

Fundamental Behavioral Properties – Part 3: Extending the Theory of Centers for Pattern Language 3.0

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This paper discusses the 24 behavioral properties, which explains how centers in human activity strengthen each other to enhance the liveliness. Since this paper is the last paper of series, it focuses on and describes the remaining 9 properties: 13. SELECTION, 14. SIMPLIFICATION, 15. CONSISTENCY, 16. LOOSENESS, 17. FLEXIBILITY, 18. ABUNDANCE, 20. CONNECTING, 21. POSITIONING, and 23. OVERLAPPING. In addition, we have introduced a way to use behavioral properties in workshops to identify and strengthen the liveliness of a certain human action.

Categories and Subject Descriptors:

General Terms:

Additional Key Words and Phrases: Behavioral Properties, Pattern Language, Wholeness and Center, Christopher Alexander

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1. INTRODUCTION

The pattern community has grown and developed a lot over the decades. In 2013, the Pattern Languages of Programs conference, also known as PLoP, marked its 20th anniversary. The European Conference on Pattern Languages of Programs, well known as EuroPloP, also marked its 20th anniversary in 2015. While these conferences are marking their anniversaries, many books have made history about patterns and pattern languages. *Design Patterns*, more known as the “Gang of Four patterns” reached its 20th anniversary in 2014. Moreover, *A Pattern Language* by Christopher Alexander will be marking its 40th anniversary in 2017.

In recent years, studies and discussions on Alexander’s research about the theory of Wholeness and Center including geometric properties has been done in various disciplines (Gabriel, 2008; PURPLSOC, 2015). There have also been many workshops held about the topic (Yoder and Iba, 2015; Iba and Akado, 2015; Iba et al., 2015). Furthermore, a conference that focuses on his research has started in 2015, which created a book¹ that was published on researches related to his theories and concepts.

We have been conducting researches on applying Alexander’s theory of Wholeness and Center to design lively human actions and one of them is the 24 behavioral properties. We submitted a paper last year (Iba et al., 2015a) that describe human behavioral properties and how they extend Alexander’s geometrical properties by focusing on human interactions. It was followed by a paper series that introduces behavioral properties in detail (Iba et al., 2015b; Harashima et al., 2015). This paper is the last of the series, and describes the remaining 9 properties. In addition, we will introduce how the 24 behavioral properties can be used in the workshop format.

2. RESEARCHES ON PROPERTIES

Alexander constructed his theory of Wholeness and Center in order to create beautiful architectures that have life (Alexander, 2002). Wholeness is a concept in which parts and wholes work in holistic way. He named the single parts within the whole “centers” to express how these create the wholeness. Alexander states that “The wholeness of any portion of the world is this system of larger and smaller centers, in their connection and overlap (Alexander, 2002).” In the structure of lively wholeness, he noted that centers help each other and enhance the liveliness. He then found and presented 15 geometrical properties on how centers strengthen each other.

¹ <http://www.purplsoc.org/the-book/>

Recently, there has been a lot of research based on his theory and the 15 geometrical properties. For example, there have been researches that examine ways to visualize a new interpretation of his properties with the aim of understanding the 15 geometrical properties better (Leitner, 2015; Iba and Sakai, 2015).

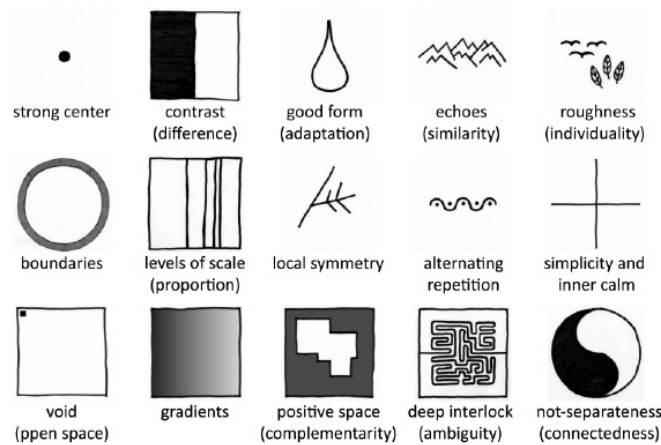


Fig. 1. Diagrams for Alexander's Fifteen Properties (Leitner, 2015)

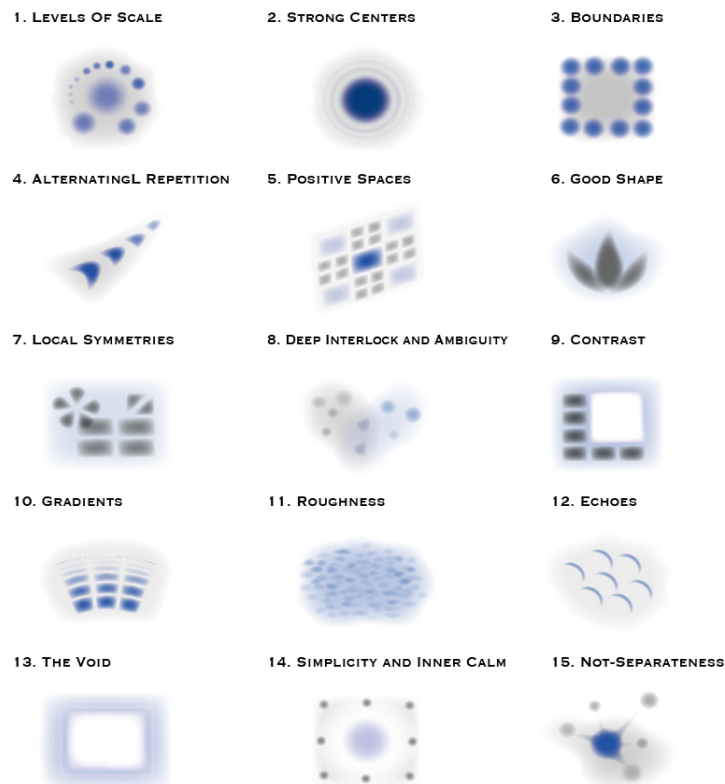


Fig. 2. Visualization of Alexander's 15 Geometrical Properties (Iba and Sakai, 2015)

Since Alexander's geometrical properties focus on geometrical characteristics and physical entities, it was often difficult to use in disciplines other than architecture. Therefore, some research has been done that translated his 15 properties into non-geometrical disciplines such as organizational structure, software design, and in the domain of education (Bauer, 2015; Kohls and Koppe, 2015). We have also been

expanding his theory towards human activity while creating pattern languages on human actions. In this context, we found properties that comprehensively and abstractly capture the essence of human actions. That is what we call the behavioral properties.

3. THE BEHAVIORAL PROPERTIES

We previously outlined and presented 24 behavioral properties (Iba et al., 2015a), which capture how centers in human action strengthen each other to create wholeness (Figure 3). We have previously described 15 of these properties in detail (Iba et al., 2015b; Harashima et al., 2015) and discussed in detail the process we took to find these 24 behavioral properties (Iba et al., 2015a).

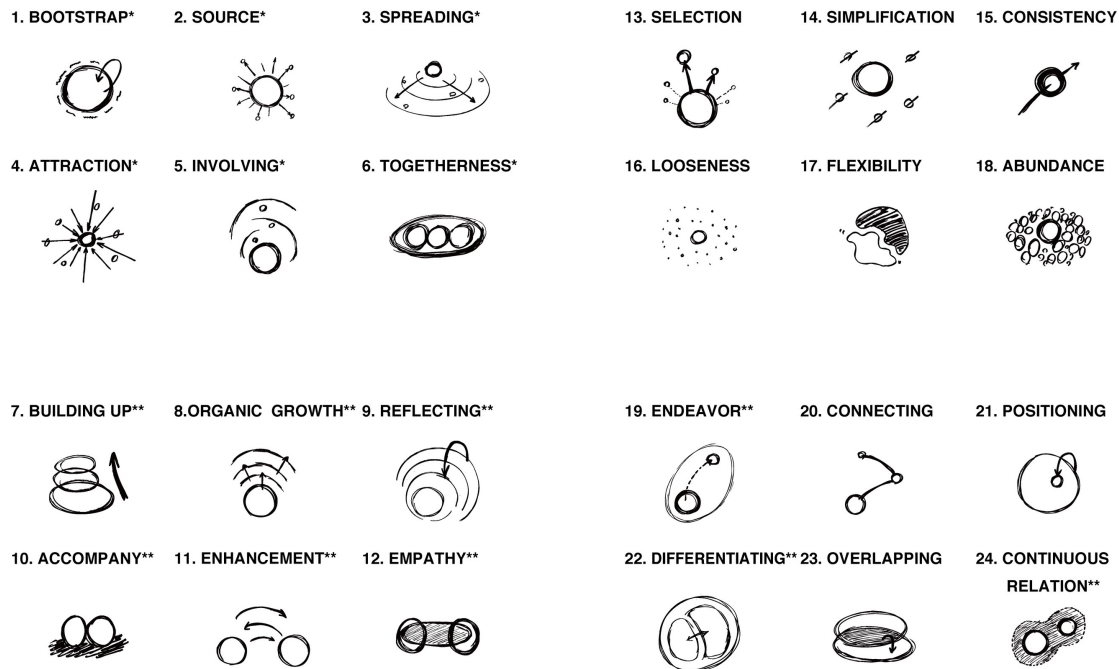


Fig. 3. The overall picture of 24 behavioral properties (*=Part 1; **=Part 2)

In this section, we describe in detail the remaining 9 properties: 13. SELECTION, 14. SIMPLIFICATION, 15. CONSISTENCY, 16. LOOSENESS, 17. FLEXIBILITY, 18. ABUNDANCE, 20. CONNECTING, 21. POSITIONING, and 23. OVERLAPPING. We give some example with activities and patterns that contains the property, along with the explanation of how centers strengthen each other in each property, similarly to how Alexander showed examples of patterns from *A Pattern Language* (Alexander, 1977) representing his geometrical properties. The Learning Patterns (Iba and Iba Laboratory, 2014a) will be given in shorthand as LP, the Presentation Patterns (Iba and Iba Laboratory, 2014b) as PP, the Collaboration Patterns (Iba and Iba Laboratory, 2014c) as CP, and Words for Journey (Iba et al., 2015) as WJ.

3.1 Selection

Centers are strengthened when they select strong centers they want to be in a relationship with (Figure 4). The selection of centers makes it possible to concentrate on strengthening the selected centers. The selected centers can be more intensified by being intensively strengthened. The intensified center can then re-strengthen the original center, creating a strengthening relationship.

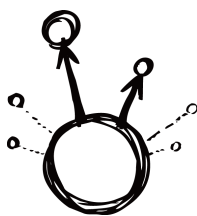


Fig. 4. SELECTION

For example, when working in a company, it is difficult to stay motivated when one is just waiting for others to offer them a job. One could work more passionately and enthusiastically if they think about their desired job, and take action to make it one's job. Working on something that is chosen by him/herself increases the passion towards the job and the quality of the resulted work can increase as well.

"Part to Contribute" (CP No. 8) suggests to think about how their specific knowledge and skills can be used for the project. Simply participating in a project does not give someone an opportunity to contribute. By selecting how to make the use of one's skill or knowledge and take action, one can become motivated. If the contribution gives a positive effect to the project, the performance of the project itself will increase as well.

"Passion for Exploration" (LP No.22) discusses that it is good to be aware that they are the ones who will work on the research, and pick a theme that they are passionate about. Working on a passionate topic makes the process livelier with the feeling of excitement. Continuing the research with passion may contribute to the development of the field.

3.2 Simplification

A center can be strengthened when it simplifies its relationships with other centers (Figure 5). Cutting off its relationship with incongruent centers prevents the dispersal of its power. In this way, the center can strengthen the surrounding centers effectively, and actualize a living whole.

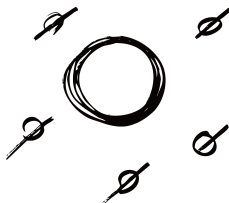


Fig. 5. SIMPLIFICATION

For example, working at home does not increase one's time to be together with his/her family. What one has to do is to forget about the work at home and fully enjoy the time spend together with the family. By doing this, you can make the best use of the time spent with your family, which can also enhance the motivation towards your work as well.

"Firm Determination" (LP No.33) talks about the importance of firmly determining what one is going to do, and establishing the environment needed to concentrate on it. After deciding the project to concentrate on, organizing and minimizing the time spent for other activities makes it easier to reach the desired goal.

"Brave Changes" (LP No.36) suggests to discard previous themes and approaches to achieve a wider view for the future if one realizes that the current approach is not working well. Being brave to let go of things that are currently low in value makes it possible get out of the stagnant situation. With the time and mental space opened, one can think about new ideas or find new things to work on.

3.3 Consistency

The whole becomes lively when centers with the same direction align (Figure 6). As these centers align, the centers strengthen each other to create an inclusive center. The inclusive center then strengthens inner centers recursively, making the whole more living.

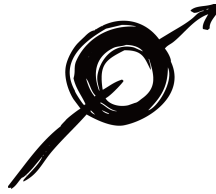


Fig. 6. CONSISTENCY

For example, it is important to constantly and continuously practice if one wants to become a good soccer player. The practice does not end with just kicking balls, but doing physical training, practice in teams, and also taking rest in between. Understanding that everything is done for becoming a good player strengthens each activities' meaning and gathers them all together as one powerful whole.

"Be Extreme!" (LP No. 39) suggests that if one have established a reputation but feels that it is not sufficient, think strategically on where one can or want to be distinguished from others, and concentrate on that certain activity. Small difference compared to others does not give enough impact to the society. Consistently working on a certain activity result in being extreme or creating a extreme result.

"Create a Legend" (CP No. 3) talks about the importance of aiming toward a project that would become a part of history, along with the mindset of changing the world. A result with strong impact is only created by a project with thorough activity aiming to change the world. Each step of activity aligns and creates a whole, which then becomes a legend handed down to number of people.

3.4 Looseness

The whole can be livelier when the relationship between centers is loose (Figure 7). The centers can be in a strengthening relationship with various centers by making relationships free rather than fixed. The loose coupling between centers makes the whole lively.



Fig. 7. LOOSENESS

For example, ideas of a new song do not emerge just by sitting and facing the piano along with staff notation. Composers gather inspirations by going on a walk or through conversations with their family or friends. An activity that doesn't seem to be connected to composing are loosely connected and helps out the work at times.

"Loose Connections" (CP No. 11) say that arranging a system where members can informally communicate outside project hours makes it possible to grasp how each member is doing outside the project hours. Since the project hours are limited, constructing a reliable relationship within those hours are quite difficult. Therefore, getting connected on SNS or go out to eat something together creates opportunities to communicate outside the project context. Through those communications, the team is able to deepen the relationship and create a collaborative mindset.

"Serendipitous Encounters" (LP No. 29) hints that one small action can lead to a big and new discovery or an encounter with interesting people. Looking at a book that catches eyes at a bookstore might give one a new discovery, or participating in an interesting event might become an opportunity to meet with people sharing the same interest.

3.5 Flexibility

There are centers with flexibility in a living whole (Figure 8). Those centers meet another center, they get adapted to a new environment easily and they can be in a stronger relationship. The existence of such centers makes it possible to create new relationship, making the whole lively.



Fig. 8. FLEXIBILITY

For example, if a person from Japan started living in US, sticking on to the Japanese lifestyle would be difficult due to the different environment. By being flexible and coping with US style of living, there might be a discovery about Japanese lifestyle that was not recognized before, or find something new because he/she knows both lifestyle of Japan and US.

“Improvised Roles” (CP No. 22) suggests considering the progress of the project, situation of other members, and prioritizing what must be done even if it is not the original role. Unpredicted incidents or tasks often occur during project activities. In order to cope with those events, it is important not to hold on to the original role and think about what one can do in that situation.

“Personally for You” (PP No. 27) tells the reader that it is important to intentionally make eye contacts with the audience in an effort to give the presentation to each and every one of them. With the effort of changing the tempo or style of presentation based on the audience, they strongly feel that the presentation is given to them and tries to listen harder.

3.6 Abundance

The core center of a whole can get strengthened when there are an abundance of centers (Figure 9). The existence of an abundance of centers strengthens the core center and the strengthened core center strengthens those centers back.

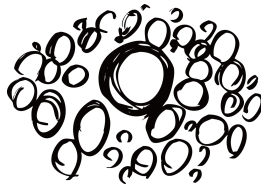


Fig. 9. ABUNDANCE

For example, it is important to have as many ideas as possible when brainstorming. By welcoming any idea without any criticism or judging, the number of collected ideas increases. Those ideas can become a hint for new ideas, or another unique idea may be created by combining them.

“Quantity brings Quality” (LP No.12) suggests to collect a lot of information on what you wish to learn about, and understand it from various angles. For the themes you want to deeply understand and work on, it is important to collect wide variety of information. By collecting information on related topics and positive as well as negative information, you can understand the theme from different view points. Through understanding it deeply, you also will be able to create your own point of view.

“Language Shower” (LP No.14) talks about the importance of establishing an environment where you can always listen to and read a foreign language. When learning language, whether it is speaking or listening, it is a must to become comfortable with the language. Through listening to the radio while driving or reading news articles on Internet in that language, you can naturally increase the time spent with the language. The more you listen, speak, or read, the more sense you gain of using that certain language.

3.7 Connecting

Centers get strengthen when it is connected with other centers (Figure 10). Centers create a encompassing center when a new connection between another center strengthen each other. The bigger center can exert a power that could not be created by the included individual centers.

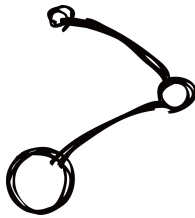


Fig. 10. CONNECTING

For example, friends or family cheering for you when running a marathon becomes a big power. Knowing that you are not running alone gives you hope and energy. Seeing you running hard, people who came to support you feels that they have the power to cheer you up, and will support you until the end.

“Hidden Connections” (LP No.20) encourages the reader to explore hidden connections between things for inspiration. Taking research for example, it is important to not just learn within the existing framework. When reading a book, looking deeper into the reference section might give you a new subject to search for. Through looking for hidden connections, you can earn a different view point of the certain theme.

“Community of Learning” (LP No.28) suggests to build a community of learning with people who share similar interests. Working on a big project alone makes it hard to reach the goal and might make you want to quit. By gathering people with similar interest, you can collaborate with them and learn from each other. Even if you have hard time reading a thick theoretical book, working on it with the team helps you deepen the understanding.

3.8 Positioning

Positioning itself in the whole strengthens a center (Figure 11). Clearly positioned in a whole, the center can release its energy at its best to the surrounding centers. As the surrounding centers get strengthened, the whole will become livelier.

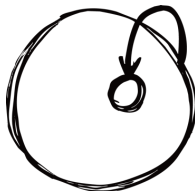


Fig. 11. POSITIONING

For example, when thinking about which classes to take this semester, it is important to see that semester as a part of 4 years of undergraduate study. Considering about what to gain and what to become over the 4 years of study, that certain semester is worth one eighth of realizing the goal. If each semester is well spent, all experiences will connect and create a strong story in the end.

“A New Journey” (WJ No.1) talks about the importance of accepting the fact that you will have to make some changes in your life at the start of your life with dementia, and think of it as the start of a new journey. Even though there will be major changes in your lifestyle, it is still a ongoing life that you have been living since you were born. Thinking of it as a start of a journey can give you courage to try out new things or challenge things on your wish list.

“Presentership” (PP No.25) reminds the reader to act as if you are part of the presentation. It is true that you are the one speaking the content, but the audience also looks at the slides as well as your gestures and face expressions. Understanding that you are one part of the presentation reflects on how you behave on the stage, such as giving more eye contacts or adding gestures to pull the audience in.

3.9 Overlapping

There are overlapping centers in a living whole (Figure 12). When centers overlap, the overlapped part becomes a new center. The overlapped centers strengthen the new center as the new center strengthens them. The strengthening relationship makes the whole more living.

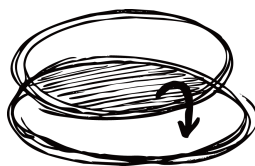


Fig. 12. OVERLAPPING

For example, when you want to play basketball in a team, belonging to a team that serves your purpose makes good influence on you as well as your team. If your purpose is to win a tournament as a team, you should belong to a team whose purpose is to win tournaments. To win a tournament, you need to practice basketball very hard to become one of the starting members at tournament games. Your hardworking attitude encourages other team members and leads them to face team's goal together.

"Mix-Up Event" (WJ No.37) suggests to organize an event that people can enjoy regardless of if they have dementia or not. Being too careful about participants with dementia may reduce how attractive the event is for everyone. By holding events that everyone including guests with dementia can enjoy, it creates opportunities for participants to have fun together and understand correctly about the characteristics of dementia.

"Return of Growth" (CP No.9) advises to identify the skills and experiences you want to gain through the project, and clarify what being a part of this project means for you. Identifying clearly helps you indicate the growth and maintain the motivation. In addition, your growth through the project can reflect on the result of the project, as well as increasing the opportunity of contribution.

4. DESIGNING WITH PROPERTIES

4.1 Enhancing Wholeness with Properties

We have found that in addition to helping write patterns, properties can also be used for designing (Iba et al., 2015a). There have been some patterns written on lively human behavior (Manns and Rising, 2005 ; Pedagogical Patterns Editorial Board, 2012). However, we have noted that there are many other lively human behaviors that have not been described as patterns. Even without patterns, behavioral properties makes it possible to recognize wholeness by identifying centers of its behavior and how those centers intensify each other.

Properties are useful in a way that they can identify the current liveliness of an activity by defining centers in the whole, and to enhance its liveliness by strengthening the effect of certain properties. Therefore, it is possible to strengthen the wholeness of human activity within a domain without having to create a pattern language for that domain.

4.2 Workshops for designing a better conference

We have been experimenting on the usage of properties by conducting workshops at various conferences. The purpose of these workshops is to come up with ideas that could intensify the liveliness of the conference. In order to make it easier for participants to use the properties to help design a better conference, we prepared cards with an illustration and a short description for each property (Figure 13).

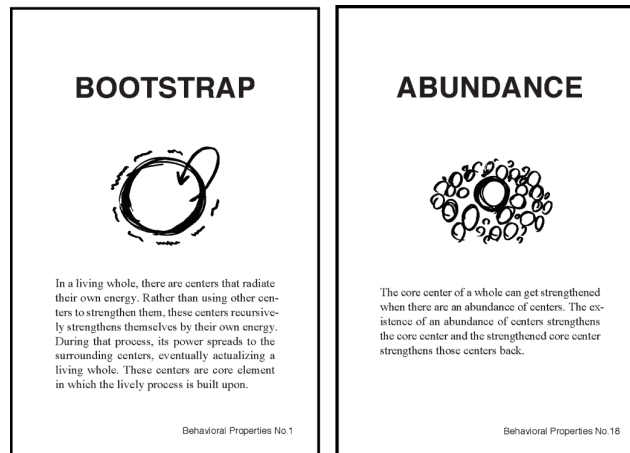


Fig. 13. Property cards

Overall process of the workshop is as follows:

- (1) Participants get into small groups of around five people. This helps the conversation to not get confused and secure time for all of them to share ideas among themselves.
- (2) Using the cards, participants identify what makes the conference lively as it is now. Participants start by looking for the centers that are within the whole, which is the conference in this case, and see how the centers strengthen each other by referring to property cards.
- (3) After understanding the current wholeness, participants will then think about how its wholeness can be enhanced. Mainly using the properties that haven't been used, they convert the properties into detailed activities or events. Participants are allowed to use one or more properties per idea.
- (4) All the participants get together to share ideas they came up with. If there is any idea that everyone agrees on, the discussion on how to put the idea into action may be followed.

We held three workshops at COINS2015, EuroPLoP2015 and PLoP2015. This section will focus on our findings from the third workshop presented at PLoP2015 (Table 1).

Table 1. Designing Workshop with Properties

Date	Conference	Number of Participants	Time	Used Properties
Mar. 13, 2015	Collaborative Innovation Networks 2015	17	120min.	Geometrical and Behavioral
July 9, 2015	European Conference on Pattern Languages of Programs 2015	22	120min.	Behavioral
Oct. 24, 2015	Pattern Languages of Programs 2015	11	90min.	Geometrical and Behavioral

In PLoP2015 we used Alexander's 15 geometrical properties along with our 24 behavioral properties, discussing about how the conference can become livelier (Figure 14). One of the ideas we created is called "Traveling Moderator." A "Traveling Moderator" rotates around the writer's workshop and moderates at different writer's workshop each time. This can help share the experience from an advanced moderator, thus helping with the spread of knowledge about other ideas on how to moderate a writers' workshop. The idea was inspired from both the 15 geometrical properties and 24 behavioral properties. From the 24 behavioral properties, properties such as flexibility and overlapping were used.



Fig. 14. Focus Group at PLoP2015

5. CONCLUSION

As the last paper of our series, we have described the remaining 9 properties with examples from real life activities and patterns from pattern language 3.0 in this paper. Along with the description of properties, we introduced how properties can be used to identify and enhance the liveliness of human activities. Through the workshops we have done in conferences, we found out that properties can be used when designing human actions that could create wholeness.

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REFERENCES

- Alexander, C. (2002), *The Nature of Order: An Essay of the Art of Building and the Nature of the Universe*, Book 1: *The Phenomenon of Life*, Routledge.
- Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I. and Angel, S. (1977), *A Pattern Language: Towns, Buildings, Construction*, Oxford University Press.
- Bauer, R. (2015) "Planning Living Lessons: Christopher Alexander's Fifteen Structural Properties of Living Centers in an Educational Context," Peter Baumgartner, Richard Sickinger (eds), *PURPLSOC: The Workshop 2014*, pp.366-381, June, 2015.
- Harashima, Y., Kaneko, T., Isaku, T., Iba, T. (2015), "Fundamental Behavioral Properties, Part 2: Extending The Theory of Centers for Patterns Language 3.0," 22nd Conference of Pattern Languages of Programs (PLoP2015).
- Iba, T., Akado, Y. (2015), "Thinking Patterns for Human Actions Patterns for Human Actions with the Fundamental Behavioral Properties with the Fundamental Behavioral Properties"(Focus group), 20th European Conference on Pattern Languages of Programs (EuroPLoP 2015).
- Iba, T. Akado, Y., Kimura, N., and Honda, T. (2015a), "Twenty-Four Fundamental Behavioral Properties," World Conference on Pursuit of Pattern Languages for Societal Change 2015.
- Iba, T. and Iba Laboratory (2014a) *Learning Patterns: A Pattern Language for Creative Learning*, CreativeShift.
- Iba, T. and Iba Laboratory (2014b) *Presentation Patterns: A Pattern Language for Creative Presentations*, CreativeShift.
- Iba, T. and Iba Laboratory (2014c) *Collaboration Patterns: A Pattern Language for Creative Collaborations*, CreativeShift.
- Iba, T. and Sakai, S. (2014) "Understanding Christopher Alexander's Fifteen Properties via Visualization and Analysis," Pursuit of Pattern Languages for Societal Change Preparatory Workshop 2014.
- Iba, T. and Sakai, S. (2014) "Understanding Christopher Alexander's Fifteen Properties via Visualization and Analysis," Pursuit of Pattern Languages for Societal Change Preparatory Workshop 2014.
- Iba, T., Kamada, A., Akado, Y., Honda, T., Sasabe, A., and Kogure, S. (2015b), "Fundamental Behavioral Properties, Part I: Extending

- The Theory of Centers for Patterns Language 3.0," 20th European Conference on Pattern Languages of Programs (EuroPloP2015).
- Iba, T., Okada, M., Iba Laboratory, Dementia Friendly Japan Initiative (2015), Words for a Journey: The Art of Being with Dementia, Lulu.com.
- Iba, T., Yoder, J., Wirfs-Brock, R. (2015) "Generative Processes of Community with the Fundamental Properties" (Focus group), 22nd Conference of Pattern Languages of Programs (PloP 2015).
- Khols, C., and Köppe. (2015) "Evaluating the Applicability of Alexander's Fundamental Properties to Non-Architecture Domains," Peter Baumgartner, Richard Sickinger (eds), PURPLSOC: The Workshop 2014, pp.366-381, June, 2015
- Leitner, H. (2014) Pattern Theory: Introduction and Perspectives on the Tracks of Christopher Alexander. Graz: Helmut Leitner. printed by CreateSpace, Amazon.
- Manns, M. L. and Rising, L. (2005), Fearless Change: Patterns for Introducing New Ideas, Addison-Wesley.
- Pedagogical Patterns Editorial Board. (2012), Pedagogical Patterns: Advice For Educators, Createspace.
- Yoder, J., Iba, T. (2015) "Generative processes for assisting with quality collaborative groups" (Workshop), 6th International Conference of Collaborative Innovation Networks 2015.

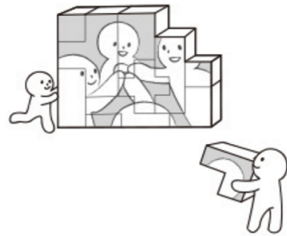
APPENDIX

Appendix 1. Patterns used in examples of patterns with properties

CP No.8

Part to Contribute

What would the team lose without you?



The project has begun, and the team is about to start on specific tasks.

▼ In this context

You can't find any opportunity to fully commit yourself to the project, and your motivation to commit to the project will diminish since you are in the project team just to be a part of that team.

▼ Therefore

Think for yourself how your specific knowledge and skills can be used for the project.

LP No.22

Passion for Exploration

It is difficult to carry out hard explorations without passion.



After acquiring knowledge and improving skills, you finally need to choose the subject you will now explore.

▼ In this context

It is difficult to choose a subject to explore.

▼ Therefore

Choose a topic that you can be passionate about – something that you can "love" or are "passionate" about.

LP No.39

Be Extreme!

The distinguished were often (regarded as) extreme.



Your dedication to activities has established your reputation. You, however, feel it is not sufficient.

▼ In this context

Despite your best efforts, you and your results hardly see the light of day.

▼ Therefore

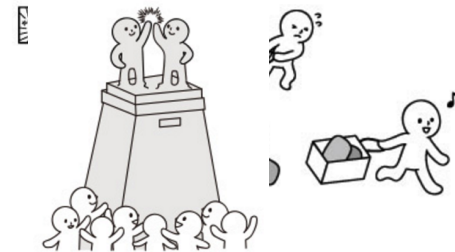
Think strategically on where you can/want to be distinguished from others.

LP No.33
CP No.3

LP No.36

Firm Determination Changes Create a Legend

Shape up your determination that you have is Restricting determination will restrict possibilities. Aim toward a project that will become a part of history, with the mindset of changing the world.



You are facing a challenge. You've just realized there is no clear purpose to your activity or that The team is working on the approach is inappropriate.

▼ In this context

▼ In this context

It is too easy to give up on challenging activities.

The project will be absorbed by all other events that are going on and will not remain in people's mind.

▼ Therefore

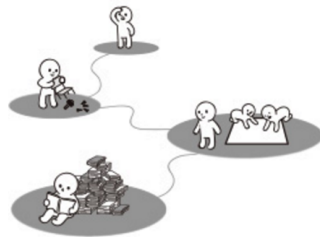
▼ Therefore

Firmly determine what you are going to do, and establish the environment needed to concentrate on it. Discard previous themes and approaches to achieve a wider project that will become a part of history, with the mindset of changing the world.

CP No.11

Loose Connections

Knowing how team members are doing,
even when the team is apart.



Members of the project meet only during project hours.

▼ In this context

Periodic gatherings are not sufficient to form close bonds with members, and the team is spending precious time to warm up at each meeting before they can start working.

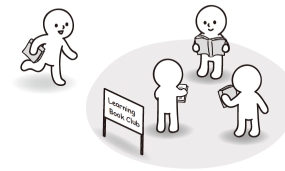
▼ Therefore

Arrange a system where members can informally communicate outside project hours and grasp how each member is doing when project meetings start.

LP No.29

Serendipitous Encounters

You can find someone sharing your interest
where you are interested in.



You want peers/colleagues to share and discuss topics related to your interest.

▼ In this context

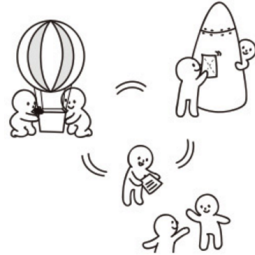
There are few opportunities to meet people with similar interests as you.

▼ Therefore

Find people sharing your interests by getting involved in the field you are interested in.

Improvised Roles

Look at the situation, and do the right thing.



Unexpected problems are occurring in the project.

▼ In this context

No one takes care of the problem and it is left unsolved.

▼ Therefore

Consider the progress of the project, look at the situation of other members, and do prioritize must be done.

Personally for you

For each and every one.



You are minutes away from the stage and your *Image of Success (3)* is about to come true.

▼ In this context

Your attitude towards your audience becomes careless in the rush to get your idea across.

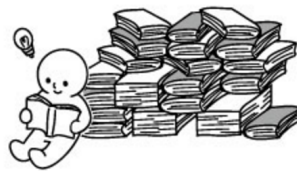
▼ Therefore

Intentionally make eye contact with your audience in an effort to give the presentation to each and every one of them.

LP No.12

Quantity brings Quality

Viewing a subject from different angles is necessary for a deeper understanding.



You are realizing that you have only a shallow understanding of what you are interested in.

▼ In this context

It is difficult to deepen your understanding.

▼ Therefore

Collect a lot of information on what you wish to learn about, and understand it from various angles.

LP No.14

Language Shower

Submerge yourself in an environment where you are exposed to the language you want to master.



You want a good command of a foreign language.

▼ In this context

Mastering languages is difficult.

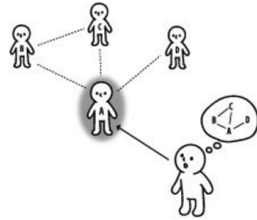
▼ Therefore

Establish an environment where you can always listen to and read a foreign language.

LP No.20

Hidden Connections

An unexpected connection is exciting.



You are studying something from a typical viewpoint.

▼ In this context

Unexpected discoveries hardly manifest from conventional classifications.

▼ Therefore

Explore hidden connections between things for inspiration.

LP No.28

Community of Learning

Two heads or more are likely better than one.



You've realized that what you are starting to work on is a challenging problem or activity.

▼ In this context

What you want to study is too big and too difficult to explore alone.

▼ Therefore

Build a community of learning with people who share similar interests.

A New Journey

It is a new journey of living well with dementia.



You, a family member, or someone close to you has been diagnosed with dementia.

▼ In this context

At first, you may have trouble accepting the fact, from the fear that you may not be able to pursue the life plans that you previously had.

▼ Therefore

Accept the fact that you will have to make some changes in your life, and think of it as the start of a new journey.

Presentership

You are part of your presentation.



You are minutes away from the stage and your *Image of Success (3)* is about to come true.

▼ In this context

You become too busy trying to speak and forget that your audience is watching you.

▼ Therefore

Act as if you are part of the presentation.

Mix-Up Event

Dementia-or-not, come enjoy with us!



You are planning an event for people with dementia and their family members.

▼ In this context

It is hard for participants to truly have fun at an event designed specifically for the people with dementia.

▼ Therefore

Organize the event so that people can enjoy regardless of if they have dementia or not.

Return of Growth

What do you want to gain from the team?



The project has begun, and the team is about to start on specific tasks.

▼ In this context

Your motivation to contribute to the project will not last in the long run.

▼ Therefore

Identify the skills and experiences you want to gain through the project, and clarify what being a part of this project means for you.

Appendix 2. Thumbnails of 24 Behavioral Properties

Behavioral properties outline how centers strengthen each other in a whole, especially in the whole of human activities. Below is the short description of each property:

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.