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PURSUIT OF PATTERN LANGUAGES FOR SOCIETAL CHANGE

**A comprehensive
perspective of
current pattern
research and
practice**

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The objective of the PURPLSOC 2017 world conference was to stimulate the attention for pattern related work, both in the scientific community and the wider public, by showing its broad applicability and richness and bringing application/best practice examples from outside the scientific community into research.

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Active Learning Patterns for Teachers

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This paper presents 'Active Learning Patterns for teachers', a pattern language which describes good practices for teachers to support students in becoming active learners. This pattern language consists of 45 patterns, which are classified into three different categories: (A) Identify the seeds of curiosity, help them grow, (B) Lift them up to the next level and (C) Enhance each other and keep changing. It was created based on the interviews conducted with several teachers in Japan who have their own teaching styles, devices and tips to enable active learning in students. Recently, we have been holding workshops for teachers in Japan to promote the introduction and application of these patterns in schools. In this paper, we describe the process of creating this pattern language and present the 45 patterns created.

Education; Pedagogy; Pattern Language; Pedagogical Patterns; Educational Patterns

1. Introduction

Our society has been dramatically changing because of informatization and globalization. We are, therefore, asked to have enough creativity and ability to solve various problems so as to enable the coexistence of different values and restructure the society. In this fast-changing and increasingly complex society, what should children know and which abilities do they need to develop for their future? Although there are many important things to learn, it would be most essential for them to have the ability to figure out what is necessary in any situation and develop their abilities to achieve a particular goal; in other words, the need to develop the ability to keep learning by themselves.

In Japan, the Curriculum guidelines were recently revised by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to develop active and interactive ways of learning in school. Because of this educational innovation, the idea of active learning is common nowadays, and many schools have been trying to practice this. According to the 'survey on the influence of the change in educational systems and university entrance qualification 2017', around 40% of high schools in Japan have already started trying to improve their styles of education, to develop students' active learning skills and abilities to think, judge and express their own ideas. Over 70% of schools answered that they wanted to improve their classes from the perspective of active learning.

However, many schools are still struggling with the introduction of active learning into the actual class activities. Many teachers expressed concerns, such as 'It would be difficult for students to learn something essential from the interactive activities and discussions'; 'We don't have enough time for extra activities in class'; 'Even though we know the great examples of active learning, this style would not suit our students'.

Based on this background that we created, 'Active Learning Patterns for Teachers', by compiling many good practices of teachers for the active learning of students. This pattern of language comprises 45 patterns for teachers to support their students to be active learners and continue to develop themselves.

It is especially useful for the following types of teachers (1) those who are not sure as to how to apply the idea of active learning in a class (2) those who have difficulty in describing how they have been approaching active learning and (3) those who want to systematically introduce this concept to the entire school. Using these patterns, it will be easier for teachers to self-reflect and share their experiences with other colleagues. These 'vocabularies' were created based on the actual experiences of some teachers who have been trying to design their classes in terms of active learning.

In this paper, we will describe the process of creating active learning patterns for teachers, present the 45 patterns created and three different ways of expressing this pattern language and introduce some examples of its application.

2. Creation Process

Active Learning Patterns for Teachers was created using our standard process of creating a pattern language (Figure 1). It contains three different phases (Iba and Isaku, 2016); Pattern Mining, Pattern Writing and Pattern Symbolizing, as is summarized below.



Figure 1: The Process of Creating a Pattern Language

2.1. Pattern Mining

In the phase of Pattern Mining, we first conducted 'Mining Dialogue' to extract practical knowledge from some teachers through a dialogue, 'Clustering' for finding out some common patterns from the collected data and 'Seed Making' for organizing them by writing down the ideas in a specific format as 'Seed of Pattern'.

In Mining Dialogue, we extracted good practices (rules of thumbs and tips) from 12 teachers who daily design their classes in the active learning style. They all had different teaching backgrounds with different subjects and different types of schools; both public and private elementary schools, junior high school, high school and university in different geographical

areas. Every Mining session was conducted with 2 to 4 teachers within four hours (Figure 2). In the end, 430 elements which, according to the teachers, are important for active learning, were collected and written down onto sticky notes.



Figure 2: Mining Dialogue in the phase of Pattern Mining

In Clustering, we classified the collected data into groups, based on the KJ method (Kawakita, 1967). Twelve people collaborated together to figure out the essence of the contents written on the individual sticky notes, and arrange their positions according to their meanings. In this way, after 8 hours, groups of notes with similar meanings gradually appeared, and 430 fragments of data were classified into 131 groups. Because we had too many cards, it was better to work on the clustering on the floor although it is usually conducted on a big table (Figure 3). After 8 more hours of organizing the sticky notes, 45 groups remained in the end (Figure 4).





Figure 3: Clustering (First Half) in the phase of Pattern Mining



Figure 4: Clustering (Second Half) in the phase of Pattern Mining

In Seed Making, every single group generated in the clustering was written down into a specific format of ‘seed of pattern’ to summarize the context, problem and solution of each idea. Writing them down in a simple form, helped us avoid the duplication of ideas and leakage of important elements and also made the step of Structure Building much easier and faster. Structure building is a process of figuring out the whole picture of ‘good practices of teachers for active learning’ from the similarities and relations among the 46 patterns (Figure 5). It starts with a bottom-up approach; however, it is also important to consider the readers’ perspectives, such as readability and the heuristic level of each pattern. In the end, three main categories—A, B and C — were generated.

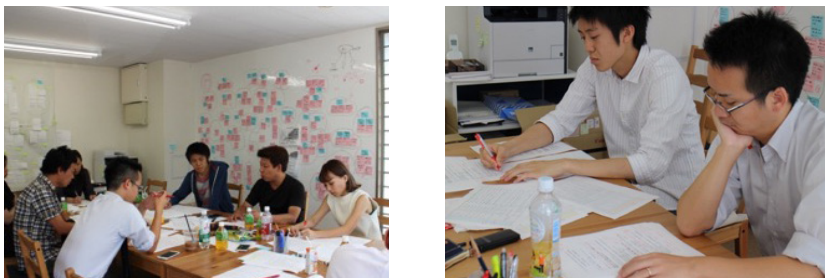


Figure 5: Structure building in the phase of pattern mining

2.2. Pattern Writing

Pattern writing is the next phase of creating a pattern language, where we wrote the full description of seed of pattern; context, problem, force, solution, action and consequence. In this phase, it is necessary to consider the positions of every single pattern in the whole picture, as well as what was discussed in the Mining Dialogue.

In pattern review, we brushed up the patterns written by individual writers in a group discussion (Figure 6). All the patterns should be looked at from different perspectives to eliminate any misunderstanding and improve the quality of the description. Sometimes it is necessary to reconsider the relationships and positions of patterns and re-structure them. In fact, this phase of revising and correcting were repeated over and over again, to make our patterns reach the expected level of quality.



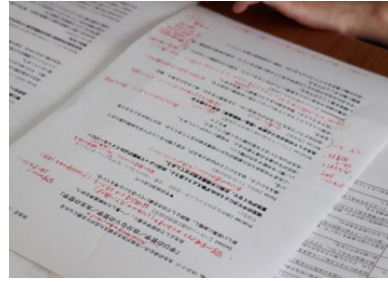


Figure 6: Pattern review in the phase of pattern writing

2.3. Pattern Symbolizing

Pattern symbolizing is the last phase of creating a pattern language and it includes pattern naming and pattern illustration to symbolically express the patterns (Figure 7). This process is still explorative and some contents of the patterns could be further improved in this phase since the essence of patterns has to be reconsidered to draw symbolic illustrations. Active learning patterns for teachers were finally completed with the designed booklet and cards.







Figure 7: Pattern Illustrating in the phase of pattern symbolizing






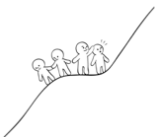

3. Patterns

Active Learning Patterns for Teachers consists of three different categories: (A) Identify the seeds of curiosity, help them grow, (B) Lift them up to the next level, and (C) Enhance each other, keep changing. In this section, we introduce the patterns in these three categories.

3.1. (A) Identify the Seeds of Curiosity, Help Them Grow

The first category consists of the following pattern groups; ‘Make the learner-centered class’ ‘Open one’s heart’ ‘Find out the seeds of curiosity’ ‘Feel the fun of broadening’ and ‘Make a connection between learning and oneself’. These categories summarize the basic ideas for the education with active learning and each of them consists of three patterns for the better practices of teachers. For example, in order to ‘make the learner-centered class’, the following patterns are necessary; ‘Active learner’, ‘Standing on the same side’ and ‘Growth in the long run’. Table 1 shows all the 15 patterns in the category (A) Identify the seeds of curiosity, help them grow.

A. IDENTIFY THE SEEDS OF CURIOSITY, HELP THEM GROW			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
A1	Active learner		You want your students to learn things more actively. In this context, students will however keep expecting teachers to tell them what to do, as long as you believe that you are at the center of the class, organizing everything for them. Therefore, create an environment which encourages students to recognize important things to learn and try to take action by themselves.
A2	Standing on the same side		You expect your students to learn things more actively. In this context, students are likely to expect their teachers to tell them a correct answer, without trying to work out a solution by themselves. Therefore, you have to stand on the same side as your students and design a class in such a way as if you’re trying to figure out the answers together.
A3	Growth in the long run		You want your students to acquire essential skills to live well in the future society. In this context, it might not be easy for teachers to focus on the training for long-term results, especially when they have to show some visible results of their teaching in the coming exams and so on. Therefore, find out an ability which would be very important for students’ future, share its significance with their parents and incorporate it into the class activities and the assessments.
A4	Everyday talk		You want to know more about your students. In this context, however, talking about the class during the break time may not help you so much to understand your students. Therefore, enjoy the conversation with your students, in the way you usually talk with the people who you are personally interested in.

A5	Friendly neighbors		You want to design a class in which students influence each other to improve themselves. In this context, it might be difficult for some students to express themselves in class when they worry too much about what other people would think. Therefore, create opportunities for students to gradually build good relationships with each other to be able to feel relaxed to talk about themselves.
A6	Natural Response		You expect your students to concentrate on the class and learn things more deeply. In this context, students could easily lose their concentration, especially when they are supposed to sit still in the chair, keep quiet and just listen to the teachers. Therefore, create some activities for students to talk and move actively in class and let them feel free to express their physical and psychological reactions.
A7	Signs of Interest		You want to figure out what actually interests the students. In this context,, you may simply ask your students about their current interests, but it is sometimes difficult even for them to understand their preference and express it in their own words. Therefore, give attention to the emotional changes in your students during the class and ask them later on why they reacted strongly on a specific topic or activity.
A8	Curiosity Digging		You want students to enjoy learning. In this context, students may get a negative impression about learning, if they are always asked to study different subjects thoroughly and get rid of all the weak points by studying harder. Therefore, create opportunities for them to learn about things which they are truly interested in, in order to let them experience the real fun of learning.
A9	Visualizing Ideas		You want to support your students to deepen their own ideas. In this context, however, as long as students keep their ideas in their own mind, it would be difficult to deepen and develop these ideas because teachers cannot easily support this process. Therefore, create opportunities for students to output their ideas in various ways.
A10	Good and Better		You are going to make some comments on what students have done. In this context, students may get demotivated if you simply praise them with lenient criteria or you just strictly point out the weaknesses. Therefore, make sure that you first point out some good parts of what they have done and then tell them the points which could be improved.
A11	Upgraded Perspectives		Students have something they are curious about or some challenges they have in their lives. In this context, however, in their processes of exploring what they are interested in, they might get stuck on some problems or easily lose their enthusiasm about it. Therefore, show them other possibilities to develop what they are currently interested in, or find some connection with something else from different perspectives.













A12	Links for Discovery		You expect your students to experience the real fun of learning. In this context, it might be difficult for students to keep motivated if learning means only obtaining knowledge and becoming able to solve problems on the exams. Therefore, create opportunities for students to understand the phenomenon in the society using the knowledge they just gained from the class and let them experience how the networks of different knowledge could bring them new discoveries.
A13	Position Mapping		You want your students to learn something more deeply. In this context, they tend to be passive learners who just keep studying what is provided in class, if they do not know the significance and the goal of what they are currently studying about. Therefore, show them the position of what they are currently learning about, in the wide range of studies.
A14	Underlying Intentions		You expect your students to maximize their opportunities of learning. In this context, however, they cannot effectively conduct any activities or tasks unless they get the point of doing them. Therefore, tell the students about the point of your class and the purpose of every assignments.
A15	Future Reflection		You expect your students to think about what to learn and how to learn, for their own future. In this context, things would not be effectively learned if students did not know why they are important to them. Therefore, talk with the students about their future, encourage them to think what skills they need and how they should acquire them.




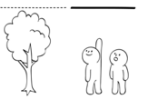


Table 1: Patterns in the category (A) Identify the Seeds of Curiosity, Help Them Grow

3.2. (B) Lift Them up to the Next Level

The next category consists of the following pattern groups; ‘Get the power to change’ ‘Create opportunities to go forward’ ‘Broaden the current world’ ‘Challenge yourself to go beyond’ and ‘Keep improving’. These are for teachers who support students to keep being active learners. Table 2 shows the patterns in the category of (B) Lift Them up to the Next Level.

B. LIFT THEM UP TO THE NEXT LEVEL			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
B1	Learning How to Learn		You expect your students to become life-long learners. In this context, however, it is not possible for you to support the students to learn something outside of school or after their graduation. Therefore, keep in mind that school is the place for students to learn ‘how to learn’, and try to improve the students’ skills for active learning.

B2	Questioning Skills		You want your students to think for themselves to solve a problem. In this context, however, students cannot develop their ability to think about something deeply and their opinions may be easily swayed, if they just keep trusting the information provided. Therefore, encourage students to raise a lot of questions about various phenomena and motivate them to want to know about the things in the world.
B3	Persistent Efforts		There is specific knowledge and certain skills that students need to acquire. In this context, however, students will not develop their abilities to learn from a failure if they keep being evaluated by a single exam. Therefore, provide assignments which allow students to start all over again, by asking their friends for advice and improving the way to tackle the problem.
B4	Attractive Entrance		Some students are not willing to study. In this context, they tend to get more de-motivated if you try to teach them enthusiastically or talk about the significance of learning. Therefore, set a clear goal to achieve, start the class with something fun for students and lead them to get them into the mood for learning.
B5	Easier Steps		You want every student to try to complete the assignment. In this context, however, some students easily give up trying, especially when there are too many things to memorize and when the tasks seem too hard for them. Therefore, keep the goal of the assignment as it is, but try to make the questions sound easier for students to keep motivated.
B6	Several Ways to Join		You want your students to make use of the opportunities, such as class activities and school events, to improve themselves. In this context, some students are willing to participate in school events and class activities, whereas others miss on such opportunities to grow. Therefore, set different ways to participate in an event, so that it is easier for more students to join it.
B7	Tools for Exploration		Students are about to start explorative activities. In this context, if you let students decide everything by themselves, they may not be able to go beyond what they can already do. Therefore, make it clear what students should learn from the activities and provide them any means, method or information if necessary.
B8	Experience of Ideas		You are teaching students a new idea. In this context, ideas taught in class will never become a useful knowledge for students, if they keep trying to memorize them for exams. Therefore, create an opportunity for them to actually experience the idea you have taught in class.

B9	Positive Confusion		You expect your students to learn things in more active way. In this context, students would not get motivated to study more, if the class is too strictly organized, or if they feel they could understand everything in the class. Therefore, ask students a question at the end of the class, which would make them keep thinking about what they learned.
B10	Ignition to Challenge		You want your students to go beyond what they are today. In this context, if you let your students set up their own goals and problems, they tend to stay in what they can already do today and, therefore, it would be difficult for them to make a rapid progress. Therefore, draw out the motivation of students, by setting a problem which would be solved with a fair amount of effort, and keep reminding them of the value of challenging themselves.
B11	Chance to Show Off		Students are conducting a project or another activity. In this context, they would not get motivated to strive for better quality of the output if they were only presenting it in class. Therefore, make an opportunity for students to present their project in front of external audiences and get them motivated to polish up the outputs.
B12	Quality Borderline		Students are conducting their own projects. In this context, it is difficult for them to imagine which level of quality is required to achieve their own goals. Therefore, show them the expected level of the output quality by using examples.
B13	Decision-Making Experience		You expect your students to open the way to their own future. In this context, they will not learn to make important decisions themselves if they keep following somebody else's decisions. Therefore, give them a lot of opportunities to make their own decisions and learn from the results.
B14	Food for Change		You expect your students to be positive about receiving comments or opinions from others and to try to learn things from them and improve themselves. In this context, they tend to take the comments from others as criticisms and be afraid of expressing themselves. Therefore, support the students and provide positive experiences of having different opinions or points of view and let them understand how these differences could bring them new discoveries or opportunities to improve themselves.





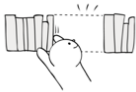






B15	Reflective Dialogue		You expect your students to learn things from their own activities or experiences and develop their practices by themselves. In this context, independent reflection of activities may not bring them any deep insight about the points to improve and possibilities to develop. Therefore, let them have a dialogue with others to look back on their projects from more extensive points of view, so that they can learn more from their own experiences.
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Table 2: Patterns in the category (B) Lift Them up to the Next Level

3.3. (C) Enhance Each Other, Keep Changing

The last category of patterns are for teachers to 'Think about the authentic roles of teachers', 'Change the focus', 'Collaborate with students', 'Make the learning active and attractive' and 'Enhance each other with other teachers'. These patterns explain how teachers can keep improving their practices. Table 3 shows the patterns in the category of (C) Enhance Each Other, Keep Changing.

C. ENHANCE EACH OTHER, KEEP CHANGING			
No.	Pattern Name	Pattern Illustration	Context, Problem and Solution
C1	Learning Teacher		You want to provide students with a better education. In this context, however, because your daily tasks take first priority, there is not enough time for yourself to gain new knowledge or learn new ways of teaching. Therefore, keep in mind that it is important to get opportunities to learn new stuff and keep challenging yourself, in order to improve the quality of your teaching.
C2	Connection to the World		You want your students to get enough skills to live actively in the future society. In this context, the goal of learning in the traditional system is for students to receive good evaluation on the performance at school. Therefore, talk about the wider world beyond the classroom, pose a question and let students learn things in the connection with the actual society.
C3	Teaching Principles		You want to provide students with a better education. In this context, the traditional educational system is not always flexible enough to adapt to the fast-changing society. Therefore, figure out the abilities or skills which will be required in the future society and share your educational principles with your students, their parents and your colleagues.

C4	Room for Trials		You want to develop a new way of teaching for the active learning of students. In this context, there are already too many things to teach and there is not enough time to teach additional things in class. Therefore, capture the whole picture of the teaching curriculum provided, order your teaching priorities and focus on what you really have to teach in class, so that you can spare time for additional challenges.
C5	Passionate Topics		You want to make your class more exciting and attractive. In this context, if you keep teaching the same subject in the same way every year, your class might be boring both for you and your students. Therefore, get excited about the material yourself first, by exploring some topics which you are currently curious about.
C6	Try First		You want to try a new way of teaching. In this context, you may be afraid of making a mistake, hesitate to use new tools and just repeat the same way of teaching. Therefore, if you think it is necessary for students, try first and later think about how to improve it.
C7	Spontaneous Adjustments		You want to design a class which draws out the students' active learning. In this context, however, when some students are not interested in what you have prepared, or when they unexpected challenges, the class does not go as you planned. Therefore, make a solid plan for the core part of teaching, leave the other parts flexible, so that you can organize the lessons in response to the actual reactions of the students.
C8	Stock of Techniques		You want to design a class more flexibly in response to the students' reactions. In this context, the class may end up being unorganized. Therefore, have ready as many different means, tips or techniques of teaching as possible, to be able to choose the most appropriate of them depending on the class goal and the actual reactions of students.
C9	Collaborative Improvement		Students seem to be not very interested in the lesson. In this context, they might not be satisfied with how the class is going on and therefore do not actively participate in the class. Therefore, tell the students honestly about your intention and struggles in the class, ask their opinions and improve the class together through continuous dialogue.
C10	Change of Scenery		You are about to trying a new way of teaching. In this context, even if you have new contents or means to teach, students would not learn a lot from the class if their attitude towards learning remains the same. Therefore, choose another place which will be more appropriate for its contents and means, without being too strict about following the customs in school.






C11	Unexpected Contents		Unexpected things happened during a class. In this context, you may get irritated if the class does not go as well as you planned and it makes students uncomfortable as well. Therefore, take the unexpected event in a positive way, by welcoming it as a great opportunity to make the class unforgettable for students.
C12	Editor for Learning		Your class has some individual or group projects for students. In this context, students may not be able to learn things deeply enough from the independent work, although it is effective in the way of motivating them to learn. Therefore, take a time in the class to visualize the ideas generated in the individual or group works, 'edit' them to show what they actually mean and bring the students a deeper understanding of the subject.
C13	Case-Study Cafe		Every teacher in your school has different styles of teaching. In this context, it may be difficult for you to keep finding new ways of teaching, because you sometimes feel the limitation of generating new ideas and analyzing them for a better education and lose confidence in your style of teaching. Therefore, make a time to talk with other teachers about the different ways of teaching, the roles of teachers and so on.
C14	Inter-Subject Collaboration		You want your students to have fun while learning the subject you are teaching about. In this context, although you want to teach about your subject in the connection with other subjects, you don't have enough time to prepare for teaching something beyond your specialty. Therefore, ask other teachers for a help and show the connection between what you teach and material from the other subjects.
C15	Diversity of Strengths		You want to make your school more attractive. In this context, it is hard for teachers to work independently to manage the tasks they have in school, as they all have their own strengths and weaknesses. Therefore, emphasize the importance of different personalities and specialties of individual teachers and create a big team various teachers have different strengths.

Table 3: Patterns in the category (C) Enhance Each Other, Keep Changing

4. Tools for Utilizing Patterns

In order to make the introduction and application of active learning patterns to the actual teaching environments easier, we outputted it in three different ways; 'ALP Assessment' for teachers to self-assess how many tips they have already put into practice, 'ALP cards' for them to share their experiences with others in the workshops and 'ALP booklet' which describes every single pattern with some examples.

4.1. ALP Assessment

ALP assessment is a tool for teachers to check how many patterns for Active Learning they have already put into practice and evaluate themselves. The radar chart visualizes the whole picture of one's teaching experiences in terms of patterns (Figure 8). It clearly tells you the aspects that you have already achieved as well as some weaknesses to improve, and therefore, helps you to set a clear goal for a better education with the Active Learning approach. Furthermore, it is also effective as an organizational self-assessment tool for a school to improve its teaching environment as a whole community.

The results of the ALP assessment totally depend on how individuals evaluate themselves (Figure 9), and cannot simply be compared with others. However, it helps them visualize the balance of their own teaching style or some features of each school, and encourages the teachers to reflect on themselves and think about how they could improve their ways of teaching.

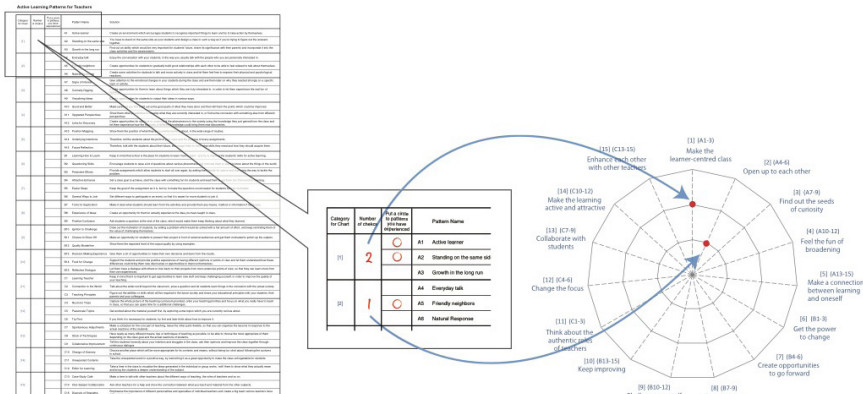


Figure 8: ALP Assessment

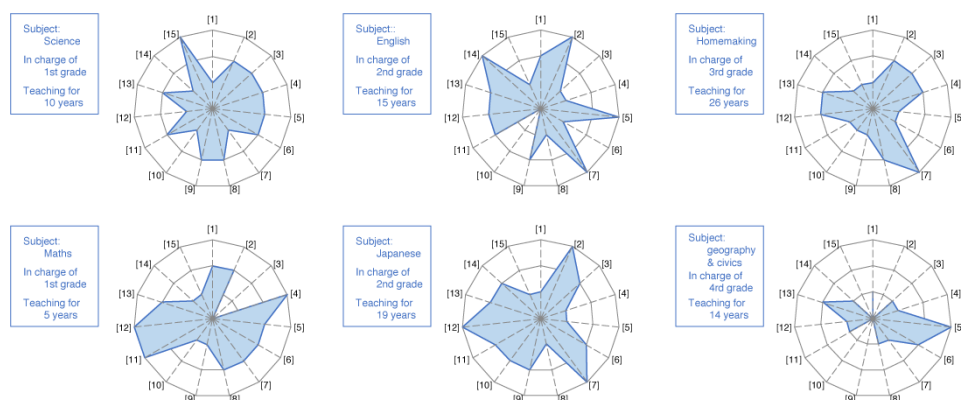


Figure 9: Diversity in ALP Assessment

4.2. ALP Cards

Every single ALP Card shows a Pattern Name and its symbolic Illustration, and states the key sentence of Context, Problem and Solution (Figure 10). This set of cards can be most effectively used in the Dialogue Workshop, where teachers share their own experiences with others, and learn from each other. Although it is usually difficult for teachers to make a comment on the other classes, this pattern language does not refer to any specific subject, and, therefore, ALP Cards can help them share opinions beyond one's specialities. They can also help you ask someone else to tell you the experiences with Active Learning. It helps teachers to talk about things that they already know about but find it difficult to explain.

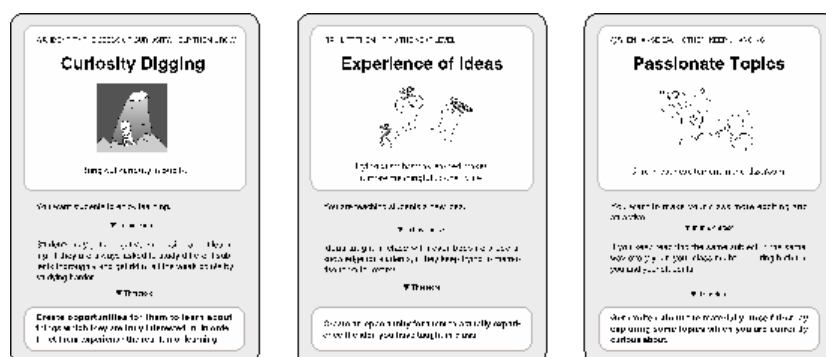


Figure 10: ALP Cards

4.3. ALP Booklet

ALP Booklet has a full description of all the patterns (Figure 11), whereas ALP Assessment and ALP Cards show only the quick overview of each pattern. Therefore, ALP Booklet is useful especially when you want to know more details about the patterns. In addition, this booklet introduces some experiences of teachers from the Mining Dialogue. These actual experiences would make the abstract patterns sound more fresh and real. In a nutshell, this booklet works as a dictionary for teachers to look up some patterns, and also as a reference book to think about their own ways of applying them.

5. Process of Utilizing Patterns

For the most effective application of Active Learning Patterns, ALP Assessment, ALP Cards and ALP Booklet should be used according to their intended purpose (Figure 12). For example, teachers could use the ALP Assessment to evaluate their current teaching style, and share their experiences with others to learn from each other in the workshop, with the help of ALP Cards. In this way, they would be able to imagine how to apply the patterns in their own classrooms. Even if there are some patterns which have never been experienced by anyone in the workshop, teachers can at least read the ALP Booklet to discuss how to introduce these patterns to their own school environment.


<p>Collaborative Improvement</p> <p>It is not just teachers, who can design the class</p> 	<p>Students seem to be not very interested in the lesson.</p> <p>▼ In this context</p> <p>They might be not satisfied with the way the class is organized, and therefore do not actively participate in the class activities. Teachers who sensed such atmosphere in class tend to be distracted and become unable to concentrate on the lecture. The situation gets even worse if you try to solve it in a strange way, such as scolding.</p> <p>▼ Therefore</p> <p>Tell your students honestly about your feelings and struggles in the class, ask for their opinions, and discuss with them to improve the class. You should first state that you want to improve the situation at the moment, ask students what they think about the problem, and then make time to discuss it with students. For example, if you are not sure whether your teaching plan is appropriate for your students or not, you should directly ask for their opinions to find the best way to proceed.</p> <p>▼ As a result</p> <p>Participating in the discussion to improve their own learning environment will not only improve the quality of class itself, but will also become a good experience for students. In addition, the fact that teachers and students know each other well, will enable both of them to be more relaxed and concentrate on the lectures. This attitude of teachers who are trying to improve the class with students, is very important to earn their trust and create a collaborative relationship with them.</p>
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Figure 11: Pattern Description of the ALP Booklet

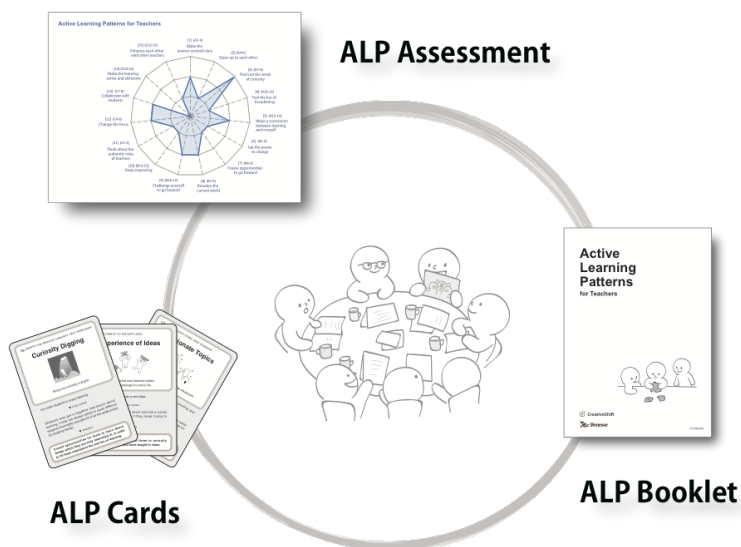


Figure 12: Utilising Process with ALP Assessment, Booklet and Cards

Figure 13 and 14 show actual applications of Active Learning Patterns for Teachers in the training session of teachers in a Japanese high school. Figure 15 shows the workshop carried out in an educational conference in Japan. Upper photos are from the workshop in which the participants walked around the room to talk with someone else to share their own experiences, and lower photos are from the Dialogue Workshop with ALP Cards.

We got the following feedback from the ALP users. These responses were obtained in Japanese, summarized, and translated into English for this paper.

- » It became much easier to have a dialogue with others because all the important tips are clearly stated.
- » Patterns are very effective to evaluate my own way of teaching and learn from others through a dialogue.
- » I could think, talk, and ask about things I was not aware of.
- » I became confident with my way of teaching, as I could get some positive feedback from others.
- » The dialogue with others brought me some new discoveries and opened ways to challenge myself.

- » I learned some tips in the ALP training, and could apply them to the actual teaching plan.
- » The feedback I got from other teachers on my teaching style showed me some new aspects of the ALP.
- » We used ALP Cards in the meeting and were able to identify some problems in our school.



Figure 13: Training session for Teachers in Yaeyama Highschool (Okinawa, Japan)



Figure 14: Training session for Teachers in Seigakuin Junior & Senior Highschool (Tokyo, Japan)





Figure 15: Dialogue workshop in an educational conference (Kanagawa, Japan)

6. Conclusion

In this paper, we have presented the Active Learning Patterns for Teachers, which describe the best practices of teachers who support the students to become active learners. The pattern language was created from scratch based on the Mining Dialogue with teachers in Japan. There are, however, many patterns proposed as Pedagogical Patterns or Educational Patterns in the pattern conferences, for example, Bergin, et al. (2015), Köppe & Schalken-Pinkster (2013), Köppe & Portier (2014), Köppe, C., et al. (2015a, 2015b, 2015c), Pedagogical Patterns Editorial Board (2012). We need to compare and clarify the similarities and differences between them in our future work.

Furthermore, we created many patterns for learners, in addition to the pattern language for teachers presented in this paper: specifically, Learning Patterns (Iba & Iba Lab, 2014a), Presentation Patterns (Iba & Iba Lab, 2014b) and Collaboration Patterns (Iba & Iba Lab, 2014c). There should be many connections between patterns for learners and patterns for teachers, which will also be the focus of our future work.

Finally, although the introduction and application of this pattern language to the actual teaching environments is still in the first stage, we have started distributing it to teachers for free. We are also planning some events for teachers to experience different ways of utilizing this pattern language. Through these activities, we expect teachers to make effective use of this pattern language in their daily practice in the classroom and for better communication with their colleagues, in order to enable the bigger improvements in the current educational systems.

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