

The Creation of Style in Generator: An Investigation Through Behavioral Properties

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This paper examines how style of Generator is created through using Alexander's theory of wholeness and centers and the Behavioral Properties. Behavioral Properties outline how centers strengthen each other in a whole, especially focusing on the wholeness of human activities. Generator is a characteristic of a person or role that leads the group through an inquiry process to create new values. To find out how Generator's style is created, we first used Alexander's theories with Behavioral Properties to view how Generator enhances wholeness of the collaborative inquiry. Through the investigation, we found out that Generator enhances wholeness of the inquiry by going through what Christopher Alexander states "the fundamental differentiating process." As a result, we came to conclude that Generator's style can be illustrated as a whole made up of several properties and is continuously updated.

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1. INTRODUCTION

When thinking about collaboration, members take different roles. Some might lead the discussion by speaking more than others, some might give an insight with one comment right on the spot. In the long run, a project with a good schedule manager helps the group to be on time for the deadline. A member with strong leadership can create trust among the members and keep the team tightly together. Every role we have listed above contributes to the team collaboration in various ways. We cannot say which role is important than the others, and which one was the most effective varies case by case.

We have been examining a characteristic of a person who makes the collaborative inquiry lively, and named it "Generator" (Nagai, et al., 2016). Just as the word says, their mission is to enhance collaboration from the inside and create a new value together as a group. What we have been noticing is that the style of Generator is differs by person, just like the roles stated above. The behavior Generators show differs by person and the context they are in. If so, how can the creation of Generator's style be explained?

In order to find out, we used the Behavioral Properties and Christopher Alexander's several theories to examine the process Generator goes through to enhance the liveliness of the inquiry process. From that examination, we have found out that the style in Generator can be illustrated as a whole made up of several properties and is continuously updated. In what follows, we describe what Behavioral Properties and Generator are, and continue on with the examination of the function Generator carries in an inquiry process. Lastly, we explain how the style of Generator is created and are updated following what Alexander states as "the fundamental differentiating process."

2. BEHAVIORAL PROPERTIES

The liveliness of human activities cannot be understood just by dividing it into parts: collaborative inquiry is no exception. Every essence matters, and they enhance each other to create wholeness. Through the investigation, we found the 24 behavioral properties in which centers in human activities strengthen each other to create wholeness. Along with the brief description of each behavioral property, this section explains what it is about and its difference between Alexander's 15 geometrical properties.

2.1 Human Activities and Wholeness

When thinking about what makes human activities lively, or "full of life" as Alexander says, the activity cannot be broken up into parts. For example, successful brainstorming cannot be realized just by preparing a desk, sticky notes, and few people to work on the task. Even though they all are components of brainstorming, they relate to each other and make the brainstorming creative.

Alexander expressed these components as “centers” within a “whole,” and stated that when centers strengthen each other, it enhances the wholeness of the whole (Alexander, 2002a).

2.2 What it Outlines

The 24 behavioral properties show how centers in a whole strengthen each other to enhance the wholeness. Through creating pattern languages on human activities such as Learning Patterns, Collaboration Patterns, Presentation Patterns, and Words for Journey, we have been noticing the similarity in how patterns enhance the wholeness of that certain activity. That is why we examined the “behavior” happening in the patterns that enhance the liveliness from several human activity pattern languages, grouped them under their similarity, and named each group as properties. “Behavior” is the interaction between centers to strengthen each other or to create another center, which end up strengthening the wholeness.

As a result, we found the properties that should be seen in the background of human activity with wholeness (Figure 1). Detailed explanation on the investigation process is written in the paper we submitted to PURPLSOC 2015 (Iba, et al., 2015a).

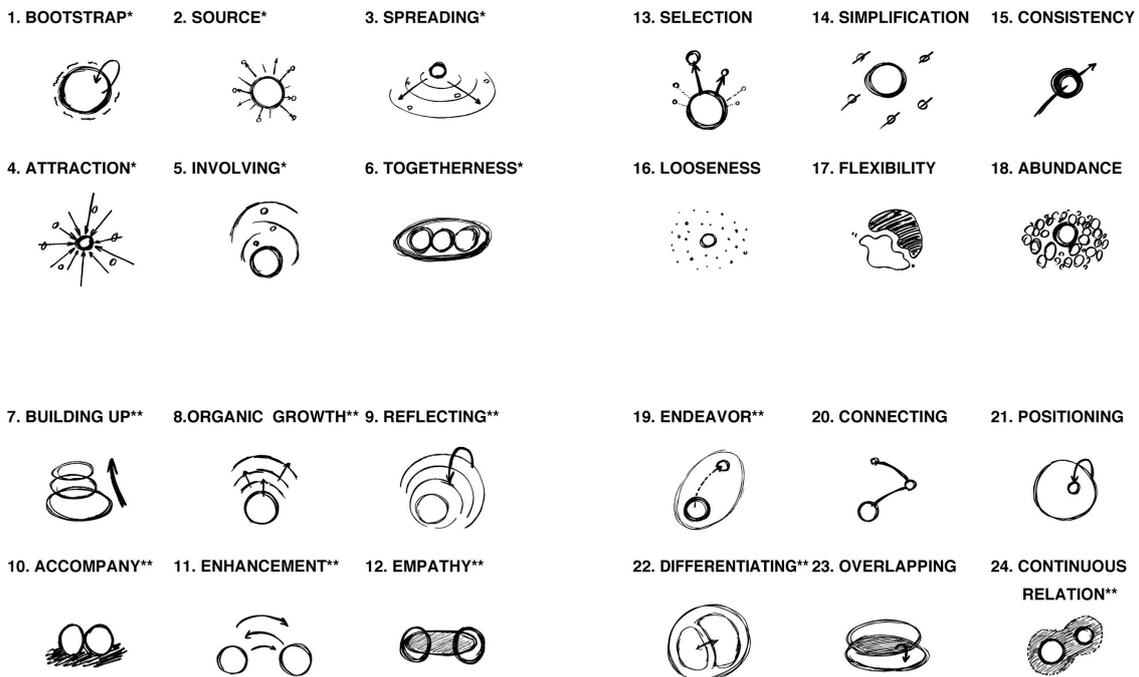


Figure 1. Overall View of the 24 Behavioral Properties

2.3 Difference Between the 15 Geometrical Properties and the 24 Behavioral Properties

The relationship between behavioral and geometrical properties can be compared from the viewpoint of a time series. Alexander's 15 geometrical properties outline the liveliness of the structure at a point in the flow of time (Figure 2). On the other hand, 24 behavioral properties capture the liveliness of movement occurring through the flow of time (Figure 3).

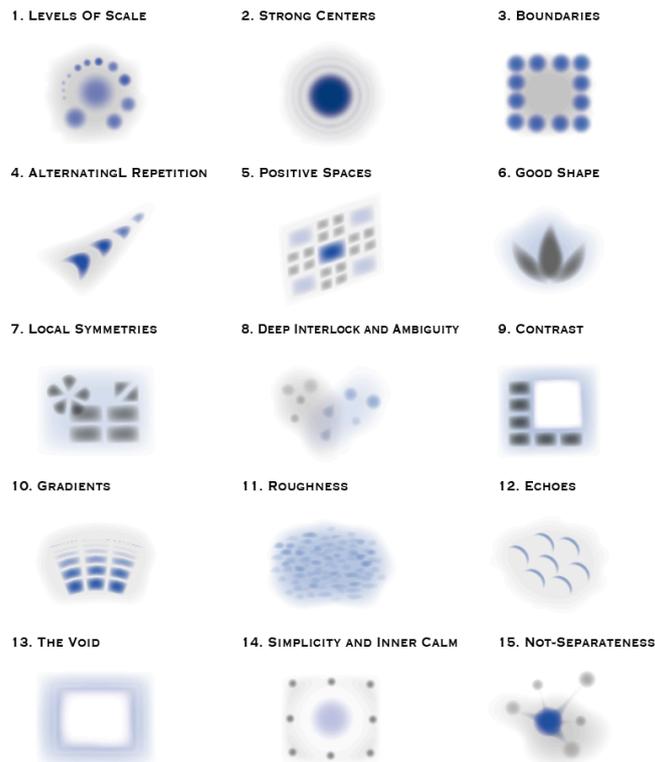


Figure 2. Visualization of Alexander's 15 Geometrical Properties (Iba and Sakai, 2015)

Alexander's 15 geometrical properties capture the wholeness in **structure**.

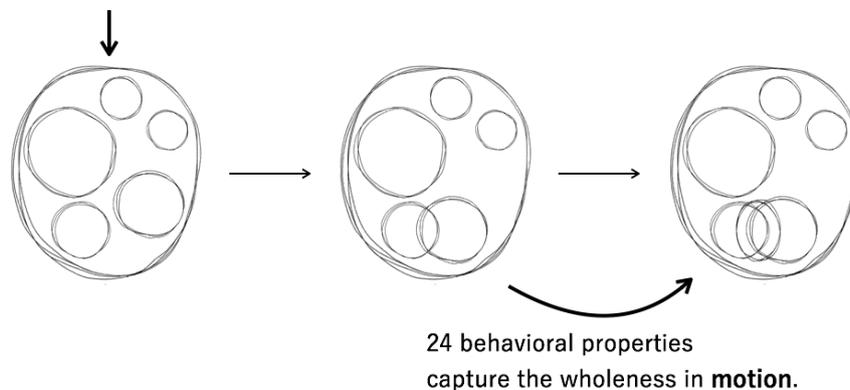


Figure 3. Different wholeness is captured by the properties

For example, an organization is in a good state when the goal of the team or individual members matches the trend, when each member has their own role, and when they help each other out. The geometrical properties, ECHOES, and POSITIVE SPACE can capture this phenomenon. ECHOES is a property where centers generate a larger center by similarity of orientation, and the property POSITIVE SPACE is where adjacent centers are partially strengthened in order to strengthen a specific center.

From a different point of view, the team is activated by having and heading towards a challenging attractive goal, and involving cases, information, or people related to the project. This phenomenon can be captured by the behavioral properties, ENDEAVOR and INVOLVING. ENDEAVOR occurs where centers working diligently towards a shining center, and INVOLVING is where a core center involves new centers that are necessary for strengthening itself, also strengthening the whole.

This example shows that there are different sets of properties visible from two different viewpoints, namely: geometrical properties that capture liveliness at a certain time, and behavioral properties, which express the liveliness of the process of the change in the flow of time.

Geometrical properties are properties on a plane, showing the structure, and the being of things at one point in the series of time. Behavioral properties are properties of movement expressed by time axis, describing movement or how things become another in the transition of time.

Geometrical properties and behavioral properties are not only properties that appear in architecture, nature, or in human activity, but also viewpoints for capturing lively phenomena. Therefore, it is important to examine from both the point of view of structure and motion.

3. GENERATOR

Generator is a characteristic of a person or role in a certain situation, which illustrates someone who leads a group of people through a process of collaborative inquiry (Nagai, et al., 2016). However, becoming a leader of a certain group is not enough to become a Generator. What Generators have to do is to generate stimulus effect among the members of the group to enhance collaboration and creativity. Generator can be seen as a new style of roles or positions in various domains, such as facilitators, teachers, or chiefs, aiming to create or enhance collaboration for accomplishing a challenging inquiry.

3.1 Generators in Various Domain

The characteristics of Generator can be found in inquiries done in groups. The process Generator and the group go through is similar to what Dewey defined as the process of inquiry. Dewey defines an inquiry as an observation of an uncertain situation where problem or doubt rise, and a possible solution suggested and implemented through reasoning (Dewey, 1938).

In case of facilitators of a workshop, he or she as a “Workshop Generator” gets involved further with the participants (Akado, et al., 2016). Here, workshops are where several people work together in groups to work on a task, project, or brainstorming for 2-3 hours. In these workshops, Workshop Generators give opinions just like other participants and facilitate the process at the same time. Instead of giving out directions to the participants from outside of the circle, Workshop Generators work together and enhance the collaboration from within. While facilitators tend to stay neutral and focus on supporting the participants (Gottesdiener, 2003), Workshop Generators give their own opinion just like the others since they work together with the group. So rather than a relationship as “facilitator” and “participants,” it becomes a relationship of “generator” and “members.”

When teachers become a generator, they become more involved in student’s learning process (Shibuya, et al., 2013). Also expressed as “Generative Participants,” teachers actually participate in the creative activities with the learners, and stimulate learners within the project to promote their learning. This way, teachers are no longer passing out their knowledge to students where students try to memorize all of them. Instead, teachers and students together think about something that even teachers do not know, and go through an inquiry adventure.

There is also a generator in a Cocooking situation, which is called “kitchen captain” (Isaku, et al., 2016). This role involves the participants into the cooking process to create collaboration while leading the cooking process to cook up a good meal and enjoy it together. Kitchen captain should not be the commander of the kitchen, but rather a head chief who is there for other chiefs when there is a need.

3.2 The Generator Patterns

In order to capture the behavior of Generators, we created the Generator Patterns (Nagai, et al., 2016). Generator Patterns is a pattern language for people who have the disposition to become a Generator to become one by starting a project, involving people, and collaboratively engaging in an inquiry. This includes but is not limited to people with the following characteristics: those who have a little more curiosity than others, people in a leader-like position, and people who wants to build a community. It is a pattern language for this kind of a person to build a team and engage in collaborative inquiries for creativity.

The pattern language consists of 40 patterns that Generators should do to involve others and lead them to create a new value together (Table 1). 40 patterns are categorized into three main groups; *Leader of the Inquiry*, *Putting yourself Inside*, and *Releasing the Creativity*. Each category itself is an umbrella pattern, holding 12 other patterns that describe the idea in detail. The patterns are organized into a pyramid style where patterns expressing important concepts are placed above, and patterns that describe the idea in further detail branch off beneath it (Figure 4). This way the most important concept of the pattern language stands at the top of the pyramid,

while patterns, describing more specific concepts are placed near the bottom. This structure is inspired by Barbara Minto's principles for logical writing (Minto, 1991). In her book, she explains that the human mind naturally organizes information in this pyramid structure whenever we read or listen to any information. By organizing ideas in this way beforehand for the reader, the writing will meet the desires of the human mind for information.

Table 1. Thumbnail of the Generator Patterns

No.	Pattern Name	Solution
0	Generator	Based on your curiosity, conduct adventurous inquiries while involving others into the process and enhancing their creativity.
1	Leader of the Inquiry	Think of the project as a place to discover new values, and lead members into the inquiry process.
2	Putting yourself Inside	Value your curiosity and put in your ideas or style into the process.
3	Releasing the Creativity	Stimulate members' thoughts to release the creativity sleeping within them.
4	New Perspective	Lead the group to collaborate and create new concepts or ideas that could change members' perspectives.
5	Hidden Connections	Find hidden connections between elements that seem unrelated by highlighting similarities and thinking analogically.
6	Changing Viewpoint	Throw a question from outside the frame of members to create a new track of thinking within them.
7	Enlarging Small Differences	Find small differences in meaning of the word between members and clarify the difference.
8	Inquiry Tale	Capture each happening during the inquiry as inevitability, and build the process as if you are weaving a unique story.
9	Supple Plans	Decide few points that you cannot miss in order to successfully complete the inquiry, and let other steps or events go with the flow.
10	Posting Flags	When something interests you, catch it keep it in your mind even if it was a little thing or a small event.
11	Meaningful Coincidences	Give meanings to the coincidence as an inevitable event and use it as a hint for further inquiry.
12	Creating Together	Treasure the fact of being together with the members and aim to create new value out of the inquiry.
13	Open Thoughts	Put your thoughts into words to share it with the members to organize through discussion.
14	Connecting Thoughts	Pass an idea from one member to another in order to force a mix in ideas.
15	Idea Billboard	Write out all ideas that come up so that they can be revisited later.
16	Original Style	Create your own original style of generating, and with it produce an inquiry that only you can do.
17	Professional Skills	Make use of your professional knowledge or sense and think from your original viewpoint.
18	Original Tools	Create original tools or methods that can be used as the framework of inquiry.
19	Character Emphasis	Create unique atmosphere by expressing your original character to the fullest.

20	Equal Participant	Get involved in the inquiry as one participant equal to all the other member, and actively give your own ideas among the other people.
21	Thorough Discussions	Reach the clear conclusion first with the members riding the flow, and then support members who were lost.
22	Sharing Intuitions	If something comes up in your mind, don't be worried to share it with the group.
23	Concern Disclosure	Be yourself and honestly disclose that you don't know or understand to make it into a new topic to discuss on.
24	Creative Disposition	Keep your antennas out for new information, and maintain a creative mind.
25	Overlapping Interests	Find its connection between topics that interests you and make it the point of curiosity to turn the process into a meaningful one.
26	Hunch of Fun	Only choose and take actions that you can feel the hunch that something interesting will be discovered.
27	Daily Inquiry	Place topics that interest you in the center and gather information to deepen and develop your thoughts in everyday life.
28	Trustful Atmosphere	Listen and understand each member deeply to create a trustful atmosphere where everyone can freely share their thoughts and feelings.
29	Core of the Mind	Continue the dialogue to help the member bring out the words to express what they really meant.
30	Faithful Guide	If someone is about to give up, stand by them and think together until they see the faith.
31	Showing Earnest	Become aware that your attitude affects the atmosphere and be the member who believes in achieving goal the strongest.
32	Generating Ideas	Stimulate members' thoughts through asking or responding to them in order to bring out their creativity and freely think about ideas.
33	Showing Interest	Welcome ideas by everyone onto the table by showing genuine interest towards ideas being shared.
34	Nurturing Ideas	Add thoughts from yourself to develop the idea together with the member.
35	Removing the Frame	Spread the frame members think in by finding the untouched premise and highlight that as a new topic for discussion.
36	Heartstrings of Curiosity	Find the topic that the participant feels the most interest, or present the interesting points of the theme that the team is about to explore and raise their motivation.
37	Vigorous Goal	Set an appealing goal that everyone would want to achieve and is worth the challenge.
38	Leveraging Interests	Pick up on topics that the participants are individually interested in, and show how it connects to the current theme.
39	Afterward Plans	Think about how the project can extend after it is finished, and prepare for the next extension

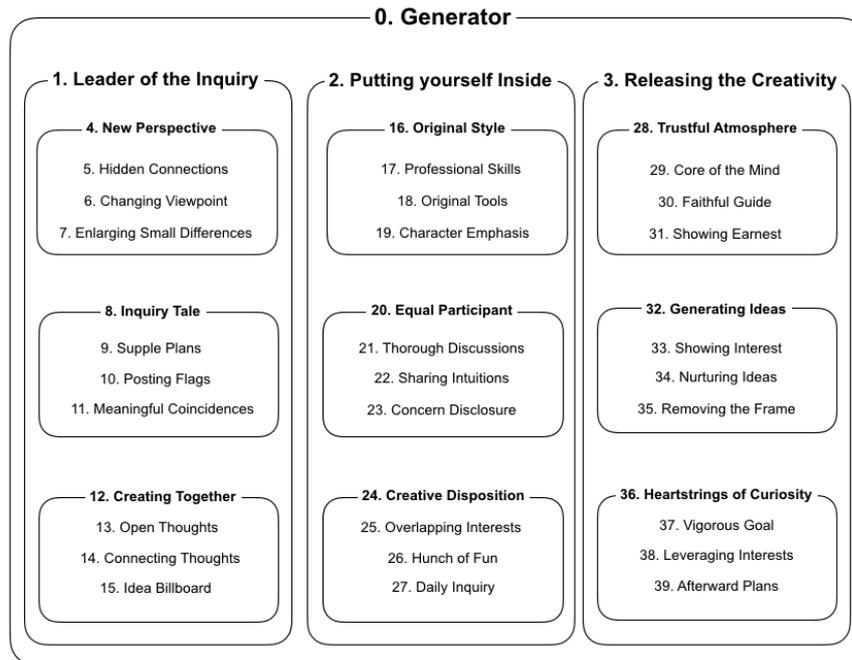


Figure 4. The Whole of Generator Patterns

While these capture the behaviors of Generators to a certain degree, it lacks in details of how Generators should act in various domains. That is why the project team has been experimenting through creating more detailed patterns such as Workshop Generator Patterns and Kitchen Captain Patterns. In this paper, I will go the opposite examining the role of Generator through Behavioral Properties.

4. STYLE OF GENERATOR

Based on Alexander’s theories, this section discusses how style in Generator is created and gets updated. First, we describe how Generators create and enhance wholeness in the inquiry process, which the way they do it becomes a style. Then, we go on to the creation of style in Generator, using the unfolding process stated by Alexander.

4.1 Role of Generator

In order to understand how style is created in Generators, we first have to understand what Generator is actually doing from the view of Alexander’s theory of center and wholeness, as well as the principle of unfolding process and the fundamental differentiating process (Alexander, 2002b).

The principle of unfolding process is a principle that the wholeness of a certain whole is progressively enhanced and intensified. Alexander states that “According to this principle, the transformations which occur in the system take whatever wholeness exists at any given instant and continue it and intensify it while, broadly, maintaining its global structure, so that at the next instant that wholeness is more pronounced; as time goes forward, the wholeness gets progressively intensified, step by step by step (Alexander, 2002b).”

With this principle in the background, Alexander also talks about the existence of fundamental differentiating process. This is the process where fifteen properties are continuously applied to a whole while creating a whole each and every time. The flow of the process is as follows:

- (1) *At any given moment in a process, we have a certain partially evolved state of a structure. This state is described by the wholeness: the system of centers, and their relative nesting and degrees of life.*
- (2) *We pay attention as profoundly as possible to this wholeness, its global, large-scale order, both actual and latent.*
- (3) *We look for the latent centers in the whole. These are not those centers which are robust and exist strongly already; rather, they are centers which are dimly present in a weak form, but which seem to us to contribute to or cause the current absence of life and lacking in feeling in the whole.*
- (4) *We then choose one of these latent centers to work on. It may be a large center, or middle-sized, or small.*

- (5) We use one or more of the fifteen structure-preserving transformations, singly or in combination, to differentiate and strengthen the structure in its wholeness.
- (6) As a result of the differentiation which occurs, new centers are born. The extent of the fifteen properties which accompany creation of new centers will also take place.
- (7) In particular, we shall have increased the strength of certain larger centers, parallel centers and also smaller centers. As a whole, the structure will now, as a result of this differentiation, be stronger and have more coherence and definition as a living structure.
- (8) We test to make sure that this is actually so, and that the presumed increase of life has actually taken place.
- (9) We also test that what we have done is the simplest differentiation possible, to accomplish this goal in respect of the center that is under development.
- (10) When complete, we go back to the beginning of the cycle, and apply the same process again.

(Alexander, 2002b)

This process can also be applied to what Generator does in a collaborative inquiry. Leading the group can also be seen as a series of act making the inquiry process livelier. In this case, the inquiry itself is the whole and the centers are the behaviors occurring in the process. Generator takes the role of investing which one or a combination of properties is effective in that situation, and applies that to centers within the whole. Applying the properties repetitively enhances wholeness of the inquiry process.

4.2 Creation of Style in Generator

Generators have several properties that they can use effectively compared to other properties. There can be multiple reasons for that, such as his/her original characteristic, situations they experienced to be a Generator, or the environment they are in as a Generator now. The balance of those properties can be visualized by thinking of them as centers, and the “style” as a whole.

The creation process of the whole is quite similar to how the Personal Pictures are created. Personal Picture expresses one’s important value, elements, and qualities and is made while being aware of the strength and degree of each element. Mostly made through workshops, each participant writes down the elements on circle papers in various color and size, and arranges the elements in away that best suits its position (Kamada, et al., 2014). Similar to this method, the style in each Generator can be visualized by using circles in different sizes that represents which and how much the Generator is confident in using those properties (Figure 5).

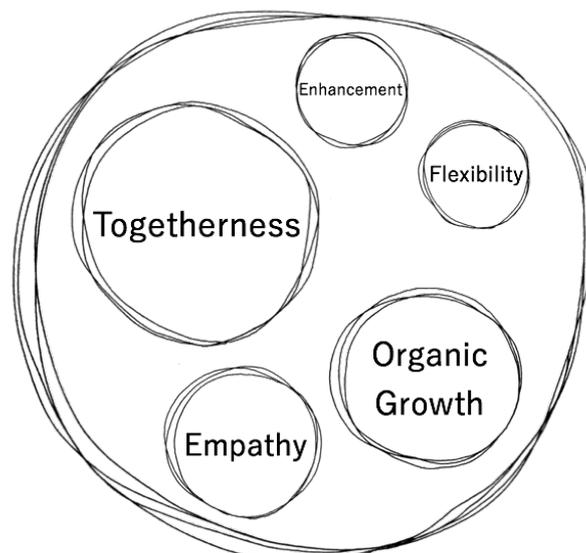


Figure 5. Visualization of Style in Generator

Not all properties are inside the whole, which represents the wholeness of that style, because there should be a degree in effectiveness. For example, the style figure illustrates have more of collaborative mindset rather than the aggressive, moving forward mindset. Since effectiveness of properties differs by original personality and the context they behave as a Generator, everybody

should have their own style with different properties in different sizes. Even if someone starts off by copying an experienced Generator, it won't be a complete copy because of the effect from personality and environment. Instead of having an answer to the style of Generator, this whole gradually grows as the Generator experiences more and more. Following the principle of unfolding process, the style keeps on changing towards a better whole that has life.

5. CONCLUSION

As the result of examination, we came to conclude that Generator's style can be illustrated as a whole made up of several properties and is continuously updated. Through investigating Generator with Behavioral Properties and Alexander's theories, we have found out how Generator enhances wholeness of the inquiry by going through what Christopher Alexander states the fundamental differentiating process. It can be stated that to enhance the life of inquiry, Generators seek for properties that strengthens the centers of the whole, which is the inquiry itself. Style of each Generator differs by properties they can use more effectively than others, and therefore creates a unique whole that contains those properties.

The mission of this paper was to find an answer to why the style of Generator is different among people and why that is how it should be. We believe we have found one of the answer thorough the investigation, and furthermore came to realize that the important thing is not to have a definite style of your own, but is to update the style continuously.

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APPENDIX

1. Thumbnail of 24 Behavioral Properties

No.	Name	Overview
1	BOOTSTRAP	Centers that radiate their own energy recursively strengthens themselves by their own energy, rather than using other centers to strengthen them.
2	SOURCE	A strong center is a springhead of energy and strengthens the surrounding centers, making the whole lively.
3	SPREADING	The center strengthens the surrounding centers, and those centers strengthen its surrounding centers, creating a bigger center.
4	ATTRACTION	A center with attractive power pulls out the power of surrounding centers, ending up strengthening the attractive center itself.
5	INVOLVING	A center, which works as a core, makes the whole lively by involving centers that are necessary for strengthening itself.
6	TOGETHERNESS	When small centers strengthen each other, they create a bigger center that enfolds them, and as they reinforce each other, it makes the whole lively.
7	BUILDING UP	The whole becomes livelier when centers repeatedly create bigger centers containing them as they build up with consistency.
8	ORGANIC GROWTH	A center grows organically and gradually without losing its power, thus keeping the liveliness of the whole.
9	REFLECTING	As a center reflects on the trajectory of its change, each trajectory becomes a new center and strengthens the original center and itself.
10	ACCOMPANY	The center by itself may be powerless, but it becomes affected by the power of the second center, strengthening each other as a result.
11	ENHANCEMENT	The chain reaction of mutual enhancement between centers will result in intensifying the whole to be livelier.
12	EMPATHY	A center is strengthened when another center shows empathy towards it, and when that center shows empathy back; resonance is created.
13	SELECTION	Selecting centers to strengthen makes a center possible to concentrate on specific centers, creating a strengthening relationship between them.
14	SIMPLIFICATION	The center can effectively strengthen the surrounding centers by cutting off the relationship with incongruent centers.
15	CONSISTENCY	The whole becomes lively when centers with same direction range.
16	LOOSENESS	The whole can be livelier when the relationship of centers is loose.
17	FLEXIBILITY	A center with flexibility adapts to differences between centers to be in a strengthening relationship, creating numbers of relationship to make the whole lively.
18	ABUNDANCE	The core center of a whole is strengthened when there is a lot of centers, strengthening all of the centers back.
19	ENDEAVOR	A shining center that strengthens a center, thus creating a bigger center as the shining center is strengthened back.
20	CONNECTING	New connection between centers strengthens each other, creating a bigger center with greater power than the individual centers.
21	POSITIONING	Clearly positioned in a whole, centers can release its energy at its best to the surrounding centers, making the whole lively.
22	DIFFERENTIATING	A center that is separated into several centers gain individual power, and be strengthened as each center strengthens each other.

23	OVERLAPPING	The whole becomes lively as the overlapped part of centers becomes a new center and forms a strengthening relationship with the original centers.
24	CONTINUOUS RELATION	Centers having a continuous relationship get strengthened as the relationship gets longer, and their strength becomes greater as a whole.