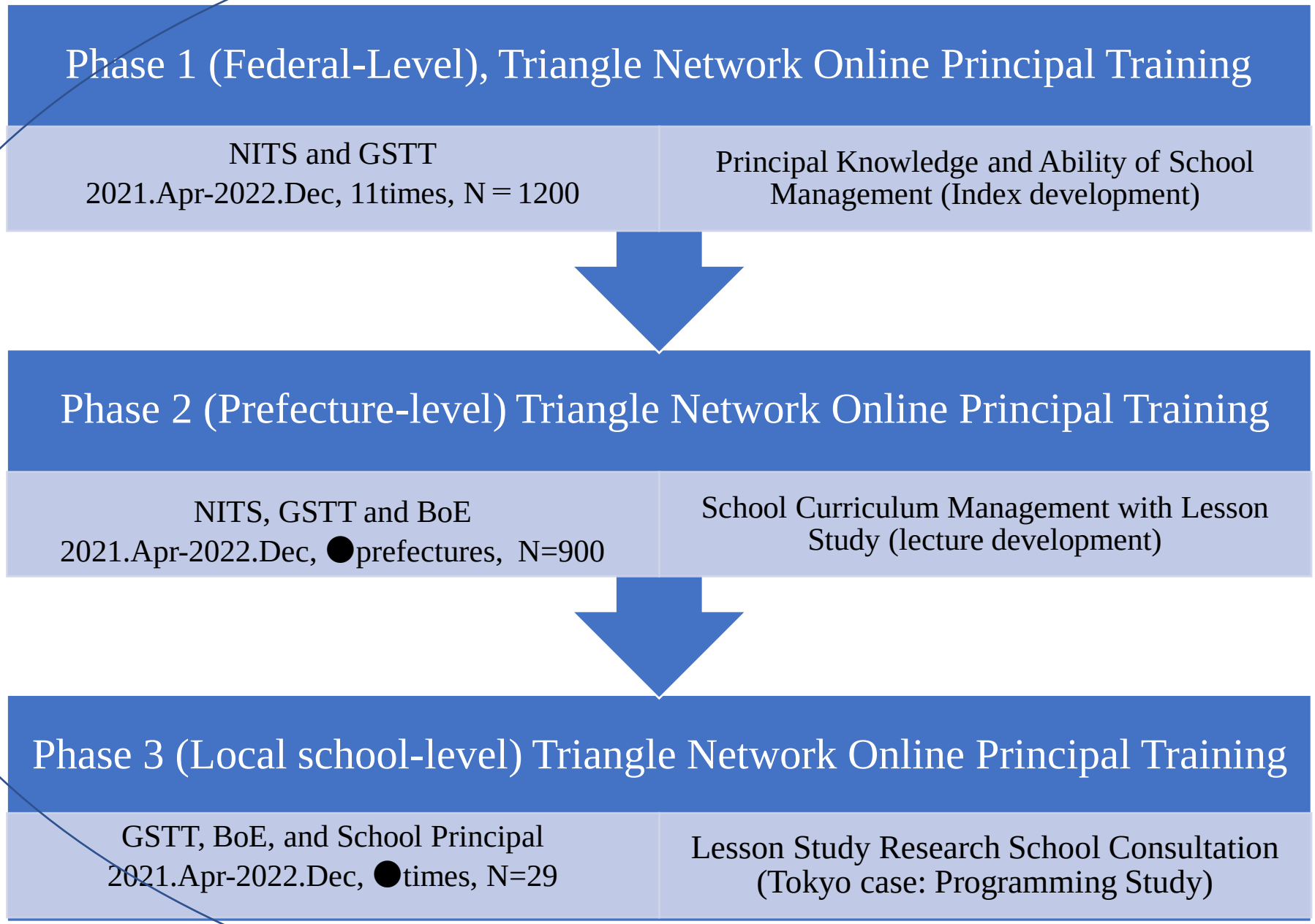
Lesson study and School Curriculum Management with the perspective of Intellectual Capital

SCM 1st circle	SCM 1st circle	SCM 2nd circle	SCM 2nd circle	SCM 3rd circle	SCM 3rd circle
Lesson study (Teacher's PDCA process)	**Lesson study (Student's learning study)**	**Human capital (Intellectual Capital)**	**Structural capital (Intellectual Capital)**	**Relational capital (Intellectual Capital)**	**Relational capital (Intellectual Capital)**
Curriculum/instructional goal development (Lesson plan 1)	Student learning skills Individual /peer /group /whole classroom levels	Leadership competencies	School policy and procedures	School image and reputation	Teacher Learning and Online Pedagogy
Curriculum/instructional content development (Lesson plan 2)	Cross-curricular from Service-Learning activities Social contribution	Management skills	Operational mechanisms	Relationship with stakeholders	Triangle Network Online (Principal) Training Phase 1: Federal-Level
Curriculum/instructional method development (Lesson implementation)	Problem-solving skills Decision-making skills Critical thinking skills	Professional skills	School culture	External relationship	Triangle Network Online (Principal) Training Phase 2: Prefecture-level
Curriculum/instructional evaluation development (Lesson reflection & improvement)	Active Learning (proactive, interactive, and authentic learning)	Teaching competencies	ICT Infrastructure		Triangle Network Online (Principal) Training Phase 3: Local school-level
Understanding Student learning interests & Student life guidance	Student's programming thinking with ICT tools				

(Kuramoto modified Eric Cheng, Managing School Capital for Strategic Development, 2022, p207.)



National Curriculum Standard

National Institute for School Teachers and Staff Development（NITS）

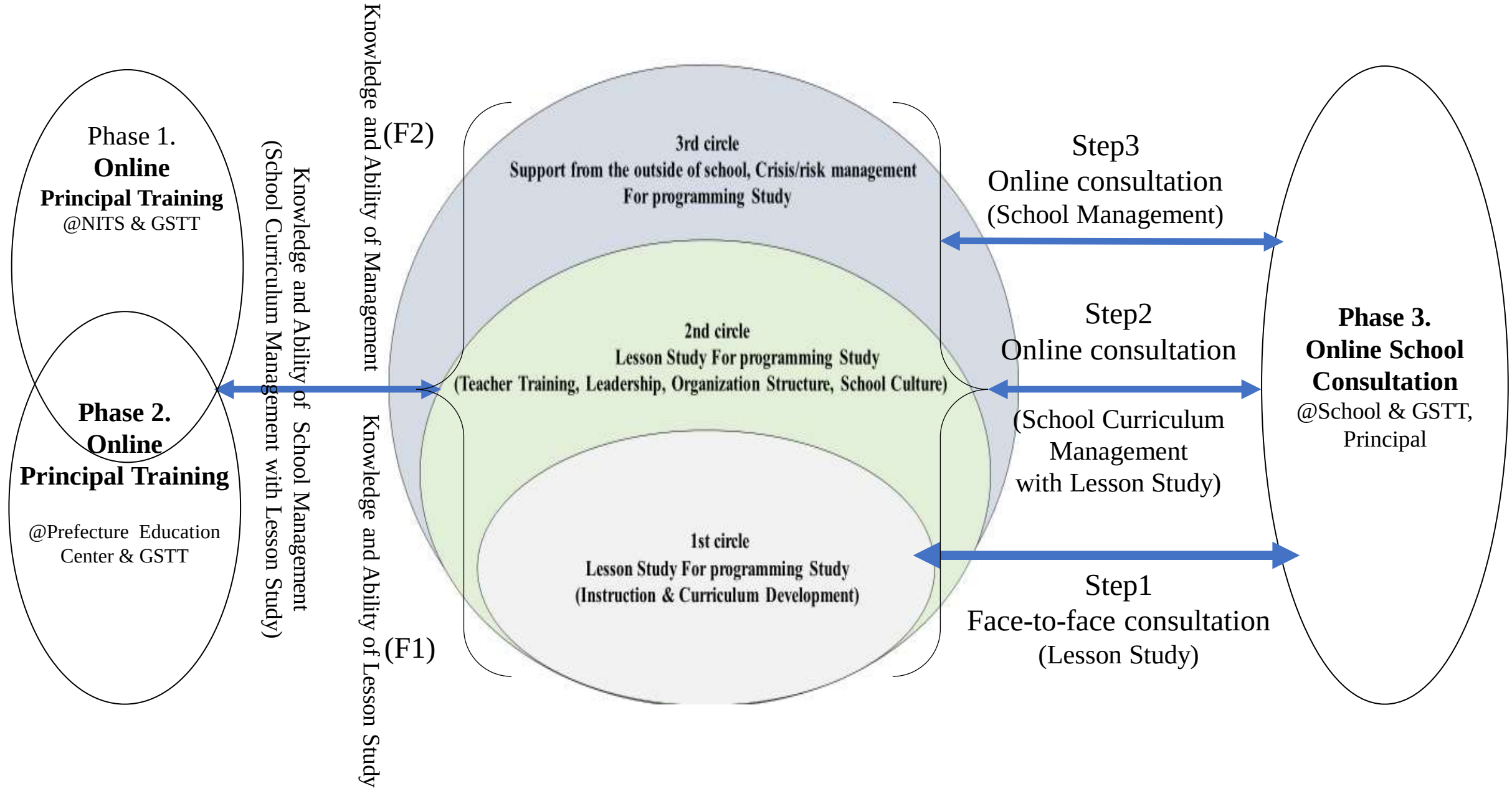
Graduate Schools for Teacher Training (GSTT)

Board of Education (BoE)

The Structure of Triangle Network Principal Training and National Curriculum Standard

		[Principal]			[Principal]
Knowledge and Ability of Lesson Study	Understanding of contents of specialized subjects	guiding teachers in school for the improvement in class teaching to further promote specialty and to reduce overall school problems	**Knowledge and Ability of Management**	Human resources development and leadership	playing a role to promote effective development in human resources, with consideration of the importance of human resources development, according to individual teachers' experiences and characteristics
	Comprehension of actual states and setting up goals (Plan 1)	supervising the improvement of teaching materials and tools based on their specialized knowledge		Cooperation as a team with co-workers	understanding individual teachers' roles and capacities, promoting collaborative systems and establishing measures for systems which collaborate with families, communities and related organizations
	Preparation of teaching plan and assessment plan (Plan 2)	guiding not only with clarifying meaning of preparation of teaching plans based on individual school policies, but also with comprehension of problems in individual school teaching and for the improvement of teaching plans		Cooperation and collaboration with parents, gradians and institutions outside school (establishment of communities with the school as the core)	play a role to enhance the system with establishment in a cooperative and collaborative network
	Perceptions of teaching skills and forms (Plan 3)	playing a role not only of comprehension of actual states of individual teachers, but also of guidance for the improvement of class teaching		Taking advantage of resources (human, things, events, information, time and funds)	play a role to effectively utilize available resources which they have in/outside school, to promote systems and to provide appropriate guidance to other teachers
	Guidance and assessment during class (Do)	play a role to appropriately evaluate class lessons which each teacher performs and to motivate teachers with instructions		Risk managements and safety management	play a role to establish cooperative systems with schools, families, communities and various related organizations regarding risk management and safety management in the school, to determine and conduct appropriate countermeasures in emergency, to comprehend the management system and to deal with the aftermath
	Check and Action	play a role in presenting and conducting concrete schemes regarding in-school systems for the improvement of class lessons		Team School: System correspondence toward problems of education at present (Ex, ICT, ESD)	always being cautious about the latest information to enforce systematic correspondence with the school regarding problems in education at present

Knowledge and Ability in School Management (School Curriculum Management with Lesson Study)



Figure●. Online consultation for School Curriculum Management with Lesson Study for Programming Thinking Study

Knowledge and Ability of School Management

(School Curriculum Management with Lesson Study)

Knowledge and Ability of Management

Knowledge and Ability of Lesson Study

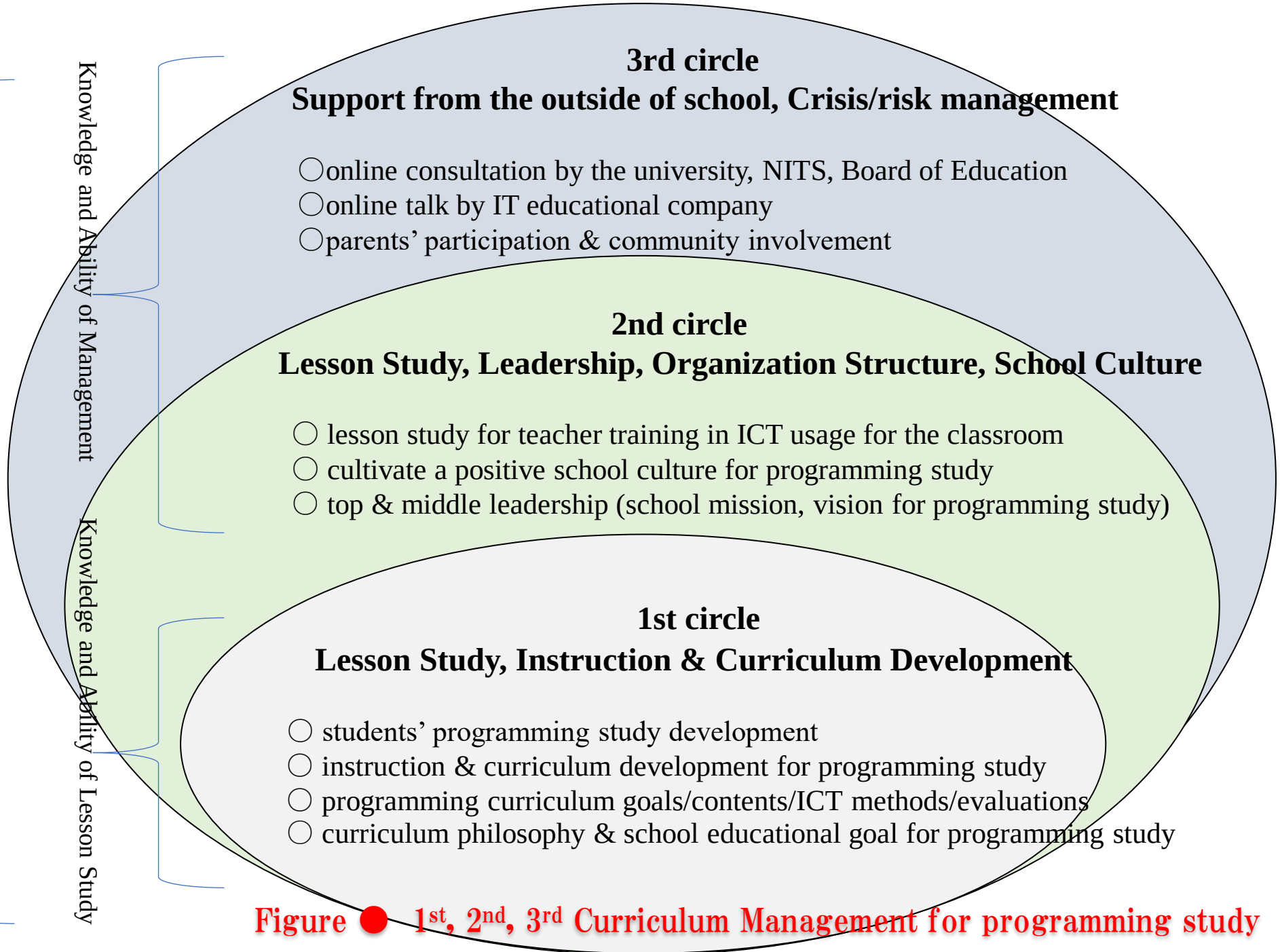
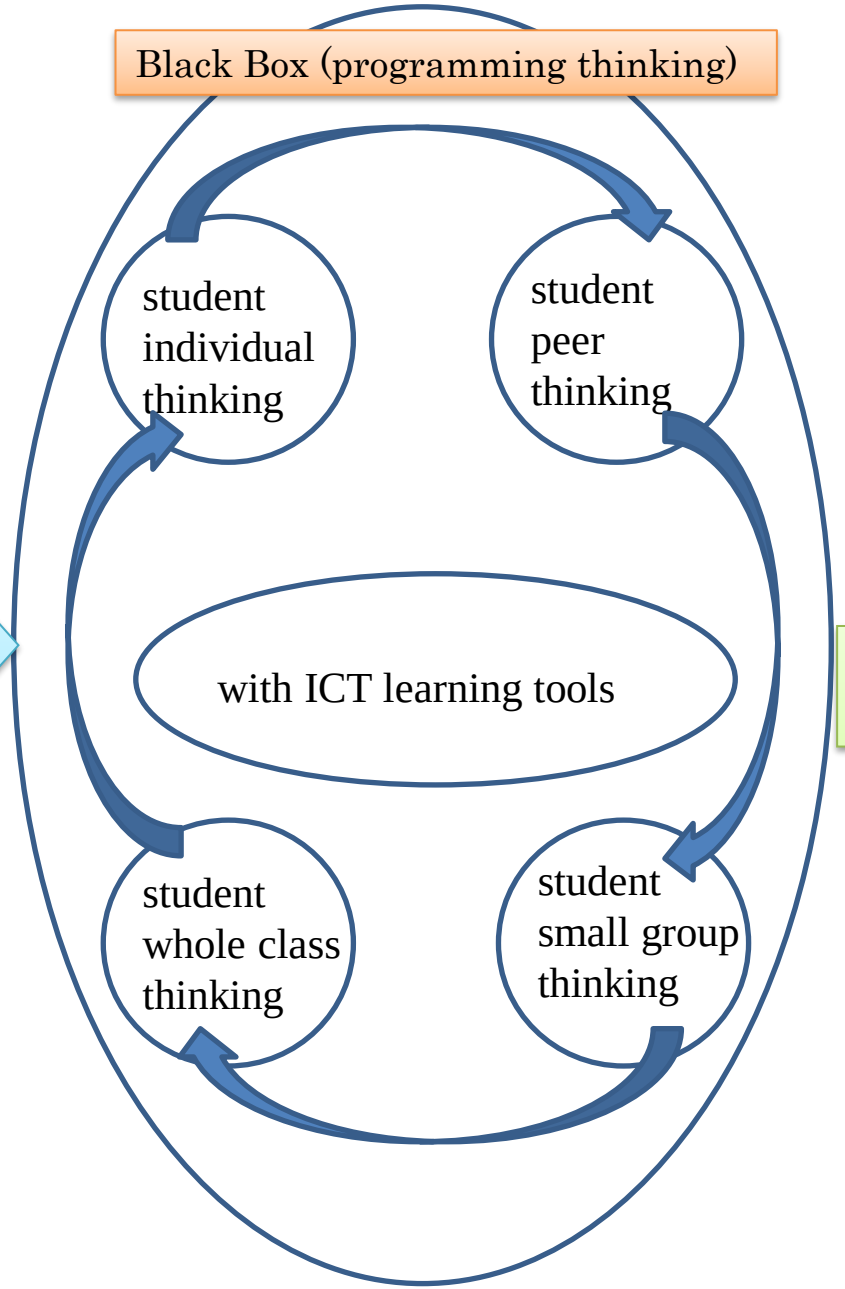


Figure ● 1st, 2nd, 3rd Curriculum Management for programming study

Input(before the lesson)

Student 1	Student 2	Student 3
I think that Okazaki City should directly let citizens know that they should have at least a 3-day food supply through posters and fliers.	I would like to make friends with the people of shops selling food so that we may be able to get food from them.	Looking at the hardened glass of cake shops, I came up with the idea that all glass should be changed to hardened glass.
Student 4	Student 5	Student 6
Because citizens do not know what the disaster-prevention department is preparing what it desires from them. It should let them know about its' activity and what it wants them to do.	Citizens think they are safe because the ground of Okazaki City is stable enough, so they are depending upon the city. Therefore, it is better to instruct them to prepare by themselves.	Okazaki City should increase the preservation of food in its disaster prevention warehouse, and at the same time, it should strictly instruct them that what is the most important is to protect themselves.
Student 7	Student 8	Student 9
I would like to let them know that it is important that the cooperation between the city and citizens, also the cooperation among citizens are important in order to overcome the difficulties.	It is important that Okazaki City appeals to citizens to make preparation of emergency goods such as food and first aid.	I know that many citizens are misunderstanding Okazaki City's activities, so that it is important to let them know its' activities.
Student 10	Student 11	Student 12
Some citizens consider that they can get food from the city in an emergency. However, I think each citizen should prepare it by themselves.	"I think cooperation is important, such as appealing to citizens, not only depending on the city, but they should find what they can do by themselves and also asking shops for cooperation."	Because there are some citizens who are not prepared themselves, I am worried if water and food would become short in an emergency.

Black Box (programming thinking)



Output (after the lesson)

Student 1	Student 2	Student 3
Okazaki City has prepared enough for disaster. However, it has its own limits. "So it is necessary to appeal to citizens to increase the preservation of water and food for each family."	"Recently, as there is no big earthquake in Okazaki City, many citizens are not worried about disasters. So the city should appeal to them through workshops on earthquakes."	"In order to make buildings safer for the occasion of earthquakes, it is important to set up the shop decorations and lighting equipment in shops, thinking what will happen when earthquake occurs."
Student 4	Student 5	Student 6
I am worried because there are many citizens who are not prepared with disaster prevention measures among those who were investigated.	I am relieved because I have heard that citizens are prepared to save their own lives, thinking of various things in the cases of emergency.	"Citizens and shop owners are worried about damage to buildings and falling goods, and they are trying to find the way to be relieved from them."
Student 7	Student 8	Student 9
I think citizens should be prepared themselves, so that they will be safe whenever an earthquake comes.	Since citizens do not know well about disaster prevention, it is desirable that citizens and shopworkers cooperate with each other with what they know and what they can do.	Since not so many citizens prepare first-aid boxes and other items, I think that the more food and other items should be increased in the disaster prevention warehouse.
Student 10	Student 11	Student 12
Since it was known that citizens did not know the fear of a tsunami by the investigation, I think that the Disaster Prevention Department should teach them about earthquakes and countermeasures for it.	Some citizens are misunderstanding that they can receive relief supplies in the super market, the City should inform them and instruct them to prepare themselves.	I want the city to increase shelters so that citizens can feel easy, and at the same time, they also should be prepared themselves.

The structure of programming thinking study (social study, 6th grade)

CONSIDERATIONS TO BE TAKEN IN DESIGNING LESSON PLANS

(1) When teaching subjects, learning activities that necessitate students to use essential and fundamental knowledge and skills should be emphasized. Language activities should be enhanced by preparing a solid linguistic environment to deepen students' understanding.

(2) When teaching subjects, emphasis should be placed on experiential and problem-solving-oriented learning, which necessitates students to use essential and fundamental knowledge and skills.

(3) When teaching subjects, effort should be made to include well-planned activities in which students can plan their learning and reflect upon what they have learned.

(4) Student guidance should be enhanced to cultivate trust between teachers and students and positive personal relationships among students.

(5) Systematic, organized career guidance should be carried out throughout the overall educational activities of schools to enable students to think about their ways of life and independently select a career.

(6) When teaching subjects, each school should improve teaching methods and learning systems: for example, individual or group-specific instruction, repetitive instruction, differentiated instruction according to the level of proficiency achievement, task-based learning activities according to the student's interest, instruction incorporating learning activities such as additional or advanced contents, and team-taught lessons where teachers work cooperatively together.

(7) For the benefit of students such as returnees from abroad, adaptation to school life should be promoted and guidance provided in such a way as to make the most of their experience in foreign countries.

(8) When teaching subjects, each school should improve learning activities so that students develop information ethics and become capable of utilizing information devices, such as computers and information and communications networks, such as audiovisual materials and teaching and learning devices.

(9) In addition to the positive evaluation of the strengths and the progress of the students, the process and results of teaching should be assessed to improve education, which would help improve students' motivation toward learning.

(10) To achieve the schools' objectives, each should strengthen collaborative relationships with students' homes and the local community. Furthermore, each school should provide students with opportunities for exchange and joint learning with disabled preschoolers, students, and opportunities for discussion with the elderly, etc., while seeking close ties and relationships with other junior high schools, elementary schools, high schools, and special needs schools.