences, Pattern Name, Introduction, and Pattern Illustration. Each section will cover general tips, basic formats, examples, and a checklist of points that pattern writers should review after their writing process. The goal of this paper is to help pattern writers improve their patterns, through understanding "what" to include in a pattern, as well as "how" to write them.

In the paragraphs proceeding, the author will first explain the background of this paper's goal. This will be followed by an explanation of what is contained in a pattern, using a "What, How, Why" framework (Iba, 2013), to prepare readers' basic understanding of references that will be used later in the paper. Lastly, the paper will present examples of its application in pattern writing education.

2. The rationality of defining a pattern format

In the past, the author has refrained from providing a definitive format of pattern writing, due to two reasons. The first reason is that the author himself has believed (through the experience of writing patterns), that each pattern writing process is unique to its own, and that the process cannot be a standardized. The second reason is that even if a standard format can be defined, the author believed it would not be beneficial to the pattern writer, as it could limit the creativity of each writing processes.

However, through reflecting on the many pattern languages and processes that took place in creating them, the author realized that there was indeed, an observable *format* for patterns. Moreover, as the author began to compile and write down these formats, it turned out to be helpful for other writers. In fact, *not* using them began to prove to be extremely inefficient of a process. It became apparent that it was this lack of standardized format, which had made it difficult for pattern writers (most often, students of the author's laboratory and courses) to struggle with proving their patterns, in the past.

As the author has a long experience of pattern writing, such formats always come to mind, unconsciously (although in some cases, it still takes a process of revising and rewriting to reach this format). However, for beginners of pattern writing, such unconscious knowledge would obviously not come to mind, and thereby limit their level of improvement.

This is why this paper aims to define these unconscious tips and knowledge, in a way that can be understood by any pattern writer. This attempt, in itself, is an embodiment of the pattern language approach, defined by Christopher Alexander. As he stated in the "Note on Synthesis of Form", this is an attempt to turn the unconscious, into something perceivable and applicable. It is also similar to his statement in *The Timeless Way of Building*, that although a quality cannot be named, the "pattern" that creates that quality can be defined.

As this understanding began to form, the author reached the realization that the ways of pattern writing should not necessarily be unique to each writer. Instead, a well-written pattern is simply one that is concise and easy to understand. This idea is not new; it is exactly that of Christopher Alexander's thought on design, which was that the existing conflicts of a design should be solved to bring about a state of wholeness.

Due to the reasons stated above, this paper will present a guide on pattern writing, while delving deep into the structure of a pattern, as well as what should be written in each section. It should be stressed that the aim is not to limit an author's creativity or expression, but to help them understand the basic rules to improve the quality of their pattern writing.

3. What to Write in a pattern, and the pattern format

A pattern language is a method of sharing knowledge in a certain domain, through explaining "what" to do, "why" it should be done, and "how" it should be done (Iba, 2013). In this way, patterns help define the "good practices" and "good qualities" that of a certain domain, as well as the reasons behind them.

In a pattern language, each pattern first describes "what" should be created/done in an abstract manner. This is followed by a description of a *Context* and a *Problem* it helps to solve, in order to explain "why" the aforementioned action should be done. Lastly, it provides information on "how" the solution can be carried out in specific examples. Therefore, pattern languages help people to understand the "what, why, and how" of a certain good practice.

On the other hand, what patterns *don't* do, is to specify "when, where, and who" it should be done by. Patterns are not written for a specific person or a time. They can be utilized by anyone who encounters a Context similar to that mentioned in the pattern, and help them solve the Problem. In other words, the "who, what, why" does not matter; patterns can be used by anyone, so long as the reason (the "why") for initiating the pattern is compatible.

By presenting "what, why and how" a good practice can be done, pattern languages help individuals to understand, think about, and initiate an act of creating something (Figure 1).
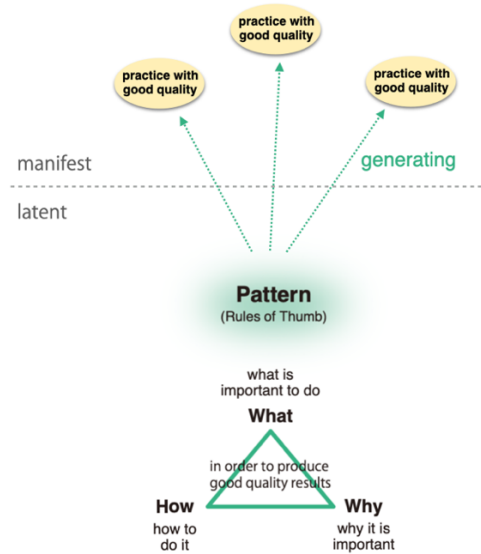
Figure 1: Patterns summarize the essence of a good practice.

Conventional methods of assisting an act of creating, such as manuals and recipes, are focused on describing the "how" aspect of an activity. These assisting tools are offered with the understanding that individuals can figure out "what" to make/do, and "why" it should be done, on their own prior.

However, in striving to create something with "good quality", which fits the needs of the user, the decision process of "what" to make, is extremely important. Furthermore, understanding "why" each practice should be done is equally important to help adapt the process creatively to each situation. Therefore, the decision of "what" to make, and "why" it should be made, should be regarded as an important aspect of the process of "creating"; it should not be decided by individuals' personal tastes or by coincidence.

In order to understand the importance of the "what" and "why" aspects of a creative process, it is helpful to imagine a situation in which those aspects are given by an outside force. That is, a situation where a person is creating something based on a set of "what" and "why", precisely defined/given by someone else. Such a process is not truly creative, as the "what" and "why" should be formed in the creative process by the creator (through a series of adaptations).

To avoid any misunderstandings, it should be noted here that the assisting the "what" aspect through a pattern does not mean that a specific order or direction will be given. Instead, patterns will present a set of "ways of thinking" which the reader can use to find their own answer of "what" to make. The same goes with the "why" aspect; patterns should provide the "ways of thinking" that help the reader discover "why" they should do a certain good practice. In this way, patterns should be abstract in order for them to properly assist the reader.

Furthermore, much like how manuals and recipes (which describe the "how" aspect of a process) can be used in various situations, patterns (which describe the "what and why") should also be free of specifying the "when, where, and who". In other words, the information of "when, where, and by whom" the act should be done by, should be left undefined (Figure 2). In a Creative Society, there is a need for a tool, which has the freedom of adapting to various situations, to allow individuals to think on their own. This, in the authors mind, is the role of the "Pattern Language" (Figure 3).
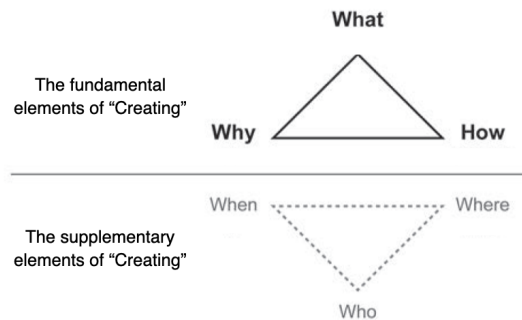
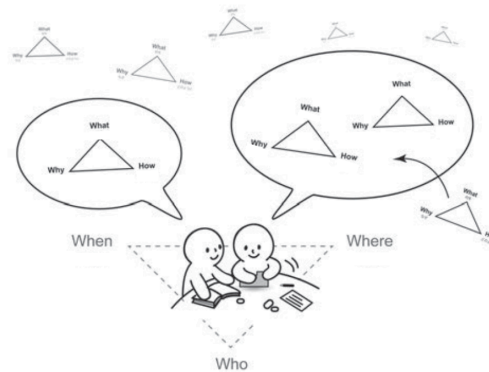Figure 2: The "5W1H" of "Creating" (Iba, 2013)

Figure 3: Pattern Language helps the reader to think about "what, why, and how"
to carry out a good practice within a given context (Iba, 2013)

Such components of a pattern (what, why, how) are extracted through either conducting dialogical mining, or through referencing books and past research. In either of the cases, the pattern writer must first identify "what" is important within the particular practice, followed by "how" that can be done, and "why" such action is important (Figure 4).
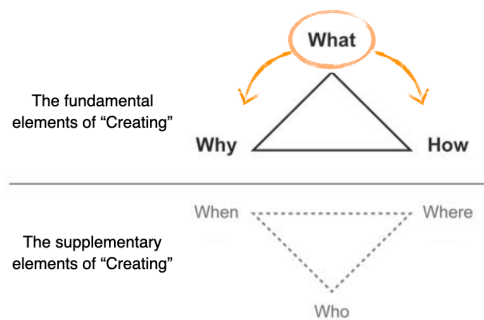

Figure 4: In the mining phase, the writer must identify the "what" component,
along with the "how" and "why" component it is associated with

After the mining phase comes the pattern writing phase, where the "what, how, and why" components will be written in a "Context, Problem, Solution, Consequence" format. The overall order is as follows: a description of the Context in which a Problem occurs, followed by the Solution which helps to solve the problem and bring out a desirable "Consequence". Details are as follows.

Context
The *Context* is a concise sentence that describes the situation in which the pattern would come to use.

Problem
The *Problem* is a concise statement that describes an issue that is likely to occur within the Context. It occurs as a result of not initiating the Solution.

Forces
The *Forces* are several sentences that describe the factors causing the Problem, within the Context.

Solution
The *Solution* is a concise sentence that describes an effective practice that solves/avoids the Problem and helps achieve the desired quality, within the Context.

Actions
The *Actions* are several sentences that describe specific and common examples of the Solution, to better enable the reader to understand its application.

Consequences
The *Consequences* are several sentences that describe the benefits of initiating the *Solution* within the *Context.*

In addition to the pattern content listed above, there are also elements that help to express the patterns abstractly. It should be noted that although these elements technically belong to the process of Pattern Symbolizing (not Pattern Writing), they are included in the paper as an extension of Pattern Writing for convenience sakes.

Pattern Name
The *Pattern Name* is a simple and capturing phrase that expresses the essence of the pattern.

Introduction
The *Introduction* is a sentence that supplements the pattern name, in a way that entices the reader to read it.

Pattern Illustration
The *Pattern Illustration* is a simple illustration that expresses the state in which the *Solution* leads to desirable *Consequence*s.

Generally, in the pattern writing process, the *Solution* contains the information of "what" and "how", while the *Problem* and *Consequences* contain the information of "why" (Figure 5). Furthermore, the *Pattern Name*, which represents the overall idea of the pattern, should contain an essence of the "how".

The sections that follow will explain what to write in each pattern component, as well as the reasons behind the format.

Note that Pattern Writing and Pattern Symbolizing are carried out in the process of pattern language creation, which we developed and improved for more than ten years, as shown in Figure 6.

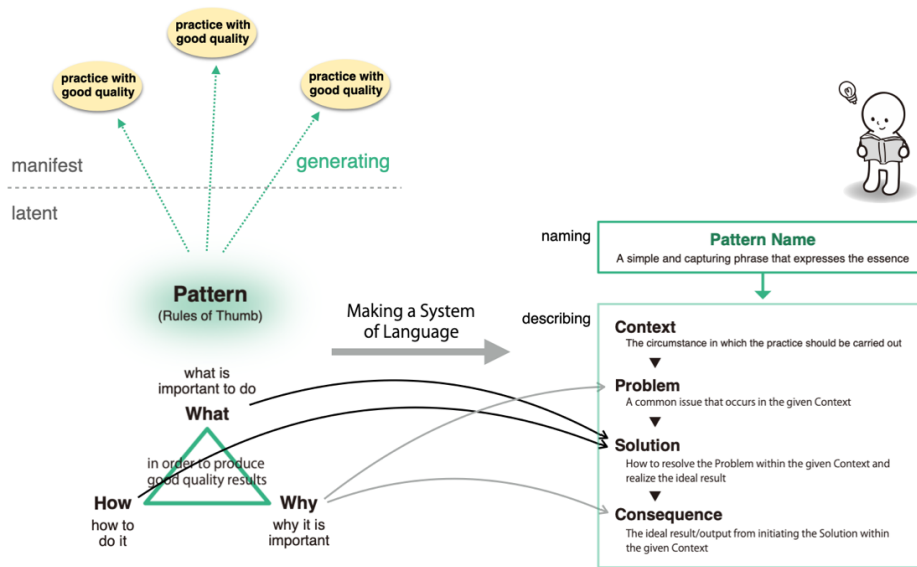
Figure 5: In the pattern writing process, the "what, how, and why" components are written in the format of Context / Problem / Solution / Consequence
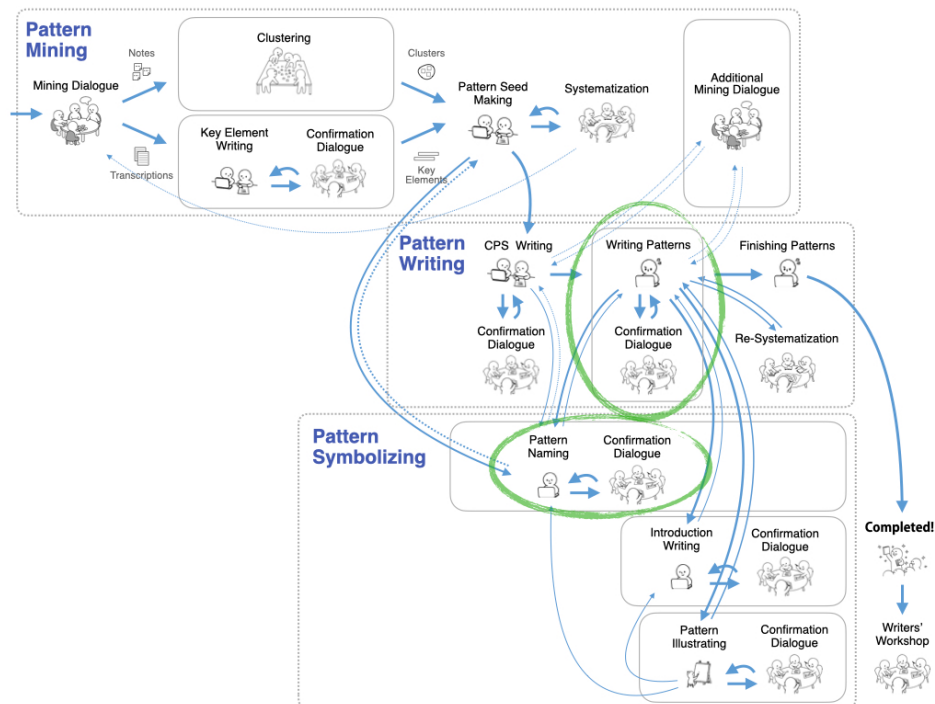

Figure 6: Pattern Writing and Pattern Symbolizing in the Process of Pattern Language Creation

4. Writing the Context Statement

The Context statement should be a concise sentence, which describes the circumstance in which the pattern will be useful.

4.1 Things to consider when writing a Context statement

When writing a *Context* statement, the author should be mindful of the following points.

1) Specify the circumstances or leading factors, in which the *Problem* is most likely to occur.
A well-written *Context* clarifies to the reader the preconditions in which the *Problem* will happen.

2) Specify the circumstances in which the *Solution* given will become useful.
Similarly to the aforementioned point, the *Context* should also clarify the preconditions in which the *Solution* will be effective.

3) Eliminate redundant information
Avoid including redundant or obvious information that applies to every pattern within the pattern language. Doing so ensures that each *Context* is uniquely compatible to the presented *Problem* and *Solution*.

4.2 Basic formats of the *Context* statement

There are mainly three ways of writing a *Context* statement.

> ➢ A description of a point of time (while doing something, after doing something, or after something happens).
> ➢ A description of circumstance, in which someone/something is trying to (or thinking about) doing something.
> ➢ A description of a certain environment, context, or a set of prerequisites.

4.2.1 The first basic format of a Context: A description of point of time (while doing something, after doing something, or after something happens).

The first of the three basic examples of *Context* writing is to describe a point of time in which the pattern would come to use. That is, it points to a certain timing: "while doing something", "after doing something", or "after something happens". If the *Context* describes a state of "doing something", the pattern would be about what to do in the process of that particular activity. If the *Context* were about "after doing something", the pattern would be about what to do after that particular activity. Lastly, if the Context were a description of a state "after something happens", this would suggest to the reader that the pattern be practiced after observing a certain phenomenon.

Examples in this basic format are:
・ You are listening to them talk about their experience. (Response to What is Said, *Words for a Dialogue*)
・ You are listening to the other person talk about their story. (Deep Listening, *Words for a Dialogue*)
・ You are gathering information for a new project. (Direct Sourcing, *Project Design Patterns*)
・ You are thinking about ways to realize your project. (Approach Search, *Project Design Patterns*)
・ You are developing a project that involves many different elements. (Killer Pitch, *Project Design Patterns*)
・ Participants are discussing the problem. (Diverse Understandings, *Words for a Dialogue*)
・ You are seeking for ways to learn more about dementia and get involved. (Personal Connections, *Words for a Journey*)

- You asked the other person a question about themselves. (Pause for Thinking, *Words for a Dialogue*)
- You have started a dialogue to dissolve the problem. (Everyday Meetings, *Words for a Dialogue*)
- The initial plan for your project has been made. (Review in their Shoes, *Project Design Patterns*)
- You listened to them talk about their experience. (Inner Viewpoint, *Words for a Dialogue*)
- You have come up with a good idea. (Proto-Planning, *Project Design Patterns*)
- You encountered an exciting experience or exciting information that is unrelated to your ongoing project. (Chance Taker, *Project Design Patterns*)
- You encounter a service or design that is unappealing to you. (Studying Not-So-Good Cases, *Project Design Patterns*)
- You have been collecting information about dementia care from books and the Internet. (Family Expert, *Words for a Journey*)
- The other person is overcome with emotion and is crying or lashing out. (Tunnel of Emotion, *Words for a Dialogue*)

4.2.2 The second basic format of a Context: A description of circumstance in which a subject is trying to (or thinking about) doing something.

The second basic type of *Context* writing is a situation preceding an action. For instance, writing about a situation in which a subject is "trying to do something" or "thinking about doing something". In either of the cases, this type of *Context* is one that expresses an intention toward a certain direction.

Examples in this basic format are:
- You are presenting your project idea to your client. (Room for Commitment, *Project Design Patterns*)
- You have held several meetings to continue the dialogue. (Continuous Engagement, *Words for a Dialogue*)
- You are trying to start a dialogue. (As a Living Person, *Words for a Dialogue*)
- You want to ask questions to hear the other person's story. (Open Question, *Words for a Dialogue*)
- You are trying to respond to something they talked about. (Exact Same Words, *Words for a Dialogue*)
- You are planning an event for people with dementia and their family members. (Mix-Up Event, *Words for a Journey*)
- You are going to see another person's work. (Imagination Gap, Project Design Patterns)
- You want to know what your customers are looking for through your services. (Become a Real Customer, *Project Design Patterns*)
- You want to receive comments and advice from others to improve your project. (Graduated Consultations, *Project Design Patterns*)
- You want to enjoy designing your project and create exciting projects. (Expansion of Interests, *Project Design Patterns*)

4.2.3 The third basic format of a Context: A description of a certain environment, context, or a set of prerequisites.

The third type of a *Context* is one that describes a particular environmental condition, existing circumstance, or a certain factors that lead up to a phenomenon (instead of referring to a certain timing). Although this type of *Context* is not as common as the aforementioned two, it can be useful in expressing a circumstance that occurs as a result of other patterns within the pattern language.

Examples in this basic format are:
- Some family members are taking central roles in caregiving. (The Amusement Committee, *Words*

for a Journey)

・ Your job is to design projects that create new value. (Combination of Strengths, *Project Design Patterns*)

・ You are constantly gathering information. (Personal Stock of Resources, *Project Design Patterns*)

・ You have begun spending less time outside and more time inside your home. (Favorite Place, *Words for a Journey*)

・ Due to "Job-Specific Contributions" you have thought of a new product or service targeted for the people with dementia and the people around them. (Warm Design, *Words for a Journey*)

・ Various perspectives are introduced to the dialogue. (Ambiguous State, *Words for a Dialogue*)

・ What the troubling experience means to individual participants is constantly being changed through the dialogue. (Ever-Widening Context, *Words for a Dialogue*)

4.3 Points to check after writing the Context statement

After finishing the first draft of the *Context* statement, the author should check the following points and revise if necessary.

1) Does the Context relate to both the Problem and the Solution?
A Context should capture the essence of both the Problem that occurs from a situation, as well as its Solution. The author should check that the Context statement written is a proper explanation of a circumstance that applies to both the Problem and the Solution, not either or.

2) Does the Context fit properly with the Context of the preceding and proceeding patterns?

3) Does the overall lineup of the "Contexts" make sense as a whole language?
The Context sets the precedent for each pattern. In order for the language to make sense as a whole, the Context should be tuned and adjusted in relation to other patterns. Therefore, the Context of a pattern cannot be completed as a separate entity. Before completing a pattern language, the author should take time to tune each pattern as a coherent set. However this also means that the author should not expect to write a perfect Context statement in the initial process of pattern writing, as the final quality can be fine-tuned in the revising stage.

5. Writing the Problem statement

The Problem statement should be a concise sentence, which explains a common issue that occurs in the given Context (when Solution is not initiated).

5.1 Things to consider when writing the Problem statement

When writing the "Problem statement", the writer should be mindful of the following points.

1) The Problem should describe the factor that prevents the ideal quality/result from happening
The Problem is essentially a state in which there is a "loss of quality" that one wants to achieve. In a certain Context, there can exist multiple issues from various perspectives, but the author must find the "most essential issue" in which to write the pattern about.

2) Differentiating the "Problem from the Context
Because the Problem statement is description of an issue that occurs unintentionally from a certain Context, it can be confusing what information to include in each statement. In such a case, the author should make the decision based on whether the information is a precedent for the Solution. If the information is irrelevant to the Solution, it should be included in the Problem statement. Conversely, if the information is a precedent for the Solution, it should be included in the Context

statement.

5.2 Basic formats of the Problem statement

There are mainly three ways of writing the Problem statement.

- ➢ A description of something that tends to happen (or that one tends to do), which brings about a problematic situation
- ➢ A description of certain conditions, as well as the problematic situation that results from it
- ➢ A description of a situation in which an ordinary action will prevent a great result from occurring

5.2.1 Basic format of a Problem (1): A description of something that tends to happen (or that one tends to do), which brings about a problematic situation

The first basic way to write the Problem statement is to begin the sentence with a description of "what tends to happen (or what one tends to do)", and then follow it with a description of "the problematic situation" that occurs as a result of it. There are two cases for a problem: one that occurs as soon as the Context exists, and one that occurs after some time has passed. Especially in the case of the latter, the pattern should tell readers to act in advance to *prevent* the problem/issue from occurring, as it will be too late to fix after it has already taken place.

Examples in this basic format are:

- ・ If only certain people are talking, other participants will lose their opportunity to speak and share their unique perspectives. (Invitation for Utterance, *Words for a Dialogue*)
- ・ When they do not immediately respond to you, you may want to change topics or reword your question but this may intercept their thoughts and words as they are being formed. (Pause for Thinking, *Words for a Dialogue*)
- ・ You may be unable to deepen your ideas when you are only thinking inside your head. (Thorough Listing, *Project Design Patterns*)
- ・ If you continue the project without knowing much about the other person, then there will be a time when you come to a disagreement and the project comes to a standstill. (Empathetic Partners, *Project Design Patterns*)
- ・ A project that lacks concreteness will cause complications in the development process and make it more difficult to realize. (Thinking with Reality, *Project Design Patterns*)
- ・ If you rephrase their original words into your own words with your own interpretation, a different meaning of what they said will be perceived and lead the dialogue in a different direction. (Exact Same Words, *Words for a Dialogue*)
- ・ If you start to think you shouldn't do something on your own and should have everything done by others, you will start to become unable to do even the tasks that you can do now. (Daily Chore, *Words for a Journey*)
- ・ You want to help achieve their goals, but you think you should wait until they recover a little before they start. (Preparation for the Dream, *Words for a Journey*)
- ・ If you are only looking at materials that are naturally accessible to you, then you will only be taking in information that is within your interests, and you will be unable to bring new perspectives to your project. (Nutritious Information, *Project Design Patterns*)

5.2.2 Basic format of a Problem (2): a description of certain conditions, as well as the problematic situation that results from it

The second common way to write the Problem statement is to start the sentence with a set of conditions such as "If..." or "In the case that..." then follow it with a description of the problematic situation that

results from it. For this format too, there are two cases for a problem: one that occurs as soon as the Context exists, and one that occurs after some time has passed. Especially in the case of the latter, the pattern should tell readers to act in advance to *prevent* the problem/issue from occurring, as it will be too late to fix after it has already taken place.

Examples in this basic format are:
- Your family won't know how much they should get involved with your disease, especially if the symptoms are still light. (Departure Announcement, *Words for a Journey*)
- When the same people are always around, the person with dementia will be confined to a very small world. (Generational Mix, *Words for a Journey*)
- When caregiving continues for a long period, topics of conversations tend to be centered around the disease itself and its care. (Make it Funny, *Words for a Journey*)
- While a project with many different elements includes a wide range of possibilities, the main value and aim of the project tend to be unclear. (Killer Pitch, *Project Design Patterns*)
- There is no guarantee that your first approach is the best, since there is no "right or wrong" in how you implement your project, especially if you are working with new ideas. (Approach Search, *Project Design Patterns*)

5.2.3 Basic format of a Problem (3): A description of a situation in which an ordinary action will prevent a great result from occurring

The third common way to write the Problem is to describe a situation in which the Solution is not crucial, but can lead to a better result. In other words, the Problem would refer to a case where a typical action will lead to an average result (there is no particular issue), but there is a loss of opportunity to do it better. Phrases such as "If you only do… you will be missing the opportunity to…" can be used.

Examples in this basic format are:
- If you simply create something within your client's expectation, then the project will be nothing more than what was already expected. (Pleasant Memories, *Project Design Patterns*)
- It is difficult to review your own project and make brave changes/improvements. (Review in their Shoes, *Project Design Patterns*)
- You assume that an exciting experience/exciting information has nothing to with your project, thus wasting an opportunity to make your project more interesting. (Chance Taker, *Project Design Patterns*)
- Even if you work very hard at your job, it can be difficult to produce exceptional results. (Expansion of Interests, *Project Design Patterns*)
- A project that is too proper can be uninteresting and even unapproachable. (Points of Play, *Project Design Patterns*)

5.3 Points to check after writing the Problem statement

After finishing the first draft of the Problem statement, the author should check the following points and revise if necessary.

1) Is the Problem the reason why the ideal result fails to come about?
It is crucial to reevaluate whether the sentence explains the "pattern's fundamental problem". Does the Problem statement capture the actual cause of the issue, or the lack of quality within the Context?

2) Is the Problem written in such a way that is condemning or attacking toward those who are in such a circumstance?
The author should be cautious as to not write the Problem statement in a manner that is critical or

puts blame on those experiencing the issue. It can be easy to unintentionally include attacking phrases such as "because the subject makes a wrong decision (a certain problem occurs)" or "because the subject fails to do something (a certain problem occurs)". Such phrases can often times be re-written in a more supportive manner, by taking into consideration the readers' mindsets and situations.

3) Is there a sense of reality when reading the Problem statement?
The Problem statement should be written in such a way to make the readers' want to truly want to avoid it (otherwise, the readers would not be motivated to initiate the Solution). The author should strive to write the Problem statement in a way that evokes emotion and reality. However, they must simultaneously take caution to not over exaggerate or use directly negative language. This is the same as how great novel authors would not directly write, "he/she was sad", when expressing a character's emotions.

4) How similar is the Context and Problem to that of other patterns?
In the case a Context and Problem of two patterns are the same, logically, so should the Solution be. If there are patterns with essentially the same Solution, they should not be written as separate patterns. On the other hand, if there are two different Solution statements to an identical set ofContext and Problem statements, that means one (or both) of the patterns do not correctly capture the Problem. This issue is especially common for patterns in the same groups or categories. Therefore, the author should always compare each pattern's Context and Problem with that of other patterns, and make revisions as necessary.

6. Writing the Forces statement
The Forces statement should describe the factors influencing or causing the Problem within the given Context, in a few sentences.

6.1 Things to consider when writing the Forces statement
When writing the Forces statement, the writer should be mindful of the following points.

1) Analyzing the cause of the Problem:
What are the circumstances that are likely to exist within the given Context? What factors cause these issues?
The Problem is not something that results from a person's intentional or malicious behavior. Instead, it results inevitably, from various forces that exist within the Context. So, what are the forces that are truly at play? The Forces statement should be a description of such elements, and how they relate to the resulting issues.

2) The Problem as the key sentence, and the Forces as the paragraph sentences
The Forces statement should be written in such a way that they are supportive paragraph sentences to the key sentence, the Problem statement. Furthermore, they should be written so that the Problem statement followed by the Forces statement can be read as a coherent paragraph. So long as the paragraph makes sense, the order and content of the paragraph can be written freely according to the author's intention.

6.2 Basic formats of the Forces statement
There are mainly three ways of writing the Forces statement.

➢ A description of "one's tendency to do something (or a tendency for something to occur)",

which causes the Problem
- ➢ A description of "existing precedents", which inevitably causes the Problem
- ➢ A description of "existing situations", which directly or indirectly (coupled with other risks), causes the Problem

6.2.1 Basic format of Forces (1): A description of "one's tendency to do something (or a tendency for something to occur)", which causes the Problem

The first common way to write the Forces statement is to start by describing typical tendencies (thoughts or actions) that most people would find themselves in. When doing so, the author should express some empathy; as such tendencies are, in a way, normal responses to the given Context. Phrases such as "… tends to happen" or "… will inevitable happen" could be used.

Following this opening sentence, the author should express that such thoughts or actions lead to problematic situations, using phrase such as "however, such thoughts/actions lead to…." The "problematic situations" mentioned here, should contain direct consequences caused by the thoughts and actions, and should not contain the ultimate problem (i.e. the loss of quality mentioned in the pattern language as a whole).

Lastly, the author should provide a summary sentence, to describe once again the Problem that occurs. The author should refer to the pattern's category or the pattern language as a whole, when deciding the nuance and tone of this summary sentence.

Examples in this basic format are:

- ・ When they do not immediately respond to you, you may want to change topics or reword your question but this may intercept their thoughts and words as they are being formed. If you do not immediately receive an answer, you may think that they did not understand your question and try to rephrase it. However, the deeper the question causes them to reflect, the more time they need to think and put their thoughts into words. (Pause for Thinking, *Words for a Dialogue*)
- ・ Although you are carrying out your "Travel Plans," sometimes you may lose confidence in yourself and have a hard time cheering yourself up. Keeping up your confidence can be hard when you notice your memory becoming worse or you find yourself not being able to do things you were capable of before. When such things happen, you may tend to become blind to all the things you can still do. You can become depressed about your disability and lose the will to do anything else. (Fellow Travelers, *Words for a Journey*)

6.2.2 Basic format of Forces (2): A description of "existing precedents", which inevitably causes the Problem

The second way to write the Forces statement is to describe a set of precedents (principles) surrounding the circumstances. These are factors not caused by a person's intention, but are rather natural results of a given Context. The author should be mindful to write this in an objective way, so that it does not blame the subject (readers) for the "Problems".

Examples in this basic format are:

- ・ You may be unable to focus on what the other person is saying if you are distracted by the opinions and judgements forming in your mind. Every person has their own experiences and ways of thinking based on these experiences. Therefore, it is inevitable that you form your own interpretations and judgements when listening to the other person. However, too much focus on these thoughts makes it difficult to understand what the other person wants to tell you. (Deep Listening, *Words for a Dialogue*)

6.2.3 Basic format of Forces (3): A description of "existing situations", which directly or indirectly (coupled with other risks), causes the Problem

The third way in which to write the Forces statement (although this method s not as common), is to

begin with a description of an existing situation, such as "…is in a state of …". This is a way of explaining the background/preconditions for a problem through focusing on the facts existing in a Context. Continue this with a description of how the inevitable Problem arises as a "result of" the existing factors. Or in other case, provide a description of how *other* opposing factors come into play to complicate the situation, thus leading to the Problem.

Examples in this basic format are:

- If your project is specifically designed for the current market, then it may become outdated or irrelevant as time passes. A product or service may succeed right after it has been released if there is no competition. However, the more successful your project becomes, the more likely it is that other people will create similar products and services, which will change the demand-supply balance of the market. Furthermore, the world is in a constant state of change, so your project may lose its appeal as time passes. (Incorporating the Future, *Project Design Patterns*)

6.3 Points to check after writing the Forces statement

After finishing the first draft of the Forces statement, the author should check the following points and revise if necessary.

1) Are there any factors in the Forces statement, which are unrelated to the cause of the Problem?
Even with the best efforts to extract the Forces by carefully analyzing the Context of the Problem, there will be times when some of the forces are not relevant causes of the Problem. Therefore, it is important for authors to go back and check whether all of the Forces are applicable to the pattern.

2) Is there a sense of reality when reading the Forces statement?
The Forces statement should be written in such a way to make the readers' fully understand the cause in which the Problem occurs, so that they are motivated to initiate the Solution. The Forces should be written with an objective viewpoint, and must capture the true essence of the causing factors.

3) Are the Forces written in such a way that is condemning or attacking toward those who are in such a circumstance?
Similarly to the Problem, the Forces statement must not be written in a manner that is critical or puts blame on those experiencing the issue. It can be easy to unintentionally include attacking phrases such as "because the subject makes a wrong decision (a certain problem occurs)" or "because the subject fails to do something (a certain problem occurs)". Such phrases can often times be re-written in a more supportive manner, by taking into consideration the readers' mindsets and situations.

4) Does the Solution work even if the same Forces continue to exist? Will the Problem be solved properly in such a case?
A pattern's Solution must be valid within the existing Forces of the Context. In the case that it is not, it can be assumed that either the Solution or the Forces is not properly analyzed. In principle, the Solution should be an action that works in opposition to the present Forces, thereby changing the composition of the conflict, and preventing or solving the Problem.

5) Is the paragraph coherent and expressive when read together?
The author should check whether the Forces sentences can be read as supporting paragraph sentences to the key sentence of the Problem (written in bold text). However, the paragraph should not simply be written in proper structure grammatically, but should be expressive and harmonious with that of other patterns. In the revision stage, the author should check these factors, and fine-tune

the overall expression and quality.

7. Writing the Solution statement

The Solution statement should be a concise sentence, which describes how to avoid/solve the Problem within the given Context and realize the ideal result.

7.1 Things to consider when writing a Solution statement

When writing a Solution statement, the writer should be mindful of the following points.

1) "What" is important to do, and "How" to do it

The Solution sentence should first explain "What" the subject should do in order to bring about the desired quality, followed by a description of "How" to do it.

2) Make the "How" inspiring

The "How" part of the pattern should contain inspiring information that gives the readers an insight into how they can better their action. It cannot be something obvious that most people would easily come up with (in this case, there would be no need to write the pattern). Therefore, the author should give the best effort to investigate the most essential and inspiring piece of knowledge. The more the pattern gives fresh insight for the reader, the higher the possibility of the pattern actually coming to use in their actions.

3) Make it appropriately abstract

The "How" part of a Solution should be abstract enough for it to be applicable in various readers' cases. Case-by-case examples will be mentioned in the Actions section of this paper.

4) Write in imperative form

When writing the Solution (in English), write in imperative form so that the reader can imagine precisely what should be done.

7.2 The fundamental format of a Solution statement

There is only one way of writing a Solution statement.

➢ "What" should be done to bring a desirable result and "How" to do it

7.2.1 Basic format of the Solution: "What" should be done to bring a desirable result and "How" to do it

The first sentence of the Solution statement should describe "What" is important to achieve the quality desired in the pattern language, along with "How" it should be done. The order of the wording varies by which language is used, but in the case of English, it should be written in a "What-then-How" order, such as "Do…, by …ing". However, there can be variants of the format, to avoid the patterns from being too much of the same tone.

It should also be noted that the description should not be centered on the "How", but the "What". This is because although the same elements exist for the two, the nuance will differ based on which part is emphasized. If the author puts too much emphasis on the "How", the pattern will turn out to seem like a "trick" rather than a piece of essential knowledge that can be used generally. Because a pattern language should be something more than a collection of tricks, the Solution should be centered on the "What" rather than the "How".

Examples in this basic format are:

・Feel the experience they shared with you as though it is your own by imagining how they see the

world through their perspective. (Inner Viewpoint, *Words for a Dialogue*)
- Create unique value by combining ideas from various perspectives. (Idea Coupling, *Project Design Patterns*)
- Examine cases that are unappealing to you or have bad reputations in order to determine the reasons for such results and to learn from them. (Studying Not-So-Good Cases, *Project Design Patterns*)

7.3 Points to check after writing the Solution statement
After finishing the first draft of the Solution statement, the author should check the following points and revise if necessary.

1) Is the Solution comprised of "What" the reader should do, supported by, "How" it should be done?
The author should review that the Solution consists of both "What" and "How". Furthermore, the "How" should be written as a supportive description to the "What" element.

2) Is the "How" part of the Solution inspiring enough?
The author should check whether the "How" is not obvious or common sense. It should instead be insightful, and be convincing enough to make the readers put it into action. If the author finds that this is not the case, they should re-evaluate the real "How" to the Solution, reviewing the mining stage when necessary.

3) Is the Solution effective even in the case where the pattern's Forces continuously exists? Will the Solution solve the Problem every time?
The Solution must be valid under the existence of the pattern's Forces. The author should question whether this is the case with their pattern. Additionally, the author should question whether the Solution would *continuously* work effectively against the Forces (would it be a valid solution every time?) If the answer is "no", the author should reevaluate the "How" part of their Solution, reflecting back (if necessary), to the mining stage.

4) Is the Solution statement relatively abstract? Can they be generally applied?
A pattern's Solution should not contain small details that are unique to a specific situation. Instead, they should be generalized, to a certain extent.
If the author finds details that are too specific to a pattern, they can easily solve the issue by moving it to the Actions statement.

5) Does the Solution statement contain any metaphors or imagery?
Generally, the Solution statement should not contain any metaphorical elements. This is because although metaphors can be helpful to clarify a something through presenting an example, they do not serve as a direct description. Therefore, metaphorical phrases should only be used in the Pattern Name or Introduction. It must not be included in the Solution. Another inclination to avoid is mentioning the Pattern Name inside the same pattern's Solution statement. The Solution should describe the Pattern Name and it's meaning without repeating the same words.

6) Is there a sense of relevancy and excitement when reading the Solution statement?
The Solution statement should be written in such a way to make the readers' want to truly want to try it. The author should take a moment to read over the Solution from the readers' perspective to check if it is enticing enough.

8. Writing the Actions statement

The Actions statement should describe some specific methods or examples of the given Solution to support the readers' understanding, captured in a few sentences.

8.1 Things to consider when writing the Actions statement

When writing the Actions statement, the writer should be mindful of the following points.

1) Provide a diverse selection of the most typical examples, so the readers' can get a clear understanding of how to do carry out the Solution.

While the "Solutions" should be written in a rather abstract manner, the Actions should be more specific, providing actual examples to help the readers' understanding. The author should mention examples which are common and well-representative of "How" the pattern can be effectively initiated. Furthermore, when choosing which examples to mention, the author should consider offering a range of examples for various readers.

2) The Solution as the key sentence, and the Actions as the supporting sentences

The Actions sentences should be structured under the key sentence of the paragraph, the Solution (written in bold text). Furthermore, they should be written so that the Solution statement followed by the Actions statement can be read as a coherent paragraph. So long as the paragraph makes sense, the order and content of the paragraph can be written freely according to the author's intention.

8.2 The basic formats of the Actions statement

There are mainly three ways of writing the Actions statement.

- ➢ A description of an example of what to do
- ➢ A description of how to do the pattern (the order and/or tips)
- ➢ A broken down description of the essential meaning of the Solution

8.2.1 Basic format of Actions (1): A description of an example of what to do

Because the Solution is written rather abstractly, the reader may have a difficult time putting it into action. The Actions statement helps to give readers' specific examples and details, for better understanding and implementation.

The examples described in the Actions should not be something too particular. Instead, it should be a typical and representative example of how to initiate the Solution. Furthermore, the author should include not just one, but several examples (diverse examples), so that the readers can properly understand the direction of the pattern and how it can be applied.

Occasionally, there may be patterns where the Actions would contain extreme examples, by the author's intention. These are cases where the author wants to demonstrate how the pattern can be applied at an expert level (such cases are often found during mining interviews, or from the author's own experience). When including such examples, the author should refrain from using the phrase "For example…" as if would make it seem as though it is expected of the reader to also achieve the pattern at this level. Instead, the author should use phrases such as "There are some cases where…" so that it is clear that it is not an easily accomplished action. When done properly, including extreme examples can help readers understand the full range (from typical to extreme) of the pattern's usage. However, it should be mentioned once again, that every example mentioned in the Actions should represent the Solution. It is also a method that should only be used when absolutely necessary (typically only one pattern within a pattern language).

Examples in this basic format are:

・Talk with your family and create a chore that you can do by yourself every day. It can be simple

tasks such as watering a plant and giving the pet dog his/her food. Tasks such as folding the laundry and making coffee for the family… anything similar to this is important. Reference your "Can-Do List" to look for chores that you can do. (Daily Chore, Words for a Journey)

· Even if the goal seems hard to achieve, start now and move little by little toward its actualization. For example, if the person with dementia wishes to go on a trip to a place, you can start by looking for transportation and possible helpers who could assist on the trip. You can ask doctors and specialists for advice on how to prepare. One person with dementia had his/her family help him/her achieve the goal of climbing Mt. Fuji. If you prepare even a little every day, the possibility of achieving the goal will increase greatly. (Preparation for the Dream, *Words for a Journey*)

· Hold meetings frequently to continue the deepening dialogue. In the Open Dialogue therapy sessions held in Finland, each meeting is approximately 60 to 90 minutes long and is first held every day for 10 to 12 days consecutively. How often the dialogue sessions are held can be decided later. At the end of each meeting, participants should reflect on what was shared, decide when they will gather next and what they will discuss at that time. Everyday Meetings, *Words for a Dialogue*)

8.2.2 Basic format of Actions (2): A description of how to do the pattern (the order and/or tips)

This is a common method of writing the Actions, as it can be difficult to express the steps of the "How" fully in one key sentence. The author could list each step, to fully explain what actions to take. For instance, using the phrase "First do …, then do …, lastly finish by doing …".

Another method is to describe the tips of the "How" in the Actions statement, once again for the readers' better understanding.

Examples in this basic format are:

· Make time for the dialogue supporters to talk about how they feel about what has been discussed and have the others listen. First, you should ask if you can have time for the supporters to talk separately. The 'Dialogue Supporters' should have a conversation in front of everyone. You should share your honest thoughts and feelings about what has been discussed in the dialogue. Thereafter, have everyone rejoin the group and ask the other participants what they thought of the conversation they just heard, moving the dialogue further. (Reflecting Talk, *Words for a Dialogue*)

· Instead of holding down those emotions, embrace them and use them to deepen the conversation. Expressing deep emotions is the first step to dig into the experience they cannot yet articulate. Therefore, you should consider their emotions and help them gradually put the experience into words. Focus must be placed on what they say as well as their body language and facial expressions. To dig deeper into what they feel is important, you can also ask questions about the related emotions, such as 'What did you feel when that happened?'. (Tunnel of Emotion, *Words for a Dialogue*)

8.2.3 Basic format of Actions (3): A broken down description of the essential meaning of the Solution

There are cases in which it is effective to describe the Solution in detail, rather than provide specific examples, in the Actions statement. That is, the author could go into detail about the meaning and significance of the Solution. This method can be used when the Solution on its own gives a clear message of what to do, and does not need to be supplemented by specific cases.

Examples in this basic format are:

· Wait for them to think and gather their thoughts into words. Silence after asking a question is not meaningless. Rather, it is time for them to recall their past experiences and feelings and to search for the words to express them. Trying to rush their answer would disrupt this time. You should relax and wait until they are ready to respond. (Pause for Thinking, *Words for a Dialogue*)

8.3 Points to check after writing the Actions statement

After finishing the first draft of the Actions statement, the author should check the following points and revise if necessary.

1) Does it allow for readers to understand how to carry out the Solution?
The Actions statement should give specific examples to support readers to understand what is otherwise written abstractly in the Solution. The author should make sure that the reader would be able to imagine and follow the action steps.

2) Are the methods and steps mentioned in the Actions proper representations of the Solution? Are they also diverse enough, to allow readers to gain a coherent understanding of the pattern?
The Actions should not be random examples of the Solution; they should be common exemplary cases. At the same time, however, the author should offer several diverse examples, to accommodate various readers' situations.

3) Is it free of the effects of the Actions (which should be included in the "Consequence")
When writing the Actions statement, it can be easy to want to write its consequences at the end of the sentences. However, authors should avoid this temptation, as the result of taking the Actions should be summarized in the Consequences section instead. The author should follow the function of each pattern section; otherwise, there would be no purpose in using the pattern format, and the information would be difficult to understand from the reader's viewpoint. However, it is okay to include short-term results or specific results from the action, in the Actions statement (as this is inevitable).

4) Is the paragraph coherent and expressive when read together?
The author should check whether the Actions sentences can be read as supporting paragraph sentences to the key sentence of the Solution (written in bold text). However, the paragraph should not simply be written in proper structure grammatically, but should be expressive and harmonious with that of other patterns. In the revision stage, the author should check these factors, and fine-tune the overall expression and quality.

9. Writing the Consequences statement
The Consequences statement should describe the ideal result/output from initiating the Solution within the given Context, in a few sentences.

9.1 Things to consider when writing the Consequences statement
When writing **the Consequences statement**, the writer should be mindful of the following points.

1) Write the Consequences in such a way that the readers can understand how the problem will be solved, what other benefits the pattern will yield, and how it impacts the future.
The Consequences statement is a description of the result of performing the Solution within the pattern's Context, summarized in a few sentences. The first sentence should capture the direct benefit of solving the Problem. The second sentence should then explain any other related benefits or impact created by performing the Solution. Lastly, the third sentence should touch on the long-term effect of the pattern. By writing the Consequences in this format, the readers will be able to understand the direct effect of the pattern, as well as how it can impact the future.

2) Mention uncertainty
Often times, what is written in the Consequences is a possibility of what is "most likely" to happen. The author must not guarantee that the mentioned result will happen at all circumstances. Therefore,

take caution to inform readers that what is written indicate the general direction of what is likely to happen. Phrases such as "~ will lead to ~", "will likely result in", and "may help to~" could be used.

9.2 The fundamental format of a Consequences statement
There is only one way of writing a Consequences statement.

> ➢ A description the state in which the Problem has been solved, subsequent benefits, and the future

9.2.1 Basic format of Consequences: A description the state in which the Problem has been solved, subsequent benefits, and the future

The first sentence of the Consequences should be a description of a state in which the problem has been solved. It is crucial for the first sentence to describe such a state, since solving the Problem by the Solution is the most important goal of the pattern. The author can use a phrase such as "By doing …, the problem will become…" for this first sentence. It should also be noted that the first half of this sentence should re-mention what the Solution is, written from a bird's-eye view, as it enables the reader to understand the relationship between the Solution and the resulting "Consequence" in a more objective perspective.

The second sentence of the Consequences statement should describe any subsequent effects (benefits) of the pattern. For instance, there may be cases where the state described in the first sentence of the Consequences becomes a force to cause other desirable results. Or, there may also be cases where the Solution itself has side effects aside from what is described in the first sentence of the Consequences.

The third sentence of the Consequences statement (often with the phrase "Furthermore…") should show the readers what kind of future the pattern would help to bring. This sentence should summarize how performing the Solution in the pattern's Context contributes to the quality and future desired by the pattern language.

Examples in this basic format are:
・ The thoughts of individual participants will link together, gradually changing the meaning of what has been talked about up to the present. This provides room for new perspectives, further leading the dialogue. (Chain of Responses, *Words for a Dialogue*)
・ The dialogue will continue in a relaxed atmosphere where everyone can feel comfortable speaking up when they want to. Participants will also be able to think deeply about what is said and imagine things from other perspectives. Even if something shocking is said or extreme emotions are released in someone's actions and words, the flow of the dialogue will not be disturbed. The dialogue will stably continue, regardless of what is said. (Slow-Paced Conversation, *Words for a Dialogue*)
・ You will be able to make your evaluation criteria more explicit when judging your ideas and making sound decisions. Although the scores themselves are based on your judgment, you are able to view them objectively by looking at your ideas from various perspectives. This process also makes it easier for you to discuss your ideas with others, which means that you can involve your partners in the decision-making process. Moreover, becoming accustomed to using numerical scores to evaluate your ideas will strengthen your ability to think analytically. (Interactive Scoring, *Project Design Patterns*)
・ You can actively engage in the actions around your life. The chores will create a steady rhythm in your day, making it easier for you to maintain control over your life. The chores would also become a good starting point to have conversations with your family. (Daily Chore, *Words for a Journey*)

9.3 Points to check after writing the Consequences statement

After finishing the first draft of the Consequences statement, the author should check the following points and revise if necessary.

1) Is the paragraph structured as follows?
・First sentence: a description of how the Problem will be solved (what is the positive effect from the pattern?)
・Second sentence: a description of other related positive effects of the pattern (are there any other benefits of the pattern, aside from simply solving the problem?)
・Third sentence: a description of its relation to the future and long-term effects (what will the future look like, short term and long term?)

2) Does the first sentence capture the essence of the Solution from a bird's eye view?
The author should review whether the first sentence helps the readers' understand the underlying meaning of initiating the Solution from an objective viewpoint.

3) Are the Consequences valuable enough that the readers' want to achieve it? Additionally, are the Consequences compatible with the direction and quality of the entire pattern language?
The Solution of each individual pattern should contribute to the overall "good quality" that the pattern language strives to achieve. Therefore, the author should take the time to ensure that each pattern's Consequences fit in with the ultimate goal of the pattern language, and revise it in such a way that enables the readers' understanding as well.

4) Are the Consequences reasonable and written honestly?
The author must check that the content of the Consequences are not over exaggerated or falsely presented. For instance, if there are any factors that may not always be true, the author should express the uncertainty accordingly, by using phrases such as "~ will lead to ~", "will likely result in", and "may help to~".

5) Is the paragraph coherent and expressive when read together?
The author should check not only that the Consequences are written in proper structure grammatically, but also that they are expressive and harmonious with that of other patterns. In the revision stage, the author should check these factors, and fine-tune the overall expression and quality.

6) (For patterns that are the last in a category or a pattern language.) Is the last (third) sentence an expressive ending to your category/pattern language?
The third sentence of the Consequences statement is important in that it is not only the last part of the pattern, but also that of an entire category or even pattern language. Therefore, it should be written to express a larger context, to give readers an understanding and a feeling of hope towards the ideal future the pattern language is trying to achieve.

10. Creating the Pattern Name

The Pattern Name is a simple and capturing phrase that expresses the essence of the pattern.

10.1 Things to consider when writing a Pattern Name

When writing the Pattern Name, the writer should be mindful of the following points.

1) The Pattern Name should be a an expression of the "How", written with the "Problem/Consequence contrast in mind.
   The Pattern Name should express the "How" component (which is a supplementary description of the Solution), in a phrase that ideally ends with a noun. When creating the Pattern Name, the author should also take into account the contract between the Problem and Consequences. The role of a Pattern Name is not just to summarize the content of the pattern, but should also be a capturing word/phrase, which gives the readers a sense of hope and excitement to initiate the pattern. Therefore, the pattern writer should give their best effort to revise and polish their Pattern Names.

2) End with a noun whenever possible
   It is ideal for the Pattern Name to be a concise phrase that ends with a noun. This is due to the fact that the Pattern Name should not be a direct expression of the Solution (most often expressed in a verb), but should also contain the elements of the "How".

3) Search for synonyms and related images
   When coming up with the Pattern Name, the writer must not settle for the idea that first comes to mind. They should instead spend time to search for synonyms (using online thesauruses), to find the word that best describes the nuance and quality of the pattern. It is also often helpful to do search for images/illustrations/figures associated with the words being used, to make sure that the writer's intention fits the common understanding of the words.

10.2 Basic formats of the Pattern Name
There are mainly three ways of writing the Pattern Name.

➢ An adjective + a noun that represents an action / a verb + an adjective of the object
➢ A brand new phrase
➢ A unique object of the action

10.2.1 Basic format of Pattern Name (1): An adjective + a noun that represents an action / a verb + an adjective of the object
The Pattern Name should be (whenever possible), a phrase that ends with a noun, rather than a verb. However, this general rule can be overridden, if it is not possible, or there is a particular reason/intent.
   Examples in this basic format are:
・ Deep Listening (*Words for a Dialogue*)
・ Become a Real Customer (*Project Design Patterns*)
・ Pause for Thinking (*Words for a Dialogue*)
・ Response to What is Said (*Words for a Dialogue*)
・ Unearth the Reason (*Project Design Patterns*)
・ Review in their Shoes (*Project Design Patterns*)
・ Live in the Moment (*Words for a Journey*)
・ Make it Funny (*Words for a Journey*)
・ Sitting in a Circle (*Words for a Dialogue*)
・ Studying Not-So-Good Cases (*Project Design Patterns*)
・ Thinking with Reality (*Project Design Patterns*)
・ Incorporating the Future (*Project Design Patterns*)
・ Turning the Tide (*Words for a Journey*)
・ Going Together (*Words for a Journey*)

- Inventing Jobs (*Words for a Journey*)
- Delivering the Voice (*Words for a Journey*)
- Open Question (Words for a Dialogue)
- Invitation for Utterance (*Words for a Dialogue*)
- Slow-Paced Conversation (*Words for a Dialogue*)
- Emotional Response (*Words for a Dialogue*)
- Reflecting Talk (*Words for a Dialogue*)
- Continuous Engagement (*Words for a Dialogue*)
- Transformation of Meaning (*Words for a Dialogue*)
- Flat Collaboration (*Project Design Patterns*)
- Idea Coupling (*Project Design Patterns*)
- Thorough Listing (*Project Design Patterns*)
- Direct Sourcing (*Project Design Patterns*)
- Interactive Scoring (*Project Design Patterns*)
- Departure Announcement (*Words for a Journey*)
- Disclosing Chat (*Words for a Journey*)
- Preparation for the Dream (*Words for a Journey*)
- Usual Talk (*Words for a Journey*)
- Casual Counseling (*Words for a Journey*)

10.2.2 Basic format of Pattern Name (2): A brand new phrase
Pattern often includes new ideas. Therefore, the Pattern Name could be a phrase that focuses on expressing that new idea.
    Examples in this basic format are:
- Tunnel of Emotion (*Words for a Dialogue*)
- Reflecting Talk (*Words for a Dialogue*)
- Chance Taker (*Project Design Patterns*)
- Personal Stock of Resources (*Project Design Patterns*)
- Proto-Planning (*Project Design Patterns*)
- Nutritious Information (*Project Design Patterns*)
- Graduated Consultations (*Project Design Patterns*)
- Room for Commitment (*Project Design Patterns*)
- Killer Pitch (*Project Design Patterns*)
- Travel Plan (*Words for a Journey*)
- Fellow Travelers (*Words for a Journey*)
- Can-Do List (*Words for a Journey*)
- Gift of Words (*Words for a Journey*)
- Team Leader (*Words for a Journey*)
- Family Expert (*Words for a Journey*)
- Emotion Switch (*Words for a Journey*)
- Warm Design (*Words for a Journey*)

10.2.3 Basic format of Pattern Name (3): A unique object of the action
There is a common tendency to write "Pattern Names" in verb form, such as "Do…", "Try...", or "Think about…". However, most often, it is actually not the action itself that is the central idea of the pattern. In such a case, the verb explaining the action may be eliminated, and the "object" of the action should be

highlighted instead. Simultaneously, should be kept in mind that the Pattern Name should not be too common of a phrase, but rather a phrase that can be differentiated as a pattern.

Examples in this basic format are:
- Exact Same Words (*Words for a Dialogue*)
- Inner Viewpoint (*Words for a Dialogue*)
- Significant Others (*Words for a Dialogue*)
- Chain of Responses (*Words for a Dialogue*)
- Tiny Signs (*Words for a Dialogue*)
- First Meeting in Crisis (*Words for a Dialogue*)
- Everyday Meetings (*Words for a Dialogue*)
- Diverse Understandings (*Words for a Dialogue*)
- Ambiguous State (*Words for a Dialogue*)
- Ever-Widening Context (*Words for a Dialogue*)
- Community for the Future (*Words for a Dialogue*)
- Project Design Principles (*Project Design Patterns*)
- Undiscovered Wants (*Project Design Patterns*)
- On-the-Spot Feeling (*Project Design Patterns*)
- Room for Commitment (*Project Design Patterns*)
- Fundamental Values (*Project Design Patterns*)
- Points of Play (*Project Design Patterns*)
- Three Role Models (*Project Design Patterns*)
- Empathetic Partners (*Project Design Patterns*)
- Professional Opinion (*Project Design Patterns*)
- Pleasant Memories (*Project Design Patterns*)
- The First Step (*Words for a Journey*)
- Daily Chore (*Words for a Journey*)
- Self-Reflecting Room (*Words for a Journey*)
- Favorite Place (*Words for a Journey*)
- Voice of Experience (*Words for a Journey*)
- Self-Intro Album (*Words for a Journey*)
- Own Way of Expressing (*Words for a Journey*)
- The Three Consultants (*Words for a Journey*)
- Chance to Shine (*Words for a Journey*)
- The Seen World (*Words for a Journey*)
- Personal Time (*Words for a Journey*)
- Generational Mix (*Words for a Journey*)
- The Amusement Committee (*Words for a Journey*)
- Hint of Feelings (*Words for a Journey*)

10.3 Points to check after writing the Pattern Name

1) Is it capturing as a phrase, and can be identified as a pattern when used in a sentence?
A Pattern Name should be recognizable. That is, it should not be a phrase that is commonly used in everyday conversations. The author should ensure that the pattern is recognizable as a pattern, when used in a sentence.

2) Does it contain the "How" component of the Solution?
The author should check that the "How" component of the Solution is expressed, rather than the "What" component.

3) Does it express the positive effect of the pattern?
The Pattern Name should not express the negative, problematic side of the pattern contrast. It should instead capture the essence of a desirable state produced by the pattern's Solution.

4) Is it capturing enough to entice the reader to initiate the pattern? Does it provide a feeling of hopefulness for the reader?
The Pattern Name should not simply summarize the pattern. It should be a hopeful phrase appeals to the reader, and helps them to follow the pattern.

5) Is the phrase well balanced visually, and does the phrase make sense verbally?
It is also crucial to pay attention to the overall visual balance of the Pattern Name, as well as how it sounds when pronounced verbally. It should be checked whether the words used are expressive enough, but also common enough to be understood by readers. Furthermore, there may be cases when the Pattern Name should be revised due to difficulty of using it in everyday conversations.

6) Is it a phrase that people of various backgrounds and circumstances can use?
The Pattern Name should not be overly catered to a specific group of people. The writer should check that the expression and tone of manner fits a wide range of people. It is often helpful to imagine examples of cases where the pattern will be used. Furthermore, it is also that the expression is harmonious with the rest of the pattern language.

7) Is it different enough from other patterns in the pattern language?
A pattern language should not contain patterns with similar Pattern Names, as that would cause confusion. Therefore, it is necessary to compare Pattern Names among the pattern language, and make adjustments if needed. It should also be noted that the writer should check beyond their own pattern language, to see whether there are other pattern languages with similar Pattern Names.

8) Check the Pattern Names in a list
In the final process of revising a pattern language, the Pattern Names should be listed out in the order of their sequence. It will be easier to revise the Pattern Names from an objective point of view, when they are isolated from the pattern content. This also helps in checking whether they are impressionable phrases.

11. Writing the Introduction
The Introduction statement should be a sentence that supplements the pattern name, in a way that makes the readers interested.

Since the Pattern Name is a concise phrase, it cannot completely describe the content of the Solution. Therefore, supplementary information and nuances can be expressed in Introduction. For instance, in cases where there are metaphors being used in the Pattern Name or Pattern Illustration, the Introduction could be used to explain their meaning.

The Introduction could also be used as a catch-copy for the pattern, through using quotes or presenting rhetorical questions. However, although this could help to make the pattern impressionable, overusing this technique could lessen their effectiveness. Therefore, using this technique should be limited to cases when they are absolutely necessary, and should be done with attention to the overall balance of other patterns in the pattern language.

12. Preparing the Pattern Illustration

The Pattern Illustration is a simple illustration that expresses the state in which the Solution leads to desirable Consequences.

For a Pattern Illustration, a simple character should be used, to express a situation in which the character is taking some sort of action. It is important that this illustration does not contain too much detail, and that it only contains elements essential to the pattern. In a case where a metaphor is being used in the Pattern Name, the illustration should in most cases resemble that metaphor (or at least not work against it).

For information about how to structure and draw "Pattern Illustrations" that effectively expresses the pattern, the reader should refer to Principles of Pattern Illustration Design (Iba, et. al, 2021).

1) Space that has Depth
Instead of just explaining the situation in two-dimensional pictures, illustrate depth to make the "existence" of the characters feel more real and empathetic for the readers.

2) Characters with Mind and Body
When drawing characters, do not just draw their movements, but also include their thoughts, intentions, and feelings. Because facial expression shows what kind of feelings they have, imagine the characters' emotions while drawing their faces.

3) Interactions on the Spot
Instead of simply drawing interactions in an explanatory way, draw the synergies and reactions dynamically as if they are actually happening in the scene.

4) Time Flow from Left to Right
In principle, the temporal order of events that occur in the illustration is from left to right. Because sentences in the patterns flow from left to right, readers tend to interpret the illustrations following the same flow.

5) Materialization of the Invisible
Invisible ideas, such as relations and characteristics of things, can be expressed in visual form by symbolizing the idea with objects.

6) Visible Lines for Clusters and Connection
Draw lines to visualize connections, chains, or clusters of things or people.

7) The Effect Given by Things Created
When creating something with purpose, draw the effect given by the thing created, rather than its process.

8) Object-like Speech Bubbles
In Pattern Illustrations, you can draw people handling speech bubbles just like any other hold-able objects because the bubbles are visibly drawn into the world just like the characters.

9) Visual Expressions in Comics
In comics, there are special ways of expressing feelings called, "manpu." This is the comics' "original way of using signs (symbols) to visualize feelings and sensations in comics". Although it should not be used so frequently, there are few that are useful for pattern illustrations.

10) Abbreviation for Simplicity

Because illustrations can become more complexed the more you try to be precise, take away the unnecessary details to make the illustration simple.

11) Evolving Stories from Patterns

Although each pattern illustration individually symbolizes its patterns, make an overall story flow between all patterns to enhance the consistency of the whole pattern language.

12) Magical Touch for Charms.

If the illustrations only visualize each pattern, it may be useful as pattern illustrations, but not enough to catch the hearts of the readers. Make last touch onto the illustrations to charm the readers.

13. The Application of the Pattern Writing Format in Pattern Language Education

The ideas presented in this paper, were provided to a group of students taking a pattern language course, at the Faculty of Policy Management and Faculty of Environment and Information Studies at Keio University (refer to Iba, et.al., 2021b for more details). The class consisted of 60 students, from freshman to senior year. As the teacher of this course, the author of this paper experienced firsthand that due to the providence of the pattern formats/tips, the final output of this years' class was outstanding in quality (the same course has been conducted every year since 2007).

The following are some responses from conducting an anonymous survey about the course at the end of the semester. The responses below are regarding how the material helped to understand important tips and revision points of their patterns.

- It helped me understand what I should think about, when writing the patterns.
- It was extremely helpful in pointing me to the right direction. I read the information beforehand, and from time to time during the writing process.
- Having a format for writing the patterns made the writing process so much easier. It proved to be helpful many times during this course.
- It enabled me to understand "where to start" as well as "where the finish line is".
- It was a great explanation of what should be written in the patterns. It also helped to have a list of points to check after writing the patterns.
- The material was great, especially the list of points to check after writing the patterns.
- I had the material opened in the same window throughout the writing process. It was extremely helpful to get me aligned in the write direction, since I tended to go off-track about what should be written in each pattern.

Other students expressed how the material helped their team to collaborate; to agree on a direction for their patterns and brainstorm ideas together.

- Our group frequently referred to it whenever we got confused or couldn't agree with each other. It made it easy to proceed with the group work.
- It was helpful for our group to have the materials, since it gave us something to refer to outside of class time, when there were no professor or teaching assistants around. The past examples mentioned in the materials were especially helpful in gaining a clear understanding of what patterns are.
- Our group would refer to the materials whenever we got stuck. It was helpful to have something we can look at together, and reflect to our work. The specific formats defined in the

materials were helpful to understand the structure of the patterns.
- Our group often got lost in direction when as our discussions evolved, but referring to the materials enabled us to revise the patterns in a way that made them work together as a whole language.
- We had some of the pages printed out, and referred to them during the group work.

On the other hand, there were of course some students who found the pattern formats to be a limiting factor. The following comments are topics to be explored in the author's future work.

- Although the materials gave our team a sense of shared direction, there were times when they limited our ideas, and made it difficult to write patterns that felt "real". I think that much of whether it is helpful is up to the person using it.
- It allowed me to understand "where to start" as well as "the final output I need to work towards". However, I became so focused on following the directions, that it sometimes inhibited my sense of "feeling" while writing.

Lastly, there was positive feedback that the material helped experienced students to share their tips with the other students in the group.

- As a member of the Iba Laboratory and having experience with pattern writing, I wanted to avoid being condescending to the other group members while giving them advice. The materials helped me to communicate my advice objectively and maintain a common understanding with the group, rather than me "teaching" them.

The comments presented above suggest that the materials are effective for learning how to create pattern languages, in the context of both individuals and groups.

14. Conclusion

This paper presented the formats and ways of pattern writing, from the experiences of the author (and the author's collaborators). The content of this paper is intended to be useful for writing pattern languages on human actions. However, the author is interested in testing whether the same knowledge can be applied to pattern languages in architecture or software domains. It is the author's hope that the readers of this paper would try applying what is written in this paper in their own pattern-writing context, and is eager for feedback.

Acknowledgment

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