

Constructing the Philosophy of Pattern Language: From the Perspective of Pragmatism

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Abstract:

The purpose of this paper is to identify the function of pattern language from a philosophical viewpoint by examining theories of pragmatism. This paper deals primarily with “Classical Pragmatism” by C. S. Peirce and J. Dewey and “Neo-Pragmatism” by R. Rorty, in order to consider why pattern languages about human action have their current form and structure, and how they work. The first implication of this paper is that pattern language embodies pragmatic concepts, as can be seen in the fact that patterns are written in the form of conditional sentences (a characteristic emphasized by pragmatism), along with the fact that both pattern language and pragmatism evolve through practice. This leads to the understanding that what C. Alexander proposed through his pattern language is the idea that the “quality without a name” cannot be described in declarative sentences and should instead be written as conditional sentences that are generative and pragmatic. The second implication brought forth in this paper is that the goal of pattern language lies not only in supporting individual action taking, but in supporting the development of continuous habits. The third implication is that the purpose of pattern language is not to discover and represent truths that exist in the world, but to create new vocabularies that help capture the world. In pattern language, concepts are written out in pragmatic conditional sentences, and are also named (pattern names). This makes them usable as vocabulary. Finally, following these observations, this paper concludes that the characteristic of pragmatism as a “practicing philosophy” toward a positive future is a suitable philosophical core of pattern language.

Keywords: *Pattern Language; Pragmatism; Philosophy; Habit; Vocabulary;*

1. Introduction

The pattern language method was created by Christopher Alexander in the field of architecture (Alexander et al., 1977, 1985; Alexander, 1979), and was then adapted and developed in the software field (Beck & Cunningham, 1987; Gamma et al., 1994). It has more recently been applied to the field of human action, such as education (Manns & Rising, 2005; Manns & Rising, 2015; Hoover & Oshineye, 2009; Pedagogical Patterns Editorial Board, 2012). We refer to pattern languages in the architecture field as “Pattern Language 1.0,” those in the software field as “Pattern Language 2.0,” and those in the human action field as “Pattern Language 3.0” (Iba, 2011, 2012b, 2015).

In the Pattern Language 3.0 domain, patterns deal with human action design and have the purpose of leading people to take better actions by themselves. We have created various pattern languages in the 3.0 domain on a variety of topics including learning¹, collaboration², presentation³, education⁴, project design⁵, change making⁶, disaster prevention⁷, beauty in everyday life⁸, living well with dementia⁹, living with continuous self-fulfillment¹⁰, living in the age of a global society¹¹, cultural design¹², cooking¹³, parenting¹⁴, natural living¹⁵, generators as a new role to facilitate idea generation¹⁶, and policy design¹⁷. In addition, patterns for

¹ Learning Patterns (Iba, et al., 2009; Iba & Miyake, 2010; Iba and Sakamoto, 2011; Iba & Iba Lab, 2014a) and other patterns for learning (Harashima, et al., 2014a).

² Collaboration Patterns (Iba & Isaku, 2013; Iba & Iba Lab, 2014b).

³ Presentation Patterns (Iba et al., 2012; Iba & Isaku, 2014; Iba & Iba Lab, 2014c).

⁴ We write several types of pedagogical patterns (Iba, et. al., 2011; Shibuya et al., 2013; Harashima, et al., 2014a; Harashima, et al., 2014b; Kimura et al., 2016)

⁵ Project Design Patterns (Iba & Kajiura, 2016; Kubota et al., 2016)

⁶ Change Making Patterns (Shimomukai & Iba, 2012; Shimomukai et al., 2012; Nakamura et al., 2014; Shimomukai, et al., 2015)

⁷ Survival Language (Furukawazono, et al. 2015a, 2015b)

⁸ Generative Beauty Patterns (Arao, et al., 2012).

⁹ Words for a Journey (Iba et al., 2015a, 2015b, 2015c, 2016)

¹⁰ Personal Culture Patterns (Nakada, et al., 2013; Kamada, et al., 2014)

¹¹ Global Life Patterns (Matsuzuka, et al., 2013)

¹² good old future patterns (Kadotani, et al., 2013, 2014)

¹³ Cooking Patterns (Akado et al., 2016a), Cooking Life Patterns (Yoshikawa et al., 2016), and Creative CoCooking Patterns (Isaku & Iba, 2014; Isaku & Iba, 2015; Isaku & Iba, 2016).

¹⁴ Parenting Patterns (Sasabe et al., 2016a)

¹⁵ Natural Living Patterns (Kamada et al., 2016)

¹⁶ Generator Patterns (Nagai et al., 2016; Akado et al., 2016b)

creating pattern languages¹⁸ and patterns for using pattern languages¹⁹ are also proposed. In all of these pattern languages, the goal is to design good actions, not architecture or software.

The question that we now ask is how Pattern Language 3.0, which enables people to take better actions for a better result, should be evaluated from an academic standpoint. In this paper, we examine the philosophical importance of Pattern Language 3.0 in light of pragmatism. Pragmatism is a philosophical standpoint and movement started by Charles Sanders Peirce and developed by William James and John Dewey, among others. The thought of pragmatism, which called for the coexistence of theory and practice, provided a revolutionary viewpoint on the relationship between thinking and action, and greatly influenced education and politics.

Although at one point, the influence of pragmatism weakened due to the emergence of logical positivism, it underwent a revival (coming to be called neo-pragmatism) due to influence of philosophers including Willard van Orman Quine and Richard Rorty who brought the movement into analytic philosophy. Even now, a century later, pragmatism continues to undergo new developments (Misak, 2009). The term “pragmatism” refers not to a single philosophical theory, but is rather a general term for an interconnected collection of similar but unique concepts by various philosophers. With the ideas of classical pragmatism (by Peirce, James, and Dewey) at the origin, other philosophers have continued to examine, re-evaluate, and expand their philosophies.

In this paper, we examine the function and future possibilities of pattern language from a philosophical view by focusing primarily on the ideas of Peirce and Dewey’s classical pragmatism as well as Rorty’s neo-pragmatism ideas. At the same time, we also propose the idea that pattern language, especially Pattern Language 3.0, is one possible way to put the philosophy of pragmatism into practice.

2. Pragmatism and Pattern Language

In this paper, we propose that each pattern within a pattern language is written as a pragmatic statement. In order to make this point, we must first understand the “maxims of pragmatism,” which are the core principles of the philosophy.

Upon founding the philosophical system of pragmatism, Charles S. Peirce defined the maxim of pragmatism, whereby a “maxim” refers to a regulative principle. Peirce describes his idea of the maxim of pragmatism in the following words in his paper “How to Make Our Ideas Clear”:

“Consider what effects, which might conceivably have practical bearings,
we conceive the object of our conception to have. Then, our conception of

¹⁷ Policy Language (Iba & Takenaka, 2013)

¹⁸ Patterns for mining (Iba & Isaku, 2012; Iba & Yoder, 2014; Akado et al., 2015; Sasabe et al., 2016b), naming (Shibata et al., 2016), and illustrating (Miyazaki, et al., 2015; Iba & Iba Lab, 2015). These patterns are incorporated in larger language for creating pattern languages (Iba & Isaku, 2016).

¹⁹ Patterns for designing dialogue workshops with using patterns (Iba, 2012a).

these effects is the whole of our conception of the object.” (Peirce, 1878, p.258)

Based on this maxim, Peirce also states:

“Let us illustrate this rule by some examples; and, to begin with the simplest one possible, let us ask what we mean by calling a thing *hard*. Evidently that it will not be scratched by many other substances. The whole conception of this quality, as of every other, lies in its conceived effects.” (Peirce, 1878, p.259)

In other words, what he proposes is that the statement, “diamonds are hard” should be rewritten as “if you hit something with a diamond, the diamond is not damaged, while the other object is.” Therefore, he is suggesting that one should turn the declarative sentence, “A is B” into the conditional sentence, “if C is done, D will happen” and then actually test it. What Peirce means by this is that the statement, “A is B” cannot be tested or proven, whereas a conditional sentence (that describes how an action causes an effect) such as “if C is done, D will happen” can be tested and proven as to be a fact.

In this way, Peirce proposed that truth must be presented in the form of a “would-be mode of being” and the “if-then mode of being,” and named the philosophy around this concept as “pragmatism”²⁰. Later on, as William James began to use the term in a broader context, the term lost its original intended meaning, thus Peirce later renamed the philosophy “pragmaticism.” However, the original pragmatism and pragmaticism by Peirce are basically the same, so this paper will use the term “pragmatism” as the focus, as per Peirce’s original definition. As a reference, the following are descriptions by Peirce in his paper “Issues of Pragmaticism”:

“Pragmaticism consists in holding that the purport of any concept is its conceived bearing upon our conduct.” (Peirce, 1905, p.312)

“Pragmaticism makes the ultimate intellectual purport of what you please to consist in conceived conditional resolutions, or their substance; and therefore, the conditional propositions, with their hypothetical antecedents, in which such resolutions consist, being of the ultimate nature of meaning, must be capable of being true, that is, of expressing whatever there be which is such as the proposition expresses, independently of being thought to be so in any judgment, or being represented to be so in any other symbol of any man or men.” (Peirce, 1905, pp.306-307)

When re-examining the pattern language format from this perspective, we can understand that the patterns are written in a pragmatic manner. Each pattern describes a solution that prevents a certain problem (a misfit with the surroundings) from happening in a certain

²⁰ Peirce derived the term, “pragmatic” from “*Pragmatische*” in Immanuel Kant’s book, *Critique of Pure Reason* (Kant, 1781). While both are practical rules, Kant takes a more “*Moralische*” and categorically imperative format whereas Peirce focuses on a “*Pragmatische*” hypothetical imperative (Peirce, 1905b).

context. Each pattern has its own “quality without a name” that it aims to achieve. These are written as conditional sentences that describe a certain action and its resulting effect.

This pragmatic viewpoint also allows us to see that what Alexander proposed through pattern language, which is that “quality” must not be described in declarative sentences, but should be written in the form of conditional sentences that are pragmatic²¹.

John Dewey, in his paper that describes the development of pragmatism, makes the following comparison between pragmatism and empiricism.

“But when we take the point of view of pragmatism we see that general ideas have a very different role to play than that of reporting and registering past experiences. They are the bases for organizing future observations and experiences. Whereas, for empiricism, in a world already constructed and determined, reason or general thought has no other meaning than that of summing up particular cases, in a world where the future is not a mere word, where theories, general notions, rational ideas have consequences for action, reason necessarily has a constructive function.” (Dewey, 1925, p.12)

Pattern language is not merely a record of what already exists and has been experienced, but is a fundamental basis upon which new designs can be created. Christopher Alexander said in his *The Timeless Way of Building*:

“As an element of language, a pattern is an instruction, which shows how this spatial configuration can be used, over and over again, to resolve the given system of forces, wherever the context makes it relevant.” (Alexander, 1979, p.247)

According to pragmatism, the truth of a statement can be validated by testing it and assessing its result. Every statement is a hypothesis that has a possibility of being false (*fallibilism*). Therefore, in pragmatism, knowledge cannot be assumed as truth; all knowledge has the characteristics of contingency and malleability. Thus, knowledge must continue to be amended through testing and evaluation. Dewey’s term for knowledge that has been proven through testing is “warranted assertion.” Dewey, Peirce, and Rorty all emphasized that “warranted assertions” must be found through collaborative inquiry.

Similarly, Alexander also emphasized that a pattern within a pattern language is always tentative and subject to change. He points out the importance of confirming patterns empirically as evidence in the following quote:

“And, perhaps even more important, the pattern is open enough to become empirically vulnerable. We can ask ourselves: Is it true that this system of forces actually does occur, within the stated context? Is it true that the actual solution, as formulated, really does resolve this field of forces in all cases? We can therefore intensify our empirical

²¹ Interestingly, Alexander in his recent work, *The Nature of Order* (Alexander, 2002) seems to call for the use of declarative sentences to describe truth, which differs from his work in pattern language. This point should be discussed at another time.

observations, and begin a second round of observations, which will fine-tune the first observations. *Of course, even now the pattern is still tentative.* It is an attempt to define an invariant: but always only an attempt.” (Alexander, 1979, pp.268-269)

Thus, the pattern language is a dynamically evolving language that undergoes continuous testing and improvement:

“The language will evolve, because it can evolve piecemeal, one pattern at a time.” (Alexander, 1979, p.344)

“The key to the improvement of patterns is also in the fact that it can be piecemeal. Suppose the language you have now has 100 patterns. Since the patterns are independent, then you can change one at a time, and they can always get better, because you can always improve each pattern, individually. This means that we can define, discuss, criticize, and improve one pattern at a time: so that we never have to throw away all the other patterns in a language just because one of the, is faulty.” (Alexander, 1979, p.345)

Alexander also points out that there is no end to this process:

“Of course, this evolution will never end. Although the process of evolution will always move towards greater depth and greater wholeness, there is no end to it --- there is no static perfect language, which, once defined, will stay defined forever. No language is ever finished.” (Alexander, 1979, p.346)

This idea is closely related to the pragmatic view of truth. Furthermore, both Peirce and Alexander committed to *being scientific*. Peirce refused to accept absolute religious philosophies and instead called for an understanding of the truth through empirical testing. Alexander also stressed the importance of testing the validity of patterns in a pattern language. Furthermore, both of them believed in the continuous evolution of knowledge, as well as using an open collaborative inquiry to do so.

3. Habit as the Goal of Pattern Language

From here on, we propose a conception that the aim of pattern language is to form habits within a certain design process. In other words, each pattern in a pattern language aims to not only bring about a temporary change in a person’s *action*, but to change the person’s *habits* over the longer term. The main focus of a pattern language is not only to describe what the reader should do in a given context. To make this point, we must discuss the pragmatic concepts of thinking, inquiry, and habit, as well as their connection to pattern language.

3.1. Belief, Doubt, and Inquiry

According to the philosophy of pragmatism, every person has their own network of beliefs that they use to formulate their thoughts. Peirce states that “our beliefs guide our desires and

shape our actions” (Peirce, 1877, p.230), thus explaining the relationship between thought and action. A person’s network of beliefs is not fixed, but rather evolves every day. One’s beliefs are continuously reshaped due to changes in circumstances or due to the appearance of situations in which former beliefs do not apply. In pragmatism, this evolving process of beliefs is defined as “thinking.”

More specifically, Peirce believed that thought is the process of finding a doubt in one’s belief network, and then finding new beliefs that they can fixate on. Peirce named this process “inquiry.” The term “doubt” in this context refers to some sort of questioning, and the term “belief” refers to the state at which the question has been solved. Peirce defined this as follows in his paper, “The Fixation of Belief”:

“Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of belief; which the latter is calm and satisfactory state which we do not wish to avoid, or to change to a belief in anything else.” (Peirce, 1877, p.230)

In this sense, *belief* can be symbolically expressed as “the demi-cadence which closes a musical phrase in the symphony of our intellectual life” (Peirce, 1878, p.255). Peirce describes the inquiry process of transitioning from doubt to belief in the following statement.

“The irritation of doubt causes a struggle to attain a state of belief. I shall term this struggle *Inquiry*, though it must be admitted that this is sometimes not a very apt designation.” (Peirce, 1877, p.231)

“With the doubt, therefore, the struggle begins, and with the cessation of doubt it ends. Hence, the sole object of inquiry is the settlement of opinion.” (Peirce, 1877, p.232)

When we attain a state of belief as a result of an inquiry, “our beliefs should be such as may truly guide our actions so as to satisfy our desires” (Peirce, 1877, p.232). Therefore, in our thought, doubt functions as the initiator of inquiry, and the belief that is attained functions to initiate action. A doubt occurs in a part of the belief network, an inquiry begins, a new belief is formed, and then an action takes place that brings about yet another doubt. This is the continuous cycle of thought²².

“It was there noticed that the action of thought is excited by the irritation of doubt, and ceases when belief is attained; so that the production of belief is the sole function of thought.” (Peirce, 1878, pp.252-253)

The terms “belief” and “doubt” that Peirce is speaking of point to everyday matters, as seen in the following examples by Peirce:

²² Dewey also stresses the importance of inquiry as seen in the following quote: “*Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole.*” (Dewey, *Logic*, p.167)

"Doubt and Belief, as the words are commonly employed, relate to religious or other grave discussions. But here I use them to designate the starting of any question, no matter how small or how great, and the resolution of it. If, for instance, in a horse-car, I pull out my purse and find a five-cent nickel and five coppers, I decide, while my hand is going to the purse, in which way I will pay my fare. To call such a question Doubt, and my decision Belief, is certainly to use words very disproportionate to the occasion." (Peirce, 1878, p.253)

3.2. Habit and Patterns in Mind

The significance of the fixation of belief is that it leads to the formation of habits. Peirce stated that "the essence of belief is the establishment of a habit" (Peirce, 1878, p.255), and that the essence of belief is that "it involves the establishment in our nature of a rule of action, or, say for short, a *habit*" (Peirce, 1878, p.255). As his statement shows, the focus on the relationship between thinking, action, and habit is characteristic of pragmatism. Dewey even states in his book, *Human Nature and Conduct*, that "Man is a creature of habit, not of reason nor yet of instinct" (Dewey, 1922, p.125).

Generally, the term "habit" may refer to negative everyday actions that one cannot easily get rid of, such as smoking and drinking. However, "habit" in terms of pragmatism refers to a broader concept that points to any general pattern that generates action. This includes subtle actions that we take unconsciously, as well as actions that we only rarely take. Dewey emphasizes that repetition is not a necessary part of habit, as seen in the following statement:

"Repetition is in no sense the essence of habit. Tendency to repeat acts is an incident of many habits but not of all. A man with the habit giving way to anger may show his habit by a murderous attack upon someone who has offended. His act is nonetheless due to habit because it occurs only once in his life." (Dewey, 1922, p.42)

The real essence of habit is "an acquired predisposition to ways or modes of response" (Dewey, 1922, p.42). In other words, a habit is a certain tendency to act as a result of a certain stimuli in the surrounding environment or circumstance. With regards to this point, Peirce makes the following argument:

"What the habit is depends on *when* and *how* it causes us to act. As for the *when*, every stimulus to action is derived from perception; as for the *how*, every purpose of action is to produce some sensible result." (Peirce, 1878, p.257)

"Habits differ from dispositions in having been acquired as consequences of the principle, virtually well-known even to those powers of reflection are insufficient to its formulation, that multiple reiterated behavior of the same kind, under similar combinations of percepts and fancies, produces a tendency --- the *habit* --- actually to behave in a similar way under similar circumstances in the future." (Peirce, 1934a, p.334)

Hence, Peirce sometimes uses the more specific term, “conditional habit.” A conditional habit refers to “a determination of a man’s occult nature tending to cause him to act in a certain general way in case certain general circumstances should arise and in case he should be animated by a certain purpose.” (Peirce, 1943b, p.363) Therefore, this is more a conditional “if-then, would-be” statement; it is both conditional and future-oriented. This overlaps exactly with the context, solution, and consequence of pattern in pattern language.

Dewey also states that “habit,” as mentioned above is also similar to the terms “attitude” and “disposition.” However, while “attitude” and “disposition” cover the meaning of a person’s inclination to do something, it does not include the action itself. The term “habit” is more suitable since it “conveys explicitly the sense of operativeness, actuality” (Dewey, 1922, p.25), and is therefore the term used in pragmatism.

“Any habit is a way or manner of action, not a particular act or deed. When it is formulated it becomes, as far as it is accepted, a rule, or more generally, a principle or ‘law’ of action.” (Dewey, Logic, p.27)

Habit, as we have been discussing above, appears to be a response to the surrounding environment, and is also the source of an action. Dewey describes the function of habit as follows:

“We may think of habits as means, waiting, like tools in a box, to be used by conscious resolve. But they are something more than that. They are active means, means that project themselves, energetic and dominating ways of acting.” (Dewey, 1922, p.25)

We believe that the purpose of pattern language is to change people’s habits or help them form new habits. In other words, what we are aiming to do in Pattern Language 3.0 is generate habits of actions for certain situations. Thus, when creating patterns in Pattern Language 3.0, we must mine habits that create desirable results and write them as patterns that describe what action is good for a certain situation. The aim is for the reader of a pattern to put it into practice and transform that action into a habit.

Forming habits allows us to carry out actions without having to think about each and every one of them. Dewey has stated that “Habits are conditions of intellectual efficiency” (Dewey, 1922, p.172) and that “Habit is an ability, an art, formed through past experience.” (Dewey, 1922, p.66) Dewey also notes that “Every habit creates an unconscious expectation. It forms a certain outlook” (Dewey, 1922, p.75), and it is because of these habits that we are able to act without thinking about it every time. Dewey uses an everyday example to describe the concept of habit:

“We may, indeed, be said to *know how* by means of our habits. ... We walk and read aloud, we get off and on the street cars, we dress and undress, and do a thousand useful acts without thinking of them. We know something, namely, how to do them.” (Dewey, 1922, p.178)

Habits make it easier for us to take actions in an otherwise complicated and confusing situation. According to Dewey, “Outside the scope of habits, thought works gropingly, fumbling in confused uncertainty” (Dewey, 1922, p.172). He also states that “Without habit there is only irritation and confused hesitation.” (Dewey, 1922, p.180)

However, habits are also “blindness that confine the eyes of mind to the road ahead.” (Dewey, 1922, p.172) This is because they enable us to take actions without any thought. In this sense, habits provoke us to take actions without care. In other words, “all habit-forming involves the beginning of an intellectual specialization which if unchecked ends in thoughtless action.” (Dewey, 1922, p.172)

A *pattern* within a pattern language can be thought of as a *habit* in pragmatism. Alexander points out that a person who performs an act of design does not think from scratch, but instead uses various rules of thumb that they have gained from experience.

“At the moment when a person is faced with an act of design, he does not have time to think about it from scratch. He is faced with the need to act, he has to act fast; and the only way of acting fast is to rely on the various rules of thumb which he has accumulated in his mind. In short, each one of us, no matter how humble, or how elevated, has a vast fabric of rules of thumb, in our minds, which tell us what to do when it comes time to act. At the time of any act of design, all we can hope to do is to use the rules of thumb we have collected, in the best way we know how.” (Alexander, 1979, p.204)

When a person is doing this, the rules of thumb being used are actually *patterns in the mind* (patterns that are not written out in a document, but exist inside the mind).

“When a person is faced with an act of design, what he does is governed entirely by the pattern language which he has in his mind at that moment. Of course, the pattern languages in each mind are evolving all the time, as each person’s experience grows. But at the particular moment he has to make a design, he relies entirely on the pattern language he happens to have accumulated up until that moment.” (Alexander, 1979, p.203)

In fact, Alexander himself has made the same observation regarding Dewey’s concept of habit. Alexander discusses natural language as well as pattern language in the following passages:

“The rules of English steer you away from the vast number of nonsensical sentences, and towards the smaller --- though still vast --- number of sentences which make sense; so that you can pour all your effort into the finer shades of meaning. If it were not for the rules of English, you would spend all your time struggling to say anything at all.” (Alexander, 1979, p.207)

“A pattern language does the same. Again, if you think of all the possible combinations of columns, and studs, and walls, and windows, most of them are meaningless jumbles. The number of meaningless combinations is vastly larger than the number of combinations which make sense as buildings. A man without a language would have to comb his mind to find even one meaningful design among all these meaningless combinations, and he would never even get to the subtleties which make a building work.” (Alexander, 1979, p.208)

Dewey's statement that "habit is however more than a restriction of thought" (Dewey, 1922, p.175) shows us that habit is not only a restriction. He also states that "the more numerous our habits the wider the field of possible observation and foretelling. The more flexible they are, the more refined is perception in its discrimination and the more delicate the presentation evoked by imagination." (Dewey, 1922, pp.175-176)

Now, recall the fact that Peirce has renamed *habit* to "conditional habit" and that a habit results from belief, which may be written as a conditional statement in accordance with the maxim of pragmatism. This means that both *habits* and *patterns in mind* lead to action:

"Consequently, the most perfect account of a concept that words can convey will consist in a description of that habit which that concept is calculated to produce. But how otherwise can a habit be described than by a description of the kind of action to which it gives rise, with the specification of the conditions and of the motive?" (Peirce, 1934a, p.342)

This brings us to the realization that *patterns in mind* function like habits in pragmatism. Alexander makes the following point with regards to the generativity of *patterns in mind*. We can find this connection in Alexander's book on pattern language:

"The patterns in the world merely exist. But the same patterns in our minds are dynamic. They have force. They are generative. They tell us what to do; they tell us how we shall, or may, generate them; and they tell us too, that under certain circumstances, we must *create* them. *Each pattern is a rule which describe what you have to do generate the entity which it defines.*" (Alexander, 1979, p.182)

3.3. Pattern Language for Changing Habits

Another characteristic of habits is that they are not static. All humans have numerous habits, some of which do not produce a desirable outcome, and some which should be replaced with better habits. In such cases, *intelligence* allows us to change a current habit into a better one. Regarding the topic of changing one's habit, Peirce makes the following argument:

"Meaning by a habit-change a modification of a person's tendencies toward action, resulting from previous experiences or from previous exertions of his will or acts, or from a complexus of both kinds of cause." (Peirce, 1934a, p.327)

However, habits cannot be directly modified. To use Dewey's words, "we cannot change habit directly: that notion is magic." (Dewey, 1922, p.20). We must therefore consider how habits can be changed.

In order to change a habit, Dewey suggests "we can change it indirectly by modifying conditions, by an intelligent selecting and weighting of the objects which engage attention and which influence the fulfillment of desires." (Dewey, 1922, p.20). This means that a habit is the result of a condition that brings about an influence, and, as long as we cannot change the condition, the habit will persist. Dewey clearly explains this using an example of changing the habit of those with negative habits such as poor posture and alcohol addiction.

“A man who does not stand properly forms a habit of standing improperly, a positive, forceful habit. The common implication that his mistake is merely negative, that he is simply failing to do the right thing, and that the failure can be made good by an order of will is absurd. One might as well suppose that the man who is a slave of whiskey-drinking is merely one who fails to drink water. Conditions have been formed for producing a bad result, and the bad result will occur as long as those conditions exist.” (Dewey, 1922, p.29)

To change these habits, Dewey thinks that “we must start to do another thing which on one side inhibits our falling into the customary bad position and on the other side is the beginning of a series of acts which may lead into the correct posture.” (Dewey, 1922, p.35) The following passage provides a more detailed description by Dewey:

“The hard-drinker who keeps thinking of not drinking is doing what he can to initiate the acts which lead to drinking. He is starting with the stimulus to his habit. To succeed he must find some positive interest or line of action which will inhibit the drinking series and which by instituting another course of action will bring him to his desired end. In short, the man’s true aim is to discover some course of action, having nothing to do with the habit of drink or standing erect, which will take him where he wants to go.” (Dewey, 1922, p.235)

When we re-examine these concepts from the case of pattern language, we can say that (whether good or bad) there are forces that work together to generate a result. We cannot change the forces that exist within a certain context, and so the forces will persist. With this premise, a the goal of a pattern is to add new forces to resolve the original forces (which were the source of the conflict) by offering a solution that brings about good consequences.

Furthermore, according to pragmatism, a change in a habit is not solely dependent on a person’s mindset. A habit is not simply shaped by a single person, but is rather a result of influences from the outside environment²³. That is, “for every habit incorporates within itself some part of the objective environment, and no habit and no amount of habits can incorporate the entire environment within itself or themselves.” (Dewey, 1922, p.51).

In order to understand this meaning, we should examine the analogy Dewey makes with physiological function. Breathing not only requires the lungs, but also air from the surrounding environment. Similarly, digesting food requires not only the human’s stomach, but also food from the outside. Organs are a necessity to a physiological functioning, but that is not the only necessary component. We must also have interactions with the environment

²³ More precisely, Peirce did not consider habits to be psychological. He believes that things without a mind, such as plants and water also form habits. “We shall see that it is already largely eliminated by the consideration that habit is by no means exclusively a mental fact. Empirically, we find that some plants take habits. The stream of water that wears a bed for itself is forming a habit.” (Peirce, 1934a, p.342) In this way, Peirce believes that a habit is not psychologically dependent nor is it only for humans, but rather it is a characteristic of anything that exists. This paper focuses on Pattern Language 3.0, which deal with humans and their actions, but Peirce’s definition of habits also applies to Alexander’s patterns about architecture and space (Alexander 1977).

in order for the organs to work effectively. In the same way, a habit cannot exist without a person that performs the habit regularly, but the surrounding environment is also necessary for the habit to actually occur.

Furthermore, in order for us to change a habit, we must not only change our mindset but also our surrounding environment. When we change our surrounding environment, we are in fact changing the conditions that generate the habit. Dewey also points out, "We must work on the environment not merely on the hearts of men." (Dewey, 1922, p.22) In human action patterns, a suggestion on how to change a person's mindset is not, in most cases, a valid solution. This is due to the reason stated earlier; namely that, because a habit is connected to the surrounding environment, the solution to a pattern must be something that changes that environment (condition) as well as the person's mindset, in order to resolve the conflict of forces.

As we have seen, the goal of pattern language is to support habit changes. As Dewey stated, "language is the only means of retaining and transmitting to subsequent generations acquired skills, acquired information and acquired habits" (Dewey, 1938, p.95). Thus, a pattern language also functions as a language that supports habit change. For instance, by understanding *Learning Patterns*, one can learn new rules of thumb such as **Thinking in Action** and **Community of Learning** that individuals can practice and use to develop new habits.

4. Pattern Language as Pragmatic Vocabulary

Pragmatists insist that *truth* does not exist objectively in the world outside of human thought and language, and this view is well-known as the anti-representational aspect of pragmatism. As a way of seeking truth, this thought is deeply connected to the maxim of pragmatism, which was described in section 2. Peirce argued that the truth of a statement can only be proven through a pragmatic approach involving conducting an experiment, and Dewey also stressed that "warranted assertion" is all that can be gained. On this subject matter, Rorty makes the following argument in his book, *Contingency, irony, and solidarity*:

"We need to make a distinction between the claim that the world is out there and the claim that truth is out there. To say that the world is out there, that it is not our creation, is to say, with common sense, that most things in space and time are the effects of causes which do not include human mental states. To say that truth is not out there is simply to say that where there are no sentences there is no truth, that sentences are elements of human languages, and that human languages are human creations.

Truth cannot be out there --- cannot exist independently of the human mind --- because sentences cannot so exist, or be out there. The world is out there, but descriptions of the world are not. Only descriptions of the world can be true or false. The world on its own --- unaided by the describing activities of human beings --- cannot. The suggestion that truth, as well as the world, is out there is a legacy of an age in which the world was seen as the creation of a being who had a language of his own." (Rorty, 1989, p.5)

Based on this thinking, Rorty states: “Pragmatists say that the traditional notion that ‘truth is correspondence to reality’ is an uncashable and outworn metaphor.” (Rorty, 1985, p.44)²⁴. Rorty, who placed pragmatism at the foundation of his thinking, while also exploring analytic philosophy, also stresses the importance of language as follows:

“To drop the idea of languages as representations, and to be thoroughly Wittgensteinian in our approach to language, would be to de-divinize the world. Only if we do that can we fully accept the argument I offered earlier --- the argument that since truth is a property of sentences, since sentences are dependent for their existence upon vocabularies, and since vocabularies are made by human beings, so are truth.”(Rorty, 1989, p.21)

Rorty therefore took an anti-representationalist stance and denied the representationalist claim that truth exists objectively. Instead, of representing or expressing the intrinsic characteristics of the world, Rorty advocated creating a new vocabulary to describe the world. It is of course important to work to improve vocabularies and descriptions, but what is most important is whether they capture the world in a positive way, not whether it accurately captures what actually exists. This is why we believe that pattern language plays an important role in philosophy.

Pattern language offers a vocabulary for people to live by²⁵. As Rorty states, “All human beings carry about a set of words which they employ to justify their actions, their beliefs, and their lives” (Rorty, 1989, p.73); we thus live through putting vocabulary into practice. To create a pattern language is not to represent the rules that exist in the outside world, rather, it is to capture frequently-occurring phenomenon as patterns with names that may be used as a vocabulary²⁶.

²⁴ Note that Rorty’s view on science seems be closely related to sociologist Niklas Luhmann’s theory on science as a social system (Luhmann 1995). Luhmann proposed that science is a sub-system of the social system that operates on a true / false code, and that it describes the phenomenon in the world through the scientific perspectives. Therefore, Luhmann believed that scientific statements are only a description of the world’s phenomenon from the perspective of the scientific system (Luhmann, 1989, 2012, 2013). In addition to this view of science, Rorty argued that the continuation of communication is important, which is closely related to Luhmann’s concept of the autopoietic system in which communication is a vital element. See the consideration about the function of pattern language in light of the social systems theory in our paper (Iba, 2016).

²⁵ There is a psychologist who studied the relation between thought and language, Lev Semenovich Vygotsky. Through his research in developmental psychology, he made many significant contributions including his theory on cultural and biosocial development, known as cultural-historical psychology. His theory that human reasoning is mediated by signs and symbols is another contribution that remains influential. See our paper (Iba and Yoshikawa, 2016) for the consideration about relation between pattern language and Vygotskian psychology.

²⁶ It should be examined in future research where Alexander himself stands in terms of philosophy. There are some pragmatists, such as Peirce and Hilary Putnam, who believe in the existence of truth, and believe that it is possible to get closer and closer to it. This is a different view from Dewey and Rorty’s thought that we discuss here. However, because all pragmatists believe in fallibilism, it is probable that reaching the true in the end is merely an ideal, and that it is impossible to achieve. It is also probable to say that Alexander had the same thought, through examining his concept of the

Both pragmatism and pattern language emphasize the importance of creating a vocabulary that can be used within a story. In such cases, the dichotomy between truth and value is destroyed. This is a common line of thinking among pragmatists (Putnam, 2004). However, Rorty points out that the supposed difference between things like science and poetic expression is meaningless (Rorty, 1979). If that is the case, as long as truth is not something that exists and there is no bisection between truth and value, it is impossible to claim that scientific statements and poetic statements are any different to each other. It is from this point, as well, that we can understand the reason Christopher Alexander decided to create the pattern language format that contains characteristics of both scientific and poetic statements²⁷ rather than mathematical representations.

As we discussed in the beginning of the paper, pragmatism calls for empirical testing of conditional sentences that lead to action. Hence, vocabulary, as Rorty discussed, should be written in the form of pragmatic statements, which suggests that the pattern format is suitable. This is one significant concept proposed in this paper.

Such vocabulary and conditional sentences may not always be correct. They may also be replaced with something better. This is an inquiry that has no right answer, as there is no evident truth to refer to. Regarding this point, Rorty states in his paper, "Science as Solidarity":

"On this pragmatist view of rationality as civility, inquiry is a matter of continually reweaving a web of beliefs rather than the application of criteria to cases. Criteria change in just the way other beliefs change, and there is no touchstone which can preserve any criterion from possible revision." (Rorty, 1987, p.2-3)

Therefore, pragmatism also advocates fallibilism as well as anti-representationalism. Peirce concisely explains fallibilism in the following quote:

"For fallibilism is the doctrine that our knowledge is never absolute but always swims, as it were, in a continuum of uncertainty and of indeterminacy." (Peirce, 1931, p.70)

As we have seen, creating a pattern language is not merely writing in a scientific manner, but is rather a continuous process of improving expressions, much like writing poetry²⁸. This idea is a precise expression of how the process feels to us from our experience in creating over thirty different pattern languages and over one thousand patterns.

"quality without a name" in *A Pattern Language* (Alexander, 1977) and *The Timeless Way of Building* (Alexander, 1979), but it is possible that he changed his position in *The Nature of Order* (Alexander, 2002), which is a topic to be discussed in future research.

²⁷ The fact that the architect Murray Silverstein, who is a co-author of *A Pattern Language*, and Richard Gabriel, who applied the way of Writers' Workshop into the field of software patterns, are also poets (Silverstein, 2006; Gabriel, 2005) may be related to this point.

²⁸ In the field of software patterns, *Writers' Workshops* are held to improve submitted patterns in the conferences. This style of workshop was developed in creative writing, and Richard Gabriel introduces the Writers' Workshop style into software patterns conferences (Gabriel, 2002).

5. Conclusion

Richard Shusterman, a pragmatic philosopher who is well known in the field of philosophical esthetics, suggests that the reason pragmatism has remained a dominant position in the history of philosophy is due to the fact that its goal is to make lives better through focusing on experiences that generate liveliness. According to Shusterman, there are two fundamental types of philosophy: philosophy that provides a general understanding of the world, and practicing philosophy as “an art of living.” (Shusterman, 1997, p.5)

Originally, philosophy began as Socrates’ search for “how one should live,” and how to achieve “his exemplification of “the philosophical life” (Shusterman, 1997, p.17). This was not to be left in the text. As Shusterman notes: “The aim is not truth for truth’s sake, but rather ameliorative care of the self (*epimeleia heautou*), and, as a consequence, the betterment of the society in which the self is situated.” (Shusterman, 1997; p.17) Later on, philosophy has made a significant transition toward the theoretical, but due to the appearance of pragmatism, both theory and practice are now being emphasized.

According to Richard Shusterman, pragmatism “is no ‘evasion of philosophy,’ but the revival of a tradition that saw theory as a useful instrument to higher philosophical practice: the art of living wisely and well.” (Shusterman, 1997, p.5) Shusterman believed that pragmatism is exactly what is means to practice philosophy for the future, which is what the founders of pragmatism aimed for.

“Through respecting the productive power of the past (through the efficacious force of entrenched habits, practices, and institutions), pragmatism nonetheless locates authority not in past givens but in consequences for the present and future. Recognizing the temporal change and plasticity of our world and tools of understanding, pragmatism insists on not accepting them as *they’ve been* but on making them better.”(Shusterman, 1997, p.135)

This is to say, as we have been discussing in this paper, pragmatism, which advocates anti-representationalism and pragmatic action, “the goal of knowledge is not to *copy* existing reality but to transform it to provide better experience.” (Shusterman, 1997, p.208) Due to this fundamental attitude, understanding this philosophy requires not looking for the “truth,” but rather working to put the truth into practice to create better actions.

The ultimate goal of pattern language is precisely the same; it is to make our lives better. This is what Alexander aimed for, and this is what we as authors of pattern languages for human action aim for as well.

Moreover, due to the way in which pragmatist thinking functions, we must evaluate its significance through practice and not merely by questioning the logic behind it. As Shusterman has pointed out: “If we are truly interested in practicing philosophy as an art of living, we should not simply want to know what that practice is or was. We should be especially interested in making it better.” (Shusterman, 1997, p.7).

In this sense, what we aimed to do in this paper is to understand the structure and function of pattern language as a pragmatic practice, while also proposing the possibility of using pattern language as a way to pragmatically evaluate the philosophy of pragmatism through practice. Furthermore, recall Peirce’s maxim of pragmatism, which said demanded that we “consider

what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object.” (Peirce, 1878, p.258). Based on this maxim, the significance of the ideas and the implications proposed in this paper must be evaluated through practice. Thus, we as authors must not leave the ideas discussed in this paper as mere theories, but must actually put them into practice through our future research.

In this paper, we discussed our own understanding and interpretation of pragmatism and took the first steps toward establishing the philosophy of pattern language. Although this paper has comprehensively examined the theories of Peirce, Dewey, and Rorty, what we covered were only excerpts from their thinking. Moreover, pragmatism is not a solid and complete philosophical system, so we must also think about the views of other pragmatists and their characteristics. This is work to be accomplished in the future.

Nonetheless, we feel that this paper is a significant first step forwards. We hope that the future research of pattern language will not be limited to discussion on the creation, application, and methodology for the patterns discussed, but that there will be research and discussion of the philosophy of pattern language.

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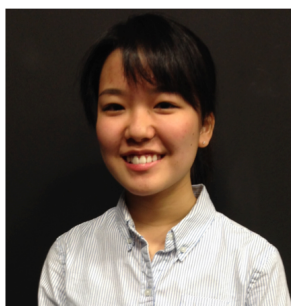
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