

Pattern Language and Storytelling: A Methodology for Describing Embodied Experience and Encouraging Others to Learn

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Abstract

This paper addresses two issues. One is how to describe embodied experience, and the other is how to encourage people to learn from someone else's descriptions of experiences. In the domain of town-walking, we have devised a methodology for doing these, in which embodied experience is described as a combination of the physical things and setting that one's body faces and the interpretations one generates for those. That is a kind of pattern language. We argue that a pattern language is a mere provision of distilled words to tell about experiences, and may not make sense to others. Our methodology provides not only pattern language but also the original stories of experiences from which pattern language has been distilled. Stories told are expected to set the grounds to understand words in the pattern language, and motivate others to use them to see and story-tell about towns. In the workshop on learning in town-walking, we found that metacognitive awareness to physical features and relations in towns is the key to learning.

Introduction

"Experience" is a profound word. It includes not only a fact that one has encountered things and events in a physical setting, but also subjective impressions and interpretations one has made to those encounters. Since one encounters things and events through bodily senses, experience includes embodiedness, too.

The embodied aspect of experience makes it tacit, and thus difficult to describe it by words. That is the very reason why knowledge representation of so-called "common sense" is difficult, assuming that common sense is constructed by accumulation and assimilation of daily experiences. The methodology for describing experiences so that they can be represented on computers has been one

of the most fundamental and still, after many years of research in AI, challenging topics.

The first objective of this paper is to propose a method of describing experiences in a specified pattern that represents both objective and subjective aspects of it.

The domain of experiences we treat here is experiences of walking in a town. Walking in a town is enjoyable. Talking of the joy of walking in a town, people may associate it with looking at fashionable show-windows, for example. Things of that sort, however, are not the interest of this research. Rather, our interest is in the following kind of things in a town. What kinds of physical things and settings are there in a town, and what impressions and interpretations do we make to those physical things? If we are able to attend to so far unheeded things, features or relations that exist in a town, and to generate a new impression of the town, that opens up our eyes for the surroundings of our life and provides new viewpoints in life. That experience makes us enjoy. Typical examples of physical things and settings are the shapes of streets, the plateau-lowlands configuration of a landscape, the existence of waterways, rivers or ponds, the ways in which houses and buildings accommodate in sites, and spatial relations among streets, landscape configurations, houses and buildings, and waters if any. Since these physical things and settings have some, not a small, influence on how we choose streets to walk along in daily life and how we view the scenery as we walk, they are significant factors to determine the kind of people to meet and communicate with, the interpretations and meanings to attach to the neighborhood, and hence the "sense of community" to form in minds.

Thus, we have made a hypothesis that each tiny experience we encounter in a town is constituted by (1) awareness of physical things, their features and attributes, and physical or spatial relations among them, and (2) subjective interpretations made to those. The former is a world of objectively observable features and relations, and

the latter a world of subjective events and phenomena. The former corresponds, in the terminology of phenomenology (Kimura 1982), to the world as it is, and the latter to the *noema* generated, the subjective view of the world.

A whole experience as we walk around a town is not unitary but constituted by pieces of various encounters, each of which could be constituted by objective and subjective descriptions. Therefore, in this paper, we describe each piece of our encounters as a combination of these two descriptions. We have so far obtained 49 pieces of descriptions in walking in some towns. Each piece indicates what physical things and settings we met with and what we thought of from that encounter.

The second issue, then, is how the descriptions of experiences can serve as a medium for others to learn, i.e. encouraging them to walk in the town described and have their own experience of it. Our descriptions are regarded as a kind of “pattern language” (Alexander, Ishikawa, and Silverstein 1977) that Alexander proposed in the domain of architecture. We argue that one critical problem of “pattern language” is that merely giving someone a set of pattern language does not necessarily help gain profound understanding of what each piece of pattern language tells. To him or her, each pattern language may look like a manual or a rule given by a tutor, and it may not encourage learning. That may be true to our descriptions about experiences in a town, too.

The problem lies in the fact that each pattern language, although it is a significant essence of the whole experience, may look, to others, a mere fragment of the whole experience. If given apart from the whole story of experiences, each part does not make sense to others. The general principle of a part-whole relation is that the whole determines the meaning of each part, whereas each part constitutes the whole and therefore determines the meaning of the whole.

The second objective of this paper is to propose an idea to solve this problem. The key notion is to not only provide learners with each piece of pattern language about walking in a town, but also tell them a whole story that was constructed by those tiny encounters in various spots in the town. Providing a set of parts and the whole is the key, where the story is the whole and descriptions are the parts. What kind of storytelling is it? We will show that in Section 4.

Regularly Walking in Towns

A Research Project in Graduate Program, LKiP

This is a research project in a lecture by Suwa and Kato for graduate students, called LKiP (Life Knowledge in Practice). Once a month from October in 2010 through

November in 2011, we walked 3 hours in a town in Tokyo together and discussed on the experiences on that day for 2 hours in a café. We had determined the town we walk, according to the questions and issues we had so far had. Consequently, we ended up walking in two regions in Tokyo.

Items and Devices to Bring

After two or three opportunities of walking, we found it reasonable for each person to bring a map in the target area, an IC recorder, a memo note with a pen, a digital camera, and an iPhone application named “Tokyo Jisou Map”.

Jisou is a Japanese word meaning “the layer of time”; the application shows the maps in that area in multiple eras, i.e. current, a certain year in Showa era, just after World War Two, a certain year in Meiji era, and so on, with its GPS function telling the exact spot we stand by. What used to be there in the spot we stand now or how streets or rivers used to run through the area are a useful piece of information to think of the past and the way in which the area has become what it is.

We pushed the recording buttons of two IC recorders exactly together, and each of us wore each recorder with a microphone (attached near our neck). Those will record all the sounds in walking, i.e. each person’s murmur, our conversation and various sounds in the town. Since each of us wore a recorder, we did not have to care about always keeping the distance of us close by the requirement of recoding the voices of both. Sometimes one of us was lured to something he was interested in, whereas the other did not; if the requirement of recoding the voices of both prevents actions and movements or hamper our desire to do something in walking, that would be a nonsense. The sounds taken by the two recorders are edited easily to combine into a single sound file in which everything that occurred in walking including the conversations of the two and each person’s murmur is reproduced.

An Episode as a Turning Point

An encounter of a spot in a town became a significant turning point for us to form in minds an important research issue, i.e. the relation between a small river or waterway and the lives of people. The spot is where a barber declines to move out, being opposed to the development of a new road by the city administration. The wide road had already run straightly through the area, except the spot of the barber; we had walked along the wide road and found that only the barber building was the obstacle to complete the development of the road. We also found, however, that there still was an old, narrow, but straight street that diagonally intersected with the new wide road. Important was that, when we stood on the street and viewed how the street extends, the façade of the barber building naturally

fitted along the street, never an obstacle. Then we referred to the Jisou Map and know an interesting finding; there used to be a waterway, named Shinagawa Waterway, running along with the old street. Shinagawa Waterway used to be one of the important water supplies for agricultural and people's daily use in the plateau of the western suburbs of Tokyo. Nowadays it works as a sewage line under the ground.

Water is indispensable to people's lives. People sharing water from the same waterway or small river meet and chat daily, and share each other's life. That may form a sense of community. It is natural to suppose that if there is a small river or a waterway, a sense of sharing the same community may extend along the direction of the waterway. Hence, we conjectured that until recently there had been a sense of community extending through with Shinagawa Waterway and then with the old street after the waterway was put underground, and that the barber was part of the community. We thought it is the modern development of the wide road that threatens to damage the sense of community by cutting across the old narrow street. We thought that the reason of the decline to move out was that the owner of the barber had loved the community and wanted to keep it.

This encounter enabled us to think of a research issue; how do physical features and relations, such as landscape configuration, the shapes and width of streets and waterways, the steepness of sloping streets, the settings of intersections, and the size and complexity of blocks of sites, influence the way people live and the formation of a sense of community?

Pattern Language of Town-Walking

We have devised a pattern of describing the experience of a tiny encounter in a town, which is

Physical things, their features, spatial relations among them, and comparison between them that we perceive in a town (we will call it "physical part")

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What we felt through bodily senses, what we associated with, what we interpreted, and what we further looked for around this spot (we will call it "subjective part")

We described each piece of experience as we walked in towns according to this pattern, and designed a postcard for each experience. We have described 49 pieces of experience so far.

Figure 1 shows the front side (left) and backsides (right) of a card No.31. As shown in Fig.1, the physical and subjective descriptions of a piece of experience are put in the two boxes in the upper part of the front side, with a

photo of an example spot in a town where we had this experience.

The descriptions of the card No.31 are as follows. The physical part says, "On a narrow street that extends long and straightly and slopes up and down, there is a spot where its width changes remarkably". The subjective part says, "Walk through the spot forward and backward to have an assumption about whether the sense of community formed in one side of the spot ends there or still extends even beyond the spot". This is a card exemplifying that the awareness of a sudden change of the width of the street here let us associate its physical features and relations with the extension of the sense of community along the street. Because the street slopes up and down to a certain degree, there is no chance that the street used to be a waterway.

Before we encountered this spot, we had made a hypothesis that just as a waterway or a small river forms a sense of community that extends along it, so does a street even without a waterway or a river if it is narrow and extends straightly to a certain length. That people share something necessary for their lives, water or street, and that water or street serves as a place for meeting and chatting on a daily basis may form a sense of community. If the street is too wide, the physical distance between the two sides of the street makes people living on the two sides physically and mentally apart from each other. That may apply to a river, also; too wide a river does not form the extension of a sense of community along it. Width is a significant factor to determine the formation of community. These thoughts enabled us to be aware of the sudden change of the width of the street on this exact spot.



front side backside
Figure 1: A pattern of describing an experience in a town
(Card No.31)

The backside of the card contains (1) sentences that explain in detail the descriptions on the front side, mention our hypothesis and introduce typical things or shops that we often encountered in the physical settings, (2) the latitude and longitude of several spots that we found the

physical and subjective descriptions are true to, and (3) a set of spaces for keywords that we may want to jot down in walking with this card.

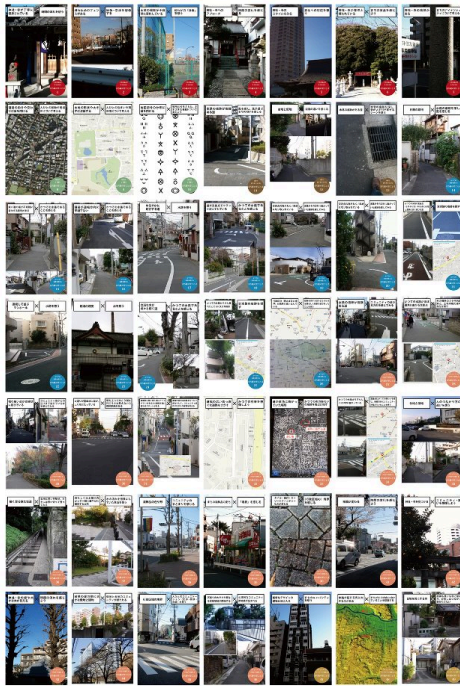


Figure 2: The 49 cards (their front sides) classified into six

Figure 2 shows the front sides of all the 49 cards. We found that our experiences are classified into six categories; (1) seeing a town from the viewpoints of past times and nowadays, (2) discovering something interesting or strange in a map, (3) feeling a town through bodily senses, (4) associating physical features and relations with a waterway that used to exist, (5) feeling extension and connection of a sense of community, and (6) feeling the capacity and future of a community. The circle in the left lower corner of the front side of each card shows the category that this card belongs to and the number. The color of the circle denotes the category. As seen in Fig.2, the first category (red) has 7 cards, the second (moss green) 3, the third (earth) 3, the fourth (blue) 13, the fifth (sermon pink) 20, and the sixth (yellow) 3.

Storytelling a Town

As discussed in the introduction, the second important issue is how to motivate others, e.g. students in our case, to walk around a town and gain new viewpoints to see a town. Describing a set of pattern language helps the person who has done it gain new viewpoints and perspectives to see his or her own experience, because its process is a kind of meta-cognitive verbalization (Suwa 2008) to externalize

“experience”, overcoming its tacitness. To others who have not yet had similar experiences, however, a pattern language is a mere distillation of someone else’s experiences. If given without information or stories of the “live” experiences, the profound meaning of the language does not make sense. We argue that this is a general problem that any kind of pattern language may intrinsically possess. There has been a recent boom for applying the notion of pattern language to different fields (Eto 2009), for example software engineering, and part of those researches may recognize pattern language as a manual or rules usable for improving the productivity of performing tasks in the target domain. We want to strike a warning to that manner of understanding pattern language, and argue that it is more fruitful to recognize pattern language as a record of someone else’s subjective experiences in his or her case studies, and as a medium from which to discover profound meanings that pertain to a learner’s own life and issues. This is the way we the authors view how learning from someone else’s embodied experiences should be.

Related to the philosophy of what leaning is, we recognize that our pattern language of town-walking is a collection of words to view towns through and story-tell about towns by, words that have been distilled and weaved from the activity of the two researchers walking, feeling, thinking and discussing together. If so, why not storytelling about our experiences by employing the set of distilled words? Stories told are expected to serve as a good medium available for others to discover meanings that are original to themselves.



Figure 3: A map on which the patterns are marked

Then, how could we story-tell by employing the pattern language? Since each pattern derives from a real encounter of the physical things and setting, we first plotted the spot of each pattern in the map we used. Interesting is that there were several small areas which are especially crowded by the plots. Figure 3, in which each green circle corresponds to each spot with the number being the ID number of the pattern language, shows that many spots gather in a small area. This area lies between Waseda University and

Kagurazaka. Kagurazaka is a small town in Tokyo, famous for its cultural background and known to be a favorite visiting place of poets and novelist since Meiji Era. We happened to find that exactly in this area there used to be a house where the famous novelist Soseki Natsume lived during his late years.

Because each plot is the place where the encounter of a certain physical things and setting made us feel, think of and associate it with something, an area with many plots may have something worth to story-tell about. Suwa and Kato selected two out of the several areas, and wrote a short story for each in such a manner that each tiny experience corresponding to each pattern plotted is part of the story. The way of Suwa's writing a story and that of Kato's differed from each other. In Suwa's story, the era being told is ancient with the characters being imaginary, and the tiny experiences corresponding to each pattern are told as thoughts or verbal utterances of the major characters. For example, for the area shown in Fig.3, Suwa wrote an imaginary story, whose main character is Soseki Natsume, that tells about what kind of community there used to be there, and how he enjoyed that atmosphere and lived during his late years. Suwa let imaginary Soseki vocalize about the tiny experiences Suwa and Kato had in that area.

In contrast, Kato's is a kind of essay whose main narrator is Kato himself with Suwa appearing as an opponent to talk with. Kato laid the real walking excursions of Suwa and Kato as the main motif for the story. Therefore, it is Kato himself as a narrator that vocalizes about the tiny experiences of both of us.

In each story, a vocalization or a phrase that corresponds to each pattern of experience is underlined, so that readers are let know which patterns the story is underpinned by and how. Each underline is connected with each appendix that explains in detail the background for the phrase or vocalization or how each the phrase or vocalization pertains to the pattern.

Learning Cycle of Town-Walking

We conjecture that a set of pattern language and told stories provides a medium for others to learn. Pattern language with objective and subjective descriptions is a provision of words to view towns through and tell stories by. Told stories present themselves as the grounds on which those words make sense, and as examples suggesting how to tell stories about a town.

Our assumption is that learning occurs in a cycle. Important is that it does not begin by learning those words. **Phase 1 (story):** It begins by reading case stories of someone else's experiences.

Phase 2 (pattern language): If they are interested in the stories, learners gradually come to understand the true meaning of the words in the given pattern language and how to use them to view and tell stories about towns.

Phase 3 (excursion): Then, learners are encouraged to go on an excursion, bringing favorite cards that contain the words that interest them. In the excursion, they are supposed to look for spots in towns where such experiences as represented by the words of the favorite cards (subjective and objective descriptions) are gained. This phase provides a training to view towns through the words of someone else's.

Phase 4 (story): If they become able to view towns through someone else's words, they may want to create their own story employing those words.

Phase 5 (pattern language): Or, if it is still difficult to create a story themselves, they may begin to create new patterns of their own; creating new patterns requires being aware of new physical things and setting and thereby generating new interpretations and/or association.

Phase 6 (excursion): If they begin to create new patterns with newly distilled words, they are naturally motivated to go on an excursion more often.

Phase 7 (story): Sooner or later they will tell stories by employing both their original words and someone else's. They are already experts to see and tell stories about towns, and their stories, in turn, serve as a provision for others to learn from.

Workshop on Learning to See and Feel a Town

We have conducted a workshop on learning to see and feel a town in the summer of 2012. 16 students participated from Suwa's and Kato's laboratories. Our major interest was to examine if both a set of pattern language and told stories are a medium to promote the cycle of learning. Harajuku was selected as a town to walk around, because that is an area through which Shibuya River used to run, and the river currently works as a sewage line under the ground. We expected that the surrounding landscape is a provision of many spots that the descriptions of our pattern language are applicable to.

Workshop consisted of 5 days from August 9th through September 10th. On each day, the students spent about 5 hours on walking and discussing according to the programs we set. Here we present brief descriptions of the program on each day. Before participating on the first day, students are told to read the stories of ours and browse the cards of the patterns included in the stories.

The first day was for orientation; in order to get accustomed to opening up eyes to physical things, features and relations, students were told to name several streets the

selected and tell for each street what physical features and/or spatial relations became the reason for each name.

The second day was to learn to view a town through a combination of physical setting and its interpretation. All of us visited each street named, and for each, the students who named it described both the physical setting and interpretations generated from that. Further, they were told to look for more than 15 spots that the descriptions of our pattern language are applicable to (phase 3), which was the first opportunity for them to examine in detail the words of our pattern language.

On the third day, we gathered in our university and students made presentations about the 15 spots that correspond to our pattern language. This opportunity of discussions made it clear that being aware of physical things, features and relations in a town seems more difficult for students than we thought. We found their performance of the task of Phase 3 poor. We will describe it in the next section in detail. Therefore, they were told to do it again by the fourth day.

On the fourth day, we all together actually visited some of the spots that they thought the descriptions of our pattern language are applicable to, and discussed whether their recognition of the physical setting and their interpretations are sound. Then, they were told to create at least one pattern language of their own by the fifth day, and made a presentation of that to end the workshop.

Discussion

An important finding is that metacognitive awareness to physical features and relations (Suwa 2008) is difficult but the key to the success of learning from someone else's experiences. Here is an episode suggesting this. There is a plateau protruding onto the street that used to be Shibuya River, and a shrine is on that plateau. Students in one group, in order to discuss the spatial relation between the shrine and the lower street, metaphorically referred to a depiction of Lion King in which the Lion King looks downward from the ridge of a plateau. They seemed to recognize that the shrine faces downward onto the street. Actually, however, the entrance of the shrine faces another street that runs on the plateau, i.e. the opposite side of the lower street. The students did not have keen eyes to the direction of something facing, a significant spatial relation worth attending to. Just because they often walked along the lower street and looked up from there at the plateau of the shrine, they unwittingly had a wrong assumption that the shrine faces down onto the street.

The phenomenology (e.g. Kimura 1982) suggests the difficulty in recognizing a physical world as it is. Physical features and relations are something that our body directly senses and thus are the fundamentals for an experience.

Just because it is too fundamental, it is tacit and therefore difficult to attend to.

We at first assumed that reading someone else's stories is an easy introduction to having students interested in the words to view towns through. Therefore, we did not spend much time on letting students read them. But we should have done so. Nowadays in Japan there are so many students who are not accustomed to reading novels. More than half of the students participating were not actually. For the generation of the authors, reading novels has been and still is a joy, and is never a difficult task. To some students nowadays, however, things seem different. In order to enjoy reading a novel, one should be able to form in minds an image of a physical scene based on the descriptions that the novel provides. That may not be an easy task to them. In order for the image of a physical scene to be rich, having a keen eye to the real physical world may be indispensable.

The task in Phase 3 in the workshop pertains to forming in minds an image of a scene based on the physical descriptions. One student wrongly matched the description in a piece of pattern language to an actual spot. She was interested in a pattern that says, "if a street is winding and narrow, it may have been a river or waterway in old days". She found a winding street and assumed that it could have been a river in old days. But it was never actually, because it is a very steep sloping road. The description of this piece of pattern language and the way in which it is included in our stories clearly tells that the winding street is never a sloping road. Even though they actually walked on the steep sloping road, they wrongly match it to this pattern.

Being motivated by and learning from someone else's experiences is the major source of learning for people. In order for that learning to be a success, a careful training is needed to improve the ability of metacognitive awareness to physical features and relations in what is seen and bodily experienced. What kind of training? Beginning to learn, anyway, to see towns and tell stories about them, even though not successful at first, may be the only method for training, because forming a custom of metacognitive activities fosters its ability (Suwa 2008).

References

- Alexander, C., Ishikawa, S. and Silverstein M. eds. 1977. *A Pattern Language: Towns, Buildings, Construction*. New York: Oxford University Press.
- Eto, K. eds. 2009. *Pattern, Wiki*, XP. Tokyo: Gijutsu Hyoronsha. (in Japanese)
- Kimura, B. eds. 1982. *Self and Time*. Tokyo: Chuo Kouron Shinsha. (in Japanese).
- Suwa, M. 2008. A Cognitive Model of Acquiring Embodied Expertise through Meta-cognitive Verbalization. *Transactions of the Japanese Society for Artificial Intelligence* 23(3): 141-150.